DEPARTMENT OF DEFENSE

ANNUAL REPORT
FISCAL YEAR 1979

HAROLD BROWN
SECRETARY OF DEFENSE

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SECTION I

SUMMARY

Mr. Chairman and Members of the Committee:

The President requests a defense budget for FY 1979 which entails $126 billion in Total Obligational Authority (TOA) and $115.2 billion in outlays. The planned outlays will constitute a 3.5 percent real increase over the spending programmed for FY 1978.

The Long-Range Projections for defense contain a real increase in TOA of about 2.7 percent a year so that, by FY 1983, the defense budget will require TOA of $172.7 billion in then-year dollars and $140.3 billion measured in FY 1979 prices. Assuming normal patterns of economic growth over the five-year period, we estimate that defense outlays, as a percent of Gross National Product (GNP), will actually decline from 5.1 percent in FY 1979 to 4.8 percent in FY 1983. In FY 1964, the number was 8.2 percent; in FY 1954, it was 12 percent.

The body of my annual report explains in detail the defense policies and programs adopted by the Carter administration. In this summary and opening statement, I will focus on the main reasons for the proposed modest increases in real terms in the FY 1979 defense budget and long-range projections.

I. INTERNATIONAL TRENDS AND DEFENSE

The defense budget, as you know, is shaped by a number of factors. Not the least of these is the international environment. Certain features of that environment and our relationship with it are especially worth noting.

-- First, even though nearly 33 years have passed since the end of World War II, a number of territorial and other issues remain unresolved -- particularly in Africa and the Middle East. There is no recognized and stable status quo to which all nations -- or all the major nations, or most nations -- adhere.

-- Second, the United States is becoming increasingly dependent on this environment -- in trade, in raw materials, in energy, and in a broad range of political relationships.

-- Third, most of the international competition for power is conducted with peaceful instruments, and most international issues are resolved by peaceful means. But force, whether in the form of organized military power or of terrorism, continues to be a major factor in the resolution of international disputes. Military power has a substantial influence on the international attitudes of friends and adversaries during peace as well as in war.

-- Fourth, the relations between the United States and the Soviet Union continue to be marked by both competition and cooperation, with the attendant risk of conflict. However, there are opportunities to stabilize and perhaps to ease these relations -- especially through arms control agreements.

-- Fifth, where the competition between the two superpowers is non-military, the United States continues to enjoy a number of critical advantages: in industrial, agricultural, technological, and diplomatic strength; in the energy and enterprise of its citizens; in the appeal of our system -- its responsiveness and plain decency; and in the support of allies and other friends who genuinely share similar aspirations.

-- Sixth, the Soviet Union, by contrast, suffers from major internal handicaps -- economic, political, and social -- and these handicaps will probably increase with the decline already occurring in birth rates and about to occur in domestic energy supplies and rates of economic growth. The Soviets also suffer from a lack of genuinely committed allies, and they have been set back in their relations with the People's Republic of China (PRC), India, and parts of the Middle East. Nonetheless, despite these handicaps and setbacks, the Soviets have been acquiring military power comparable to that of the United States. By some measures they are ahead; by others they are behind. (Comparative military capability also depends on such factors as the geographic location of a conflict.)

-- Finally, while many trends and issues continue to develop independently of relations between the United States and the Soviet Union -- and require our attention and resources -- the Soviet Union remains our principal national security problem: not the only one but the biggest one.

We are negotiating (and must continue to negotiate) with the Soviets for specific, equitable and adequately verifiable arms control and disarmament agreements -- agreements that strengthen international stability, curb the arms competition, and reduce armaments: conventional as well as nuclear. We should seek to involve the Soviets constructively in a number of international activities -- social and economic, including non-strategic trade. We should encourage their cooperation in resolving international conflicts and reducing areas of tension that could lead to confrontation. To the degree that we can channel any United States - Soviet competition into non-military areas, we will be better off, especially considering our economic, social, and other advantages.

However, none of these efforts toward cooperation should cause us to minimize the American commitment to human rights, national independence, and democratic institutions -- or to collective security with our friends. Certainly they must not keep us, along with our allies, from offsetting Soviet military power in such vital areas as Western Europe.

The main objective of our collective security system must be the maintenance of an overall military balance with the Soviet Union no less favorable than the one that now exists. Deterrence and stability, not overbearing military power, are what we seek. To have them, and to be confident in them, we must be assured of a credible fighting capability.

The demands of such a capability are substantial. Over the past 15 years, Soviet defense spending has been gradually increasing; we estimate the average rate of increase, in real terms, at between three and four percent a year, roughly in line with growth in the Soviet GNP. For a substantial part of that same period (from FY 1964 to FY 1975), U.S. baseline budgets (with military retired pay and the incremental costs of the war in Southeast Asia excluded) have been declining in real terms. Only since FY 1976, has our defense budget been increasing in real terms. As a consequence, the Soviet defense effort now appears to exceed ours. The margin is a matter of judgment, and depends on whether the two programs are compared in rubles or dollars. Estimates of 20 percent to 40 percent for this excess appear reasonable.

On the other hand, we are fortunate in having prosperous and willing allies who can help counterbalance the Soviet effort. The Soviets are not so fortunate. Moreover, they have felt obliged to allocate up to about 20 percent of their total defense effort to the Far East and the PRC. These considerations are allowed for in our judgments on the proper size of the U.S. defense program. Nonetheless, if we and our allies are to keep pace with the Soviets and offset their military power, we must increase our own efforts.

In particular, an increasingly precarious conventional balance between NATO and the Warsaw Pact in Europe is a matter of serious concern. That is why we and our NATO allies, in May, 1977, recognized the need to raise our respective levels of defense spending by approximately three percent a year in real terms. That is also why we have already launched several major initiatives to cope with short term NATO vulnerabilities, develop long term and coordinated defense plans, and achieve a greater degree of alliance cooperation in the common defense. All of us, it is now acknowledged, must expand our responses to the Soviet military buildup.

The general magnitude of the Soviet defense effort, and the continued uncertainties in international relations, account to a considerable extent for the size and composition of the U.S. defense budget. But we do not seek to create a mirror-image of Soviet military capabilities. Instead, we strive to maintain the nuclear and conventional forces necessary to deter, or if necessary frustrate, possible Soviet military actions in areas of the world that are vital to us.

Because certain deficiencies threaten to develop in our posture as a result of the recent and diverging patterns of defense spending in the United States and the Soviet Union, we need increased resources to redress them. I will discuss our main concerns here. The details of our needs will be found in the remainder of the report.

II. THE STRATEGIC NUCLEAR FORCES

A strategic nuclear attack is the least likely military contingency we face. However, there is no task more vital than the maintenance of the strategic nuclear balance between the United States and the Soviet Union. In my judgment, a rough strategic nuclear equilibrium exists between the two superpowers at the present time. Neither country enjoys a military advantage; neither is in a position to exploit its nuclear capabilities for political ends. The situation is one of standoff or stalemate. Mutual strategic deterrence and essential equivalence are in effect.

This administration is determined to continue the current state of affairs. We would prefer to continue it through equitable and verifiable agreements for arms limitations and reductions, and I believe we are making progress in that direction through the Strategic Arms Limitation Talks (SALT). But we will maintain it by whatever means and resources are necessary. No one should have any doubts whatsoever on that score.

I stress this determination for two basic reasons. First, the strategic balance is not static; owing to a substantial and continuing Soviet effort, it is highly dynamic. Second, the problem of coping with this dynamism is complex and demanding; there is no easy, one-shot solution to it.

The United States has not been idle in this competition; we have programs underway to modernize each element of our TRIAD. However, all of us must recognize that the Soviets continue to fund a number of large, impressive and costly strategic programs to strengthen their offensive capabilities, their active defenses, and their passive defense system.

Exactly why the Soviets are pushing so hard to improve their strategic nuclear capabilities is uncertain. What is certain is that we cannot ignore their efforts or assume that they are motivated by considerations either of altruism or of pure deterrence.

My own view is that, for many years now, we have been at the point where a full-scale thermonuclear exchange between the United States and the Soviet Union would be a disaster of unprecedented proportions for both sides. Nothing I have learned during the past year has altered that conclusion. I also believe that any use of nuclear weapons by the two superpowers against one another -- whether tactical or strategic -- would carry a high risk -- though not the certainty -- of escalating the conflict to a full-scale thermonuclear exchange.

But if deterrence of nuclear war is our most fundamental defense objective -- and it surely is -- what counts is what Soviet civilian and military leaders believe. On that score, unfortunately, we face another uncertainty. What we see as sufficient for security may appear as quite inadequate to them. What would deter us might not deter them. What some of us consider credible as a deterrent, they may dismiss as a bluff.

Great caution and careful hedging are essential in the face of these uncertainties. Basically, they require us to insist on essential equivalence with the Soviet Union in strategic nuclear forces. Because of the stakes, no lesser requirement will do.

We do not propose to plan against total irrationality. Rather, the issue is how to make it clear to the Soviets that they cannot gain any military or political advantage from their strategic forces. Insistence on essential equivalence guards against any danger that the Soviets might be seen as superior -- even if the perception is not technically justified.

By essential equivalence, we mean the maintenance of conditions such that:

- Soviet strategic nuclear forces do not become usable instruments of political leverage, diplomatic coercion, or military advantage;

- nuclear stability, especially in a crisis, is maintained;

-- any advantages in force characteristics enjoyed by the Soviets are offset by U.S. advantages in other characteristics; and

-- the U.S. posture is not in fact, and is not seen as, inferior in performance to the strategic nuclear forces of the Soviet Union.

These conditions exist today, and our objective in the current SALT II negotiations is to maintain them in the future. But owing to the current and impending improvements in Soviet strategic offensive and defensive capabilities, we will have to continue our own effort -- primarily for increased research and development for the Missile-X (MX) Intercontinental Ballistic Missile (ICBM), development and some deployment of cruise missiles, deployment of the Mark 12A warhead, and introduction of the TRIDENT missiles and submarines.

III. THE GENERAL PURPOSE FORCES

It should be evident that, in an era of mutual strategic deterrence, we must become more concerned than ever about a number of regional balances, and about the adequacy of U.S. and allied conventional capabilities. Strategic parity has not created this problem; the United States and its allies have been at risk to Soviet nuclear attacks for many years. But nuclear parity has forced all of us to recognize that the use of the more traditional types of force by our adversaries may seem to them less risky than formerly.

A. Europe

Whether for this or for some other reason, the Warsaw Pact maintains and continues to improve its capability to launch a major attack on Western Europe. Such an attack could be nuclear or non-nuclear. It might occur after some days or weeks of mobilization and deployment by the Warsaw Pact, but we cannot rule out the possibility that the powerful Pact forces already positioned in Eastern Europe would attack without reinforcement, and with little tactical warning, in the midst of a major East-West crisis.

The United States will do its share to ensure that NATO has the capabilities -- conventional as well as nuclear -- to maintain the independence and territorial integrity of Western Europe. We are determined to help stop any of these possible Pact attacks with a minimum loss of allied territory, and ensure the prompt restoration of prewar boundaries.

Our policy is in complete agreement with current NATO guidance in its emphasis on a flexible response and on the need for conventional as well as for tactical and strategic nuclear forces in the posture of the Alliance. We also agree with our allies that, owing to the strengthening of Soviet forces in Eastern Europe, NATO (including the United States) must make major improvements in the conventional capabilities of the Alliance including:

-- the deployed forward defense forces in Europe and their positioning;

-- the initial combat capabilities of these forward defense forces, and particularly their antitank capabilities;

-- and allied rapid reinforcing capabilities.

I have already instituted a number of U.S. programs in these areas. We are substantially enhancing the readiness of the United States general purpose forces and improving our ability to provide rapid reinforcements to NATO. Currently, within 10 days, we could augment our 5 2/3 divisions and 28 tactical air squadrons in Europe by little more than one division and 40 squadrons. We plan, by 1983, to be able to add five divisions and 60 tactical air squadrons in the same amount of time.

Along with the allies, we are building up our anti-armor capabilities and adding to our war reserve stocks. During the next five years, the United States alone plans to increase its "heavied up" divisions to 11 of the total of 16 regular Army divisions, acquire about 5,000 tanks and 18,000 anti-tank guided missiles for the Army, and purchase more than 2,000 tactical aircraft for the Air Force. Our allies, in the coming year alone, will add almost 2,000 anti-tank guided missile launchers and 14,000 anti-tank missiles to their capability in Central Europe.

In December, 1977, the allies also agreed to improve war reserve stocks, increase readiness, and strengthen reinforcement capabilities. These measures, along with greater anti-armor effectiveness, will enhance NATO's capability against the possibility of a Warsaw Pact short-warning attack.

At the same time, we and our allies are working toward a greater integration of NATO doctrine, tactics, procedures, and equipment. The more that equipment, munitions, and their logistic support are interoperable, the more effectively allied forces can contain a coordinated attack. Standardized or interoperable command, control and communications and interchangeable munitions are particularly essential for this purpose.

B. East Asia

There is a rather clear dividing line in Europe between friends and adversaries. The dangers are less sharply defined in Asia. Soviet forces in Asia are directed primarily at China. North Korea continues to improve its military capabilities relative to South Korea, but the long-term overall trends clearly favor the South. The situation in Southeast Asia remains obscure, and the ultimate intentions of Vietnam continue to be uncertain.

In these circumstances, the President has reaffirmed the commitment of the United States to a position of strength in the Western Pacific. We will continue to protect our interests in Northeast Asia and fulfill all our treaty obligations. The planned withdrawal of the 2nd U.S. Infantry Division from South Korea in no way alters that commitment.

We shall continue to oppose aggression in Korea. With Congressional approval of the necessary legislation, we plan to augment the combat capability of the South Korean ground forces. The major portion of the 2nd Division will remain deployed in Korea until after 1980. The Seventh Fleet, a Marine Amphibious Force with its organic air wing, and three USAF land-based tactical fighter wings will continue on station in the Western Pacific, including one in Korea.

Continuation of the close U.S.-Japanese defense relationship will further strengthen stability in Asia. We support Japanese efforts to improve their self-defense forces, particularly their recently announced plans to augment their air defense and ASW capabilities.

C. Other Contingencies

There are, in addition, a number of other regions where the United States and its allies have vital interests and where serious and potentially explosive rivalries exist. The Middle East, despite the hope provided by recent events, remains a source of potential conflict. United States and European security cannot be separated from the security of other critical parts of the world. Soviet control of the vital oil-producing regions of the Persian Gulf, in particular, could destroy the cohesion of NATO and perhaps NATO's ability to defend itself.

In this area, or indeed in the Far East, rival local forces might become engaged initially without external involvement. However, the Soviets could intervene in all three regions, although in some instances their forces could only be airlifted light infantry or naval and perhaps air units. Whatever the developments, and however they might occur, such clashes not only might require the dispatch of appropriate U.S. forces to the scene in support of friends; they could precede and even set off a crisis or conflagration in Europe.

Accordingly, we must continue to maintain a defense posture that permits us to respond effectively and simultaneously to a relatively minor as well as to a major contingency. We currently estimate the needs of such a posture -- over and above the forces we program for a major war with the Soviet Union -- as a limited number of land combat forces, in large part relatively light (though their actual configuration will depend on the nature of the forces they might be expected to encounter), consisting of both Marine and Army combat divisions with their support; naval, amphibious lift, and tactical air forces; and strategic mobility forces with the range and payload to minimize our dependence on overseas staging and logistical support bases.

This by no means completes our defense needs. The United States is a maritime nation. Much more than the Soviet Union, we depend on access to major air and sea lanes not only to acquire critical raw materials and engage in other peaceful pursuits, but also to protect our vital interests, forces, and allies overseas in wartime.

The Soviets have developed a long-range force of aircraft, surface combatants, and submarines capable of challenging our maritime interests. We must maintain the air and naval forces necessary to deal with the challenge and project U.S. power where and as required.

Most of these various requirements can be satisfied with existing programs and forces. But in an era when wars could be short and intense, appropriate elements of our forces in the continental United States (CONUS) must be rapidly deployable to Asia and the Middle East as well as to Europe.

IV. READINESS

I should emphasize that, while the prospect of short, intense wars makes it necessary to have our main conventional forces in being, that alone is not sufficient. We must also maintain a high level of readiness in our active forces. Otherwise, we will have the facade rather than the reality of collective security.

I consider our forces to be ready when they are well trained, have modern unit equipment in good operating order, hold war reserve stocks on which they can draw for the early stages of any conflict and are capable of timely response to crisis. Unfortunately, I cannot report that our forces, by this definition, are as ready as I would like them to be.

There are several reasons for the current state of affairs. Our necessary efforts to conserve fuel have meant reductions in ground combat training exercises, Navy steaming hours, and flying hours for all services (although we have been able to make some substitution for these losses, using simulators). Modernization, in some cases, has brought with it shorter mean-times to failure, longer repair times, and increased training requirements, as well as greater sophistication and capability of equipment. Inflation, increased pay, and the need to modernize our forces have meant curtailed funds for operation and maintenance.

The conventional wisdom has been that, in an emergency, the neglect of readiness can be quickly overcome by a rapid infusion of resources. Whatever merit this wisdom may have had when the United States had ample time for extended mobilization, it is now out of date.

We have not yet developed the methodological tools to show the precise sensitivity of readiness to changes in our commitment of resources. But loss of readiness is a cumulative process that takes time as well as money to reverse.

Accordingly, we must keep up our training not only because U.S. forces may be sent into action with very little advance warning, but also because we rely increasingly on the sophistication of our equipment to compensate for potential superiority in enemy numbers. It is equally essential that our war reserve stocks be maintained, mostly for our own needs, but to some degree for Asian allies as well. At the same time, we must raise the percentage of our equipment that is combat-ready because, owing to unit costs, we have less of it to bring to bear in an emergency.

To put the matter bluntly, unless we are prepared to maintain these components of readiness, collective security and deterrence will be seriously undermined. The increased resources in the FY 1979 budget will permit us to get on with the job.

V. CONCLUSION

To sum up, what we are saying with the FY 1979 budget and Five-Year Defense program is that, while there is work ahead of us, there are no grounds for panic or crash efforts. The world remains turbulent and dangerous; the Soviets, despite all their internal handicaps and external problems, have become a serious military competitor. But they have not suddenly achieved the status of a Goliath any more than we have ended up abruptly as a David at the end of an inoperative slingshot. Although both of us are heavyweights, I am confident that we remain the more agile of the two.

Perhaps the analogy of the hare and the tortoise is more appropriate as a description of the Soviet-American competition in the past. Certainly we pulled ahead in the late 1950s and early 1960s, and then substantially reduced our basic effort while the Soviets continued to expand theirs at a steady pace. Now we must increase our investment in defense if we are to stay abreast.

That we have the basic strength and will for the task cannot be in doubt. That we have the prudence and patience to run at whatever pace the Soviets may choose to set remains to be seen. All I can say to you is that the FY 1979 budget and projected programs recommend what this administration regards as the right regimen for a long-distance runner.

SECTION II

INTERNATIONAL TRENDS AND DEFENSE

I. THE FY 1979 DEFENSE BUDGET

President Carter has proposed a defense budget for FY 1979 which, in total obligational authority, will amount to $126 billion. Outlays for FY 1979 are estimated at $115.2 billion. Defense long-range projections, as presently planned, are shown below in current and constant dollars. Also shown are the actual figures for FY 1977 and the current estimates for FY 1978.

Table II-1

	Fiscal Years (billions of dollars)						
	1977	1978	1979	1980	1981	1982	1983
Total Obligational Authority							
Current Dollars	108.3	116.8	126.0	137.2	148.6	160.5	172.7
FY 1979 Prices	122.6	123.7	126.0	129.4	133.0	136.6	140.3
Outlays							
Current Dollars	95.7	105.3	115.2	125.8	136.5	147.9	159.5
FY 1979 Prices	108.8	111.7	115.2	118.7	122.2	125.9	129.6

The path being taken by the Carter administration starts from a lower base and climbs a less imposing slope than the route proposed by the Ford administration a year ago. Nonetheless, the proposed defense program, in real terms, will require an average increase of about three percent a year.

The defense outlays proposed for FY 1979 will constitute approximately 5.1 percent of estimated Gross National Product. These outlays will amount to about 23.1 percent of proposed federal spending and 15.2 percent of total public spending (federal, state, and local). The percentages allocated to defense, measured in these terms, are shown below for selected years.

Table II-2

Fiscal Year	Defense Outlays as a Percent of GNP	Federal Outlays	Public Outlays
1964	8.2	41.8	27.9
1968	9.3	43.3	29.5
1977	5.2	23.8	15.6
1978	5.2	22.8	15.2
1979	5.1	23.1	15.2

The defense budget for FY 1979 will permit the United States to maintain active-duty forces of:

-- 2,125 strategic nuclear delivery vehicles;

-- 16 Army divisions and 3 Marine Corps amphibious forces (with their air wings);

-- 458 major naval combatant and auxiliary vessels;

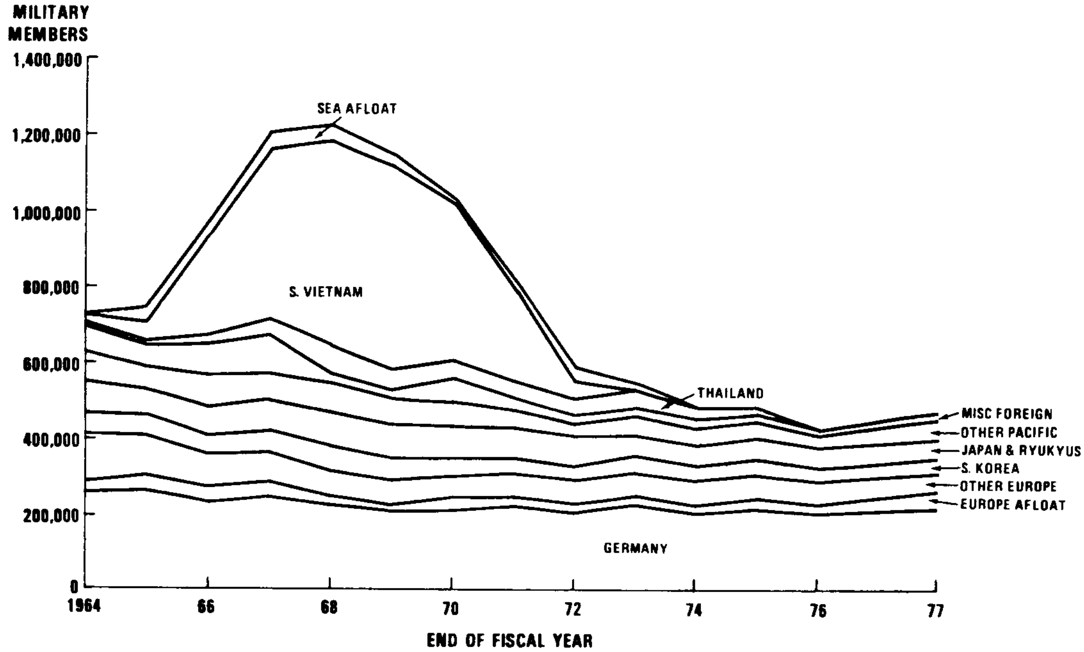
-- 26 Air Force tactical fighter wings and 12 Navy carrier air groups;

-- mobility forces consisting primarily of 17 squadrons of strategic and 15 squadrons of tactical airlift.

We estimate that to operate and maintain this force structure will require two million active-duty military and one million civilian personnel. Of these totals, approximately 516 thousand military and about 148 thousand civilian personnel will be stationed overseas. Chart II-1 shows the distribution of U.S. military personnel in foreign countries (ashore and afloat) since FY 1964. Selected reserve military personnel will consist of approximately 800 thousand men and women.

Chart II-1

US MILITARY PERSONNEL IN FOREIGN COUNTRIES



The principal costs of operating and maintaining the force structure are shown in Table II-3 for FY 1978 and FY 1979. The increase in operation and maintenance will result in increased readiness, particularly for the general purpose forces.

Table II-3

Total Obligational Authority (billions of dollars)

Budget Title	FY 1978	FY 1979
Military Personnel	27.3	28.7
Retired Pay	9.2	10.1
Operation and Maintenance	35.0	38.1
Family Housing and Homeowners Assistance Program	1.4	1.6
TOTAL	72.9	78.5

The costs of ensuring the combat capabilities and the continuing modernization of the force structure are also shown below for both FY 1978 and FY 1979.

Table II-4

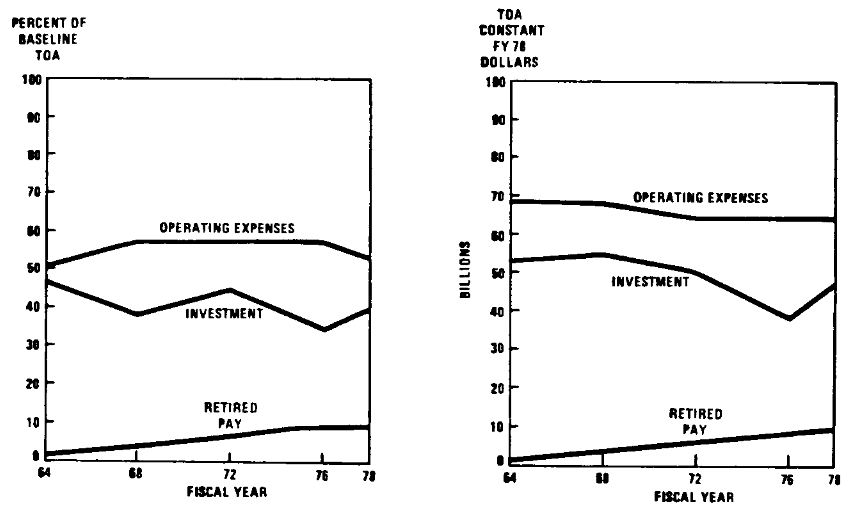
Total Obligational Authority (billions of dollars)

Budget Title	FY 1978	FY 1979
Procurement	30.3	32.0
Research, Development, Test, and Evaluation	11.4	12.6
Military Construction	1.9	2.7
TOTAL	43.6	47.3

Trends in the allocation of baseline resources (TOA with the incremental costs of the war in Southeast Asia excluded) are shown in the chart below.

Chart II-2

ALLOCATION OF US DEFENSE SPENDING



OPERATING EXPENSES CONSIST OF O&M, MIL. PAY, AND FAMILY HOUSING.

INVESTMENT CONSISTS OF PROCUREMENT, RDT&E, AND MILCON.

In my judgment, the most critical question raised by the FY 1979 defense budget is this: why -- more than 30 years after World War II and nearly three years after our complete military withdrawal from Southeast Asia -- does this administration consider it essential to maintain such a large, diversified, ready, and costly U.S. military posture?

This section provides the context for the more specific answers that follow in Sections III and IV. It specifically, but this whole report more generally, is also intended to comply with Section 812 of the FY 1976 Department of Defense Appropriation Authorization Act which directs that "the Secretary of Defense, after consultation with the Secretary of State, shall prepare and submit to the Committee on Armed Services of the Senate and House of Representatives a written annual report on the foreign policy and military force structure of the United States for the next fiscal year, how such policy and force structure relate to each other, and the justification for each."

Section III deals with the defense planning and policy that follow from our national security objectives. Section IV discusses the defense programs required to implement policy.

II. U.S. INTERESTS

In order to understand the relationship between U.S. foreign policy and our defense posture, it is necessary, first, to consider the nature of our international interests.

Since World War II, we have become involved in world affairs in a way and to a degree completely unprecedented in previous U.S. history. That involvement is increasing and will probably become still greater in the future no matter what we may wish. Technology alone would have made this development virtually inevitable with its introduction of nuclear weapons, long-range delivery vehicles, and virtually instant communications.

Our involvement is also to some extent the result of the size and rapid expansion of the U.S. economy. We are the world's principal international trader: on the one hand, we need international markets for our agricultural and high technology products; on the other hand, we depend increasingly on external sources of raw materials, with oil the most prominent and disturbing example of our dependence. For that reason alone, our interest and involvement in the Middle East and Persian Gulf are bound to be substantial, although our principal trading partners are in Canada, Japan and Western Europe.

We have even greater political interests. The United States has never shown much appetite for trying to run the world -- an impossible task in any event. But we cannot afford to let the rest of the world fall under the dominion or hegemony of another great power. Nor can we maintain our democratic institutions in a condition of international anarchy marked by a breakdown in the peacetime norms of behavior between states and the rise of terrorism as a political instrument used by states as well as by organized subgroupings. Isolation never has been, and is not now, a workable policy for the United States.

Our society can flourish only in an environment of pluralism, multiple centers of power, and security. We have a special bond of kinship with those of our friends who share our dedication to democracy, basic human rights, and decent standards of conduct. We have a particular interest in the independence and territorial integrity of Western Europe, Israel, Japan, Australia, and New Zealand. But only through maintaining their independence can other friendly and allied countries progress, as we hope they will, along the route to democracy.

At the same time, we have to recognize that international politics, at least as currently conducted, is largely insensitive to formal institutions and rules. Many forms of power are at the disposal of the main political units, and -- despite the advent of nuclear weapons and intercontinental delivery systems -- not the least of them is traditional, conventional military power.

Because both military and economic power retain their significance, we continue to have major and intersecting strategic interests. It remains of great importance to us to have uninterrupted access to the critical international air and sea lanes (as well as to space), to prevent major sources of economic strength from falling into unfriendly hands, to keep the traditional axes of military attack under friendly control. ICBMs on polar trajectories are not the be-all -- although they could be the end-all -- of modern strategy.

III. THE CONDITIONS OF U.S. SECURITY

The increasing international involvement of the United States means that our security depends on much more than relative freedom from direct attack. A more general condition of international peace, stability, and orderly change has also become essential to U.S. security. So have the independence of such critical areas as Western Europe, the Middle East and Persian Gulf, Northeast Asia, and Africa -- and freedom of the air and sea routes to them.

President Franklin Roosevelt once placed the U.S. frontier on the Rhine; President Kennedy declared himself a Berliner. We are perhaps more cautious now in our declarations. But there is still an important sense in which the U.S. frontier lies on a great arc that contains vital areas all the way from North Norway to Japan and the Aleutians. Our long-standing commitments to collective security with traditional allies and other friends are all founded on this broader definition of U.S. security. Though of a different nature, our interest in the political independence and territorial integrity of the People's Republic of China and Yugoslavia has a similar foundation.

IV. THE RESPONSIBILITY OF THE UNITED STATES

Our foreign policy and defense posture are necessarily a function of the responsibility assumed by the United States for maintaining these conditions of security.

We have never believed that responsibility to be exclusive or total. Not only have we struggled to develop a system of collective security; we have also encouraged external regional security groupings. On balance, we have been successful in both respects, and this administration strongly believes that the trend toward greater regional self-reliance should continue. As President Carter has pointed out: "However wealthy and powerful the United States may be -- however capable of leadership -- this power is increasingly relative, the leadership increasingly is in need of being shared."

It would be a mistake, however, to believe that the United States can ever become simply a follower in the coalition for peace, human rights, national independence, and pluralism. Our power does not permit us a secondary role; our interests do not allow us the luxury of passivity. The dedication of the United States to the principles of human rights, peace, and stability impels us toward goals abroad as well as at home. The rest of our coalition would be too weak and fragmented without us; our political opponents would be too powerful. If the conditions of U.S. security are to be maintained, the United States must still take the lead and carry the heaviest load in the coalition. There is no one else to take our place.

V. INTERNATIONAL TRENDS AND ISSUES

It would be heartening to report that the burdens of this responsibility are about to become lighter. But there is no basis for such a forecast at this time. The development of democratic institutions in Greece, Portugal, and Spain is a cause for gratification. We can hope that the various self-proclaimed "Eurocommunist" movements will prove more European than communist, and that nations such as Vietnam and Cuba will eventually find greater satisfaction in national independence and self-development than in devotion to the "leading" role of the Soviet

Union in the world communist movement, or in exporting their political ideas by military means. But we must also recognize that a number of other developments threaten to undermine the basic conditions of U.S. security.

Not the least of these developments is the growing dependence of the United States and its allies on the oil of the Persian Gulf. For this, and for other reasons, nuclear energy is an increasingly attractive option for many nations, with the accompanying danger that plutonium will become widely available for the manufacture of nuclear weapons. But that is not all. In President Carter's words:

> The level of nuclear armaments could grow by tens of thousands, and the same situation could well occur with advanced conventional weapons. The temptation to use the weapons, or fear that someone else will do it first, will be almost irresistible.
>
> The ever-growing trade in conventional arms subverts international commerce from a force for peace to a caterer for war.
>
> Violence, terrorism, assassination, undeclared wars -- all threaten to destroy the restraint and the moderation that must become the dominant characteristic of our age.

Unfortunately, these trends are developing in a turbulent world marked by serious international disputes. Differences in the Middle East are long-standing, deep, and bitter, although President Sadat's initiatives constitute a major step toward peace. Racial oppression in Southern Africa threatens further conflict. We cannot rule out the possibility of serious instabilities on the southern flank of NATO, whether in Yugoslavia or between Greece and Turkey. North Korea gives no evidence of having relented in its determination to reunite the Korean peninsula by force. And the Sino-Soviet dispute, while currently in remission, does not appear to have been resolved.

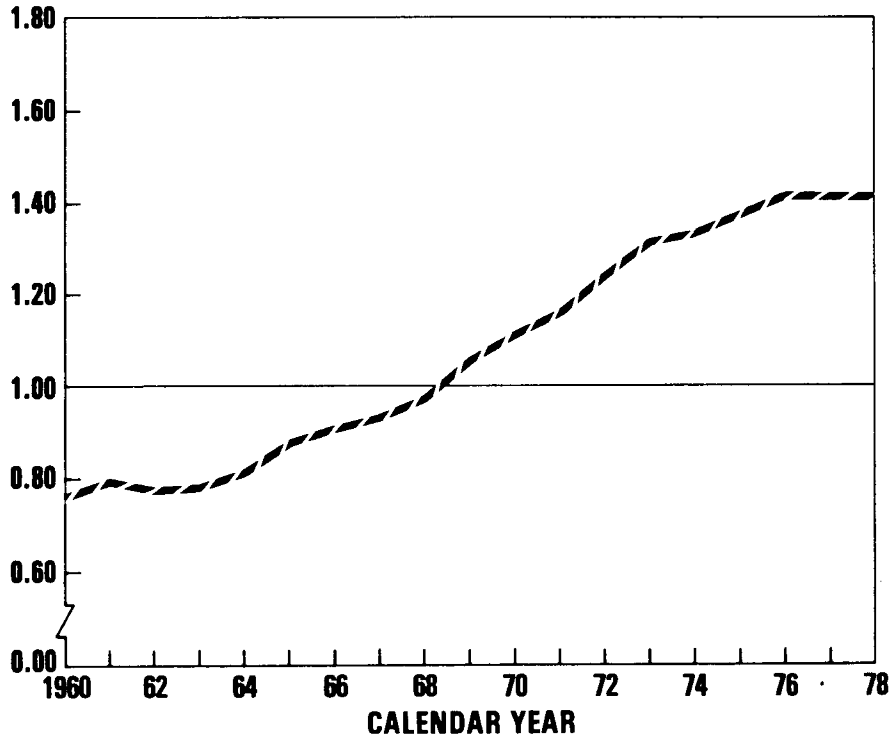
Perhaps most disturbing of all, the Soviet Union continues to invest heavily in both the modernization and the improvement of its armed forces, and in the infrastructure necessary to continue and expand this effort. As far as we can judge, the Soviet defense effort (measured in U.S. prices and excluding retirement costs) increased in real terms by about 36 percent between 1967 and 1977. Estimates indicate that as late as 1968, U.S. baseline spending still exceeded comparable Soviet outlays. By 1977, however, positions had been reversed. The Soviet defense effort now exceeds that of the United States by 32 percent overall (in dollar terms), and by 40 percent when retirement costs are excluded. A comparison in ruble terms would reduce the disparity by ten or 15 percentage points. The difference between ruble and dollar comparisons arises because the defense expenditures of the two countries are skewed in the direction of forces and capabilities which are most efficient from the standpoint of two quite different economies.

These figures, I should add, are more indicative of trends than useful in absolute comparisons of capability. The facts of relative strength are much less certain. Furthermore, the addition of allied expenditures to the two sides makes the picture more encouraging to us. But the present disparity in defense spending between the United States and the Soviet Union -- and still more the trend -- is disquieting as an index of both Soviet capabilities and Soviet intentions.

The chart below shows the estimated dollar cost of Soviet defense programs (what it would cost the United States to replicate the Soviet defense effort) expressed as a ratio of U.S. baseline defense outlays.

Chart II-3

RATIO OF ESTIMATED DOLLAR COST OF SOVIET DEFENSE PROGRAMS TO US DEFENSE OUTLAYS

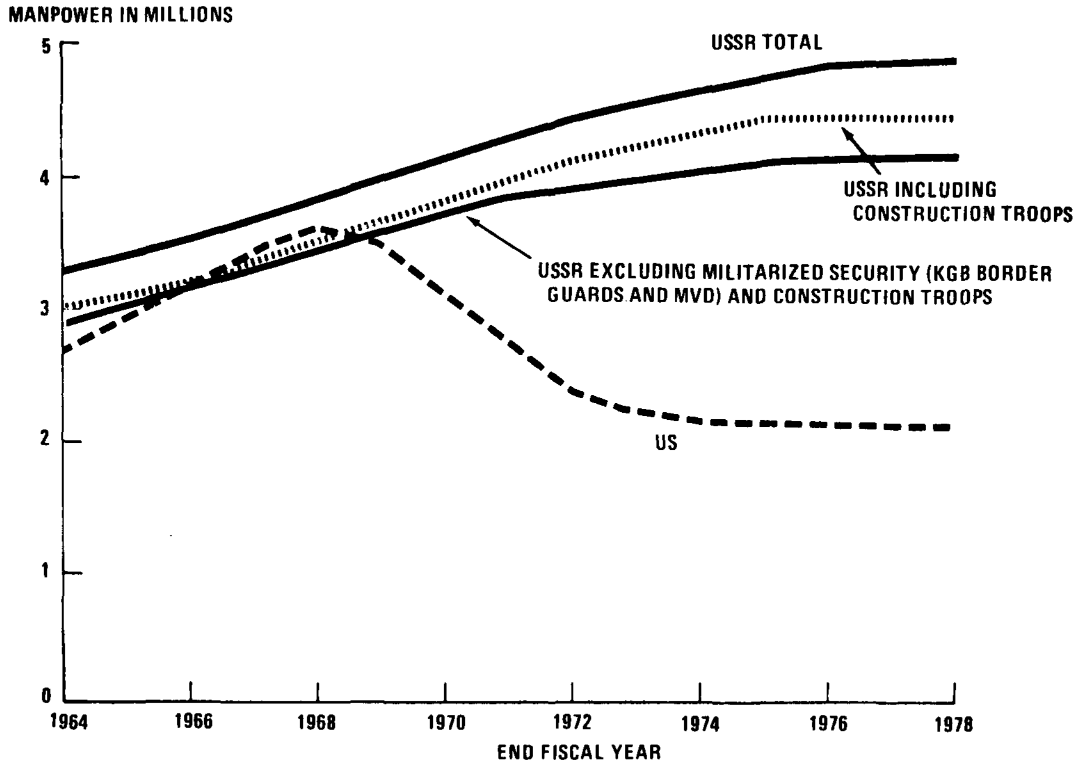


NOTE: RETIREMENT COSTS AND SEA INCREMENTAL COSTS ARE EXCLUDED

Between 1964 and 1977, Soviet military personnel (not including the border guards of the KGB and the security units of the MVD) increased from 3.4 to 4.4 million men as shown in Chart II-4. All the components of modern military power are now included in the Soviet armed forces, from intercontinental strategic nuclear and theater nuclear forces to a wide range of non-nuclear capabilities -- among them, chemical weapons. Each of these capabilities comprises weapons and support (e.g., communications) equipment of increasing sophistication. Technologically, the Soviet military establishment is now approaching, in many but not all respects, the quality of our own.

Chart II-4

U. S. – U. S. S. R. MILITARY MANPOWER



Current intelligence estimates are that between 1964 and 1977, the Soviets spent an average of about 10-15 percent of their defense budget (measured in rubles) on forces oriented toward the People's Republic of China. At least 22 percent of the increase in the Soviet defense budget during these 13 years has been attributed to the buildup in the Far East. The remaining 78 percent, according to intelligence estimates, has gone to the strategic nuclear forces and the theater forces oriented toward Western Europe. The high construction and operating costs in Siberia suggest that the intelligence estimates may understate the cost of the Soviet buildup in the Far East substantially.

Nor have the Soviets sacrificed future for current defense capabilities. Our estimates indicate that, in dollar terms, their investments in procurement, RDT&E, and military construction have exceeded ours in every year since 1969. By 1977, the Soviet defense investment program was about 75 percent larger than that of the United States.

The Soviet military posture may be less efficient than ours in some respects (and perhaps more efficient in others; they presumably have less trouble with base realignments and closures). The Soviets also suffer from some geographical and international disadvantages (and have some compensating advantages). But we have to face the fact that, as a result of this large military investment, the Soviets have outproduced the United States in tanks, armored fighting vehicles, artillery, submarines, and minor surface combatants for more than a decade. Their present output of tactical aircraft and helicopters is also greater than ours. In addition, they have acquired a large and growing base for defense production and an expanding corps of scientists and engineers devoted to military research and development. I continue to believe, however, that the quality of U.S. materiel and research remains higher.

It is also clear that the United States benefits significantly more from the military efforts of its allies. The USSR bears almost the entire burden of directly funding the most expensive types of military hardware for the entire Warsaw Pact. By contrast, many NATO countries produce modern naval, air, and ground warfare equipment. This asymmetry in favor of the West makes possible an adequate collective defense of NATO at a lower burden on U.S. citizens than the Soviet Union must impose on its citizens to pose a serious threat of overcoming NATO's forces.

VI. THE ELEMENTS OF POWER

To maintain the conditions of U.S. security, we and our friends must come to grips with these developments. In doing so, we need to recognize that current international politics and political outcomes are the product of much more than military power. How nations "vote," and what types of "votes" they cast on the major issues will depend as often and as much on our diplomatic skill, industrial and agricultural capabilities, economic health and technological state, and on the decency and humaneness of our political system and the cohesion and will of our people as on our defense capabilities.

As a consequence, we must avoid concentrating on military power to the exclusion of these other strengths. Too many driving forces are at work in international politics for us to believe that we can dam them up or destroy their momentum by means of military power alone. Where possible, other instruments must be found to resolve international issues.

It is to our advantage, in any event, to see that the international political process is a peaceful one. Our stake in peace and stability is enormous. Our resources of wealth, skill, and goodwill are substantially larger than those of our opponents. In an overall peaceful competition, we should always be able to muster enough strength to prevail.

VII. NATIONAL SECURITY POLICIES

The Carter administration, during the past twelve months, has acted accordingly. We have made the most strenuous efforts both to reach equitable and peaceful settlements of current international disputes and to deal with the long-term trends that might threaten international peace and stability.

A. Western Europe

A goal of the highest priority for this administration is to ensure stability in the vital European region. To that end, the President has proposed both short-term and longer-run programs to improve NATO's military effectiveness. He has also urged increased transatlantic arms cooperation through "joint exploration by Europe, Canada, and the United States on how to improve present procedures for development, production, and procurement."

The task is challenging and difficult. But we are determined to strive for a stronger and more rational NATO defense posture, with greater interoperability and standardization of armaments.

B. East Asia

We believe that we can most effectively contribute to peace in Asia by maintaining forces deployed forward in the Western Pacific. These forces enhance the political constraints on potential adversaries and provide an important element of security to friendly countries. We are also working to improve U.S.-Japanese defense cooperation, and have been discussing with the Japanese Government ways to reduce the cost of maintaining U.S. forces in Japan.

Effective relations with the People's Republic of China (PRC) are important not only because China is a strategic counterweight to the Soviet Union, but also because such relations will strengthen the interest of the PRC in regional stability. Accordingly, the normalization of U.S.-PRC relations in accordance with the principles of the Shanghai Communique remains a major goal of this administration.

C. The Middle East

President Carter has emphasized that we do not intend to impose a settlement on the nations of the Middle East from the outside. However, we will do all we can to assist the parties in negotiating a just and lasting peace. The President has already met with most of the heads of government of the nations of the region; the Secretary of State has spent many hours with the foreign ministers of Israel and the Arab nations involved in the search for peace. We have stayed in close touch with the Soviet Union, with which we share the responsibility for reconvening the Geneva conference at the appropriate time.

As a result of President Sadat's courageous initiative in visiting Jerusalem last November, and Prime Minister Begin's enthusiastic response, Arab and Israeli negotiators are engaged in face-to-face talks aimed at a comprehensive peace agreement. The United States has encouraged both sides to seize the new opportunities presented by the Sadat-Begin exchanges. We support their negotiations -- as the President has indicated by his visit to Egypt -- and we will do everything we can to facilitate them.

If the negotiations are to be successful, they must be inspired by a recognition that all nations in the area have a right to exist in peace. All parties to the negotiations agree that a comprehensive settlement must come to grips with three fundamental issues: the nature of the peace to be established; withdrawal of troops from occupied territories and agreement on secure and recognized borders for all states; and a resolution of the Palestinian question. Good-faith negotiations will also require acceptance by all sides of the fundamental rights and interests of everyone involved.

-- For Israel, this means peace based on normal relations among the parties to the peace. It also means borders that are recognized and secure. Adequate security arrangements are, in fact, crucial to a nation that has fought for its survival in each of the last four decades. The commitment of the United States to Israel's security is unquestionable.

-- For the Arabs, it means withdrawal by Israel from territories occupied in 1967, and the resolution of the Palestinian problem in all its aspects. The legitimate rights of the Palestinian people must be recognized, and they must be able to participate in the determination of their own future.

D. Africa

We have sought in Africa to identify ourselves with the just aspirations of black Africans. In doing so, we are making it possible for the United States, and the West in general, to play a creative role in dealing with the problems that confront the African community.

The greatest danger lies in southern Africa. To be true to our principles, and to find terms that are acceptable to most of the people who live there, we must encourage the establishment of government by democratic procedure. In Rhodesia, this means supporting a peaceful and rapid transition to majority rule; in Namibia, it requires the assumption of power by an African government that rules by the will of the majority.

We recognize that the situation in the Republic of South Africa is more complex and will take more time to resolve. But we are anxious to help create conditions that will make accommodation to a new reality -- one more in keeping with the spirit of the times -- as peaceful and palatable as possible.

We will also do our part to make certain that Africa in general does not become the terrain for ideological conflict. That is why we hope that the major powers will refrain from interference and from stimulating or importing conflicts, whether in Southern Africa or along the African Horn. The wounds of Africa are painful enough. They should at least be immunized from the ideological poisons of another age and other continents.

E. Latin America

We have abandoned the traditional device of formulating a new slogan to describe U.S. relations with Latin America. Instead, we have emphasized that we respect the diversity of the Latin American nations, while recognizing that the region as a whole has the special importance --to the United States -- of neighborhood, of having, for the most part, escaped colonial status within 50 years of the United States having done so (and often with the United States as a model), and of having had a long history of close if not always equitable relations with us.

Most Latin American nations respect and welcome this approach. They see in it a rejection of traditional U.S. paternalism and the beginning of more mature and normal relations. But these relations cannot develop more fully until we resolve the issue of the Panama Canal.

Our interest in the Panama Canal is fourfold. We want the Canal to stay open in peace and war. We want it efficiently operated and properly maintained. We want to make certain, especially in an emergency, that U.S. naval vessels have priority in getting through the Canal. We want the recognized right to defend the Canal at all times. Guaranteed use, not sovereignty, is what we seek.

The treaties signed by President Carter satisfy all of these interests. Under the Panama Canal Treaty, the United States will have the primary responsibility for operating and defending the Canal until the year 2000. Thereafter, the Neutrality Treaty assures our interests by assigning the following rights and responsibilities to the signatories:

-- efficient operation of the Canal;

-- nondiscrimination in its use;

-- the right of expeditious passage for the naval vessels of the United States; and

-- the right of the United States to take appropriate measures to defend the Canal against any threat to its neutrality.

Because of the two treaties, the issue of Panama can be resolved in cooperation with Panama, not in conflict with it. That is the reasonable way to proceed. It is also the right way.

F. Energy

At the same time that President Carter has sought to dispose of these immediate issues, he has tried to deal with the main long-range trends that could threaten U.S. security.

Of the most immediate concern is the worldwide increase in the consumption of energy, and especially oil. Because of this trend, we have developed four major objectives for U.S. energy policy.

-- We want secure access to the energy necessary to maintain our standards of living and continue our economic growth.

-- We want our allies to enjoy the same opportunities.

-- We want to make sure that our economy does not grow excessively dependent on one type of energy or one source of supply.

-- Finally, we want to keep the major sources of energy from falling into unfriendly hands.

These conditions are essential to U.S. security. Economic strength for the United States and its allies is fundamental to collective military strength. We cannot afford to have our economies disrupted by restrictions on needed supplies of energy or by the manipulation of the large financial reserves held by oil exporters. We cannot afford to become so dependent for so long on one type of energy that we are unable to adjust to its exhaustion.

President Carter's energy program is intended to reduce these vulnerabilities by simultaneous action on four fronts. We seek to expand our reserves of oil and natural gas. We are stockpiling crude oil as a hedge against an interruption of supplies of up to several months. Wherever it makes good economic and environmental sense, we want to shift our economy to more plentiful and reliable supplies of energy. At the same time, national security requires that we control and reduce our dependence on foreign sources of energy, particularly from the Persian Gulf. Conservation is a necessary, thought not sufficient, way toward that goal -- and the only one that can show substantial results within a few years.

The requirement is basic. Only by means of expansion, diversification, and conservation can we surmount the energy crisis. Only by surmounting the energy crisis can we retain the strength necessary to uphold U.S. security.

G. Arms Control

The trend in world armaments is upward. Yet security and stability can be better maintained by ceilings on and reductions in both nuclear and conventional capabilities, provided they are specific, equitable, and verifiable. Accordingly, the Carter administration has launched a number of arms control initiatives.

1. SALT

In the Strategic Arms Limitation Talks (SALT), we and the Soviets are making progress toward limiting and reducing the number of strategic nuclear delivery vehicles, and toward restricting certain categories of systems that are of special concern to each of us. We are also making a start on the crucial process of curbing technological developments that will make nuclear weapons systems more difficult to control in the future.

Much remains to be negotiated. However, I believe that under the SALT II agreement, as now proposed by the United States, we will be able to meet our strategic needs, but at lower and essentially equivalent levels with the Soviet Union. The agreement will not go as far as one could wish to meet all our concerns, but it will allow us to implement the programs we decide are necessary in order to meet those concerns, preserve deterrence, and maintain the current position of rough parity. At the same time, it would point the way toward more significant controls in SALT III.

2. Non-proliferation

Our nuclear non-proliferation policy recognizes the need both to help nations secure the energy they need and to stop the spread of nuclear weapons and weapons-grade material. We do not wish to impose restrictions on the dissemination of an essential technology. But we do wish other nations to take a fresh look at the problems of the plutonium fuel cycle.

In our judgment, the energy plans of many nations -- and particularly those of the developed states -- are based on inflated estimates of future energy demand. We think that global reserves of uranium and thorium may be much larger than has been previously estimated. Moreover, we believe there is time to develop less dangerous technical and institutional solutions before the world moves toward the widespread use of recycled plutonium as an energy source.

For these reasons, we have concluded that the sense of need to reprocess and reuse plutonium at this time is premature -- both in the United States and elsewhere. We have postponed reprocessing for nuclear power reactors in the United States to the indefinite future. In addition, we have joined with more than 35 other nations to begin an international nuclear fuel cycle evaluation. We continue to believe that other fuel cycles are available, and that they can be safely managed on a global basis.

3. Test Ban

Negotiations for a comprehensive ban on nuclear explosions are now being conducted by the United States, the Soviet Union, and the United Kingdom. As in other areas where vital national security interests are at stake, agreements must be equitable, and any forbidden actions that would affect the military balance must be adequately verifiable. Agreements must be seen by all the parties concerned as serving a longer-term interest that justifies the restraints of the moment.

One longer-term interest in this instance is to close another source of nuclear competition, and thereby to demonstrate that the major nuclear powers take seriously their obligations to reduce the threat of nuclear catastrophe. Accordingly, the United States favors a comprehensive nuclear test ban -- on tests for civil as well as military purposes -- on peaceful nuclear explosions (PNEs) as well as on tests of nuclear weapons. At the same time, we favor continued research and development on advanced nuclear energy technology, and we must find ways, within a comprehensive test ban, to maintain the quality of our nuclear weapons stockpile.

4. Conventional Arms Transfers

Worldwide military expenditures are now nearly $400 billion a year. The industrialized nations spend the most money, but the rate of growth in military outlays is faster in the developing world. While only a few states produce technically sophisticated weapons, the number of countries that seek to acquire them is increasing rapidly.

The administration believes that the levels of worldwide arms transfers should be reduced. The initial U.S. aim is to cut back on both the quantity and the sophistication of the weapons we sell, and we have already taken the first steps in that direction. But we cannot go very far alone. Nations with neighbors that are purchasing large quantities of weapons feel obliged to do the same, and recipient nations perceive an inherent right to maintain a defense establishment sufficient to meet their requirements for national defense. Supplier nations that practice restraint in arms sales sometimes find that they are merely replaced by other suppliers.

We hope to work with the other supplier nations, including the USSR, to stem the flow of arms and reduce the rate at which the most advanced and sophisticated weapon technologies spread around the world. The task will not be easy, and we do not expect it to produce instant results. But we are committed to try to halt the upward spiral of arms transfers.

Equally important, we hope that the purchasers of arms, individually and through regional organizations, will limit their arms imports. We are ready to provide our friends with the necessary means of legitimate self-defense. At the same time, however, we are willing to work with any nation or regional organization to curb the proliferation of nuclear and other weapons.

5. Mutual and Balanced Force Reductions (MBFR)

The United States and the Soviet Union and members of their respective alliances have been negotiating for four years to achieve mutual and balanced force reductions in Central Europe. In the course of the Vienna negotiations, each side advanced its basic position on MBFR, and subsequently modified its position, to some extent, to take into account and eliminate some of the differences between the basic positions of the two sides. At present, the main East-West differences continue to revolve around the issues of the size and nature of the reductions on each side and the comprehensiveness of the agreement. NATO's current MBFR position calls for a commitment by each side to reduce its manpower in the so-called guidelines area to a collective common ceiling of about 700,000 ground forces and about 900,000 combined ground and air forces. In Phase I, the United States would withdraw 29,000 men, 54 nuclear-capable aircraft, 36 PERSHING missile launchers and 1,000 nuclear warheads. The USSR, in Phase I, would withdraw an integral tank army, defined as five divisions, 68,000 men and 1,700 main battle tanks together with its armaments and equipment. In Phase II, both sides collectively would reduce the number of men required to achieve the common ceiling. The United States would be required to accept residual limits on manpower and the types of nuclear elements withdrawn; the USSR would be required to accept residual limits on manpower and tanks.

Reductions and limitations would be complemented by measures designed to build mutual confidence and verify compliance. These measures could also contribute significantly to increased warning time in the event of an impending Warsaw Pact attack.

NATO presently is considering another modification of its position with revised provisions which, while preserving the essential elements of the current position, should improve its negotiability and assist the West in attaining its goal of enhanced security and stability in Europe by achieving a more stable military balance at lower levels of forces with undiminished security for all participants.

6. Anti-Satellite Activity

The Administration is currently involved in detailed inter-agency reviews which could lead to possible negotiations with the Soviets on curbing activities directed at interfering with the satellites of another nation. The Soviets currently possess an operational anti-satellite weapon system which could be used to attack some U.S. satellites.

The U.S. program, on the other hand, is still in the research and development stage. While eventually the U.S. ASAT capability may be technologically superior, a definite U.S.-Soviet asymmetry currently exists in this area. The President has concluded that the United States cannot permanently accept such an asymmetry and has directed a vigorous U.S. effort in this area. At the same time, however, the administration believes that bilateral negotiations in the near future with the goal of limiting ASAT capabilities on both sides, would be in the overall national security interests of both countries. An equitable agreement could prevent another costly and tension-producing arms competition.

7. Chemical Weapons

The United States is now engaged in bilateral discussions with the Soviet Union on the subject of a comprehensive treaty to ban chemical warfare. These talks seek agreement on a joint U.S.-USSR initiative that would prohibit production, stockpiling, acquisition or retention of chemical warfare agents and munitions but would permit development of means of protection against chemical attack. The United States will maintain its present chemical warfare retaliatory capability until an equitable and adequately verifiable agreement is reached, and we will continue efforts to upgrade our protective posture. During the negotiations, we will also continue research to improve chemical agents and munitions.

8. Indian Ocean

In June the United States initiated discussions with the Soviet Union looking toward an agreement that would stabilize the naval forces of both superpowers in the Indian Ocean. Soviet and U.S. military activity levels in the Indian Ocean are modest and intermittent. The purpose of a stabilization agreement would be to prevent the area from becoming an area of superpower competition in the future.

9. Environmental Modification Convention

After three years of comprehensive analysis, discussion, and negotiation at the Conference of the Committee on Disarmament at Geneva and at the United Nations, the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques was signed at Geneva on May 18, 1977. The convention protects our environment by prohibiting all significant hostile uses of environmental modification techniques "having widespread, long-lasting or severe effects as a means of destruction, damage or injury to any other State Party." We expect that the Arms Control and Disarmament Agency (ACDA) will be forwarding the ENMOD Convention to the Senate in the near future.

VIII. FOREIGN POLICY AND DETERRENCE

Despite the major foreign policy and arms control initiatives of the Carter administration, it would be misleading to pretend that, by themselves, these initiatives can remove all the sources of current or future conflict. It is true that international disputes rarely lend themselves to constructive resolution by military means. It is equally true, however, that in a turbulent world, we can rarely solve international disputes by peaceful means unless military capabilities are in the background.

Deterrence helps to create the conditions under which peaceful and orderly change can take place. At the same time, the more it is possible to settle disputes peacefully, and minimize dangerous trends, the fewer the strains that are put on the deterrent, and the less likely it is to fail. In short, an active foreign policy to solve problems peacefully is as necessary to security as a credible military deterrent. The two are interdependent.

What constitutes a credible deterrent is still a matter of controversy. But clearly we must have the military capabilities necessary to persuade an adversary that, regardless of the circumstances, he will:

-- either have to pay a price to achieve his objective that is more than the objective is worth;

-- or be frustrated in his effort to achieve it;

-- or suffer both high cost and frustration.

The price we would have to pay in order to thwart him is also of some relevance to our choice of deterrents. Whatever the choice, we must also have the readiness and the plans to operate the forces as directed by the National Command Authorities (NCA). Perhaps most important of all, these capabilities must be believable to ourselves and our allies as well as our adversaries. If our proposed action is only a bluff, it is likely to be exposed as such in a crisis, and our opponent is likely to see it as such beforehand. Extravagant threats that we are unwilling to implement are not the stuff of credible deterrence. We must be willing and able to do what we say we will do.

It is precisely for these reasons that we recognize the need for both diversity in our military capabilities and flexibility in their application. Strategic nuclear forces are necessary but not sufficient for deterrence in the current era. To complement them, we must maintain theater nuclear and conventional capabilities.

These three components are required because we no longer seriously believe (if we ever did) that we can credibly deter most hostile action by the threat of nuclear retaliation. Nuclear forces are useful primarily as a deterrent to nuclear actions and to overwhelming non-nuclear attacks. For other contingencies, a conventional deterrent must be maintained.

Because of these basic requirements, deterrence in the modern era constitutes a heavier drain on our resources than in the past. But we are engaged, fortunately, in a system of collective security and shared responsibility. The conventional component of the deterrent, which is the most costly and demanding part of our security system, is especially appropriate for shared responsibility. Indeed, we should recognize -- as should our allies -- that their contributions are essential to realistic collective security. No one should doubt the importance of their continuing -- and increasing -- these contributions.

IX. DETERRENCE AND THE SOVIET UNION

There remains the question of how large the collective deterrent should be. The answer to that question depends, in turn, on how we interpret the policies and assess the capabilities of the Soviet Union, since the Soviet Union is the only single power, aside from the United States itself (and leaving aside the collective economic power of OPEC, the Organization of Petroleum Exporting Countries), that can seriously challenge the present international order.

A number of hypotheses have been advanced to explain the objectives and motives of the current Soviet leadership. However, owing to the traditional secrecy of the Kremlin -- and because its collective leadership does not think with a single mind, as in Stalin's day -- we face great uncertainty as to the intentions of this leadership. Winston Churchill, in 1939, characterized Russia as "a riddle wrapped in a mystery inside an enigma." As far as can be judged, we are not much more enlightened today.

We recognize that the Soviet-American relationship at this period of history is a competitive one, based upon quite different views of the world and conflicting long-term aims. We suspect that the main thrust of the Soviet Union is toward expanding its political influence and establishing itself as a global power. But we cannot ignore the long-term trends in Soviet military capabilities.

-- Since 1964, we have witnessed a particularly impressive growth and qualitative improvement in the Soviet strategic nuclear forces. If these forces are dedicated simply to pure deterrence, or even to large-scale, second-strike, assured destruction -- conservatively designed -- we must still wonder whether they are not excessive in quantity and mismatched in characteristics to either of these purposes.

-- We have also seen the expansion and modernization of the Soviet ground forces oriented toward Western Europe, with increased numbers of improved tanks, armored fighting vehicles, assault helicopters, and self-propelled artillery, and with greatly enhanced support from modern, interdiction-type aircraft. If these forces are purely defensive, we must ask why they have such strong offensive capabilities and why the Soviets in their military doctrine place so much emphasis on deception, tactical surprise, speed, and shock in their operations.

-- During this same period, the Soviets have upgraded their airborne light infantry divisions, expanded their marine units, deployed the 37,000 ton aircraft carrier KIEV (with at least two more such aircraft carriers under construction), and developed the beginnings of a long-range, ocean-going, amphibious assault capability. While the priority given to these forces is not high, we still must ask whether the Soviets intend to project their military power well beyond the Eurasian land mass.

There are no certain answers to these questions. However, the fact that they can be raised -- and are a matter of widespread concern both here and abroad -- indicates that the Soviets may be less well-intentioned than we would wish them to be. Our planning must take that possibility into account.

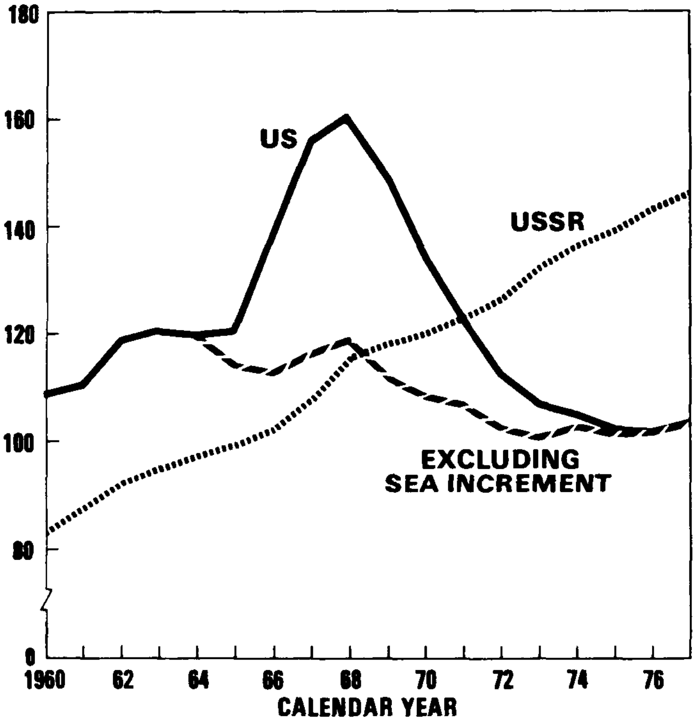
In other words, our interests, international turbulence, and Soviet capabilities -- and the actions those capabilities make feasible -- have to constitute the starting point for U.S. defense planning. To put the matter another way, these factors -- in default of other, reliable information -- set major constraints on our freedom to shape the U.S. defense posture.

Appropriate restraint in our programs and actions is still warranted. But there is no evidence from past history that unilateral reductions in our posture will produce Soviet reciprocity. An important function of our various arms control negotiations is precisely to achieve equitable and verifiable mutual reductions without undue risk. To substitute unilateral reductions for these negotiations does not seem to be either prudent or realistic. Furthermore, this is hardly the time for such experiments. The steady real increase in the size of the Soviet defense program since the early 1960s, and the concurrent decline in real U.S. baseline outlays (defined as outlays which exclude the incremental costs of the war in Southeast Asia), as shown in the chart below, mean that we have a certain amount of catching up to do in some areas.

Chart II-5

COMPARISON OF US DEFENSE OUTLAYS AND ESTIMATED DOLLAR COST OF SOVIET DEFENSE PROGRAMS

(BILLIONS OF FY 1979 DOLLARS)



NOTES: 1) TO IMPROVE COMPARABILITY, US DATA INCLUDE NON-DOD DEFENSE PROGRAMS (e.g., DOE, COAST GUARD)
2) RETIREMENT COSTS HAVE BEEN EXCLUDED

X. THE APPROACH TO PLANNING

Despite the importance of the Soviet Union in our defense planning, it would be a mistake to make the U.S. defense posture a simple mirror-image of the Soviet capability. Our interests are different; geography places different demands on us; allies play a different and more effective role in our system of collective security; what makes sense to do in our society and economy is very different from what may be efficient in the Soviet Union; and the missions for our forces are bound to be different. Few Americans would argue, for example, that we should duplicate the widespread, costly, and inefficient Soviet anti-bomber defenses so long as the Soviets have so few long-range bombers with which to threaten us -- and when ballistic missiles can surely penetrate and devastate both countries. Most Americans would agree that one of the main functions of the U.S. Navy is to protect our merchant shipping from attack. In order to do so, we must concentrate resources on anti-submarine warfare (ASW) and seaborne anti-air warfare (AAW) rather than on a major anti-shipping capability designed to interdict sea lanes that the Soviets would not use in wartime.

The use of static measures alone is just as unsatisfactory for force planning purposes. Static measures usually are simple enumerations of objects such as missiles, planes, payload, divisions, and ships. They say nothing about protection, readiness, accuracy, reliability, command and control, or other factors that may be critical in determining the relative performance of opposing forces. They are silent about the effects of surprise attacks or new tactics. They are, in short, only the beginning of what must be a more intensive analysis.

Such an analysis must go well beyond arguing the case for a major U.S. defense posture. It must establish the conditions of deterrence -- conventional as well as nuclear. It must isolate the specific contingencies which constitute the greatest tests of deterrence. From there, it must go on to estimate the capabilities required to deal effectively with these eventualities. And it must reach those estimates based, not on static comparisions, but on simulated interactions between opposing forces. Only if our capabilities can achieve their operational objectives -- objectives such as a forward defense or the delivery of necessary supplies by sea -- can we say with any confidence that our deterrent is effective.

During the first year of the Carter administration, we have already begun to reshape our collective security system and posture based on this approach. Three of our efforts deserve particular emphasis.

A. The Strategic Nuclear Deterrent

To improve the strategic nuclear deterrent, we have continued to modernize the TRIAD of ICBMs, submarine-launched ballistic missiles (SLBMs), and heavy bombers. We may be able to bring the M-X missile to the point of full-scale development before the end of FY 1979. That depends on reaching a conclusion as to whether we will continue to rely on the MINUTEMAN, replace it with M-X in fixed silos, go to a land-mobile M-X (based in tunnels or multiple shelters), or develop the missile for both kinds of basing, and decide later on what constitutes the right basing mix. Despite slippages in construction schedules and increases in current-dollar costs, we have continued to push forward with the TRIDENT program and the backfit of the C-4 (TRIDENT I) missile into POSEIDON submarines.

We have concluded that the bomber leg of the TRIAD would be most efficiently and effectively maintained by substituting an accelerated and expanded cruise missile program for production of the B-1. A mixed force of bombers and cruise missiles should give us high confidence of penetrating projected Soviet anti-bomber defenses in the 1980s. But to maintain a hedge against the need for a penetrating bomber beyond the later-model B-52s, we are continuing R&D on the B-1 and examining a number of possible options for other penetrating bombers. At the same time, the interactions between SALT and our strategic programs are being carefully analyzed and weighed throughout the development cycles of these weapons systems.

B. The Defense of Western Europe

This administration, from its outset, has laid particular stress on strengthening the collective defense of Western Europe. The reasons for this emphasis are long-standing. The independence and territorial integrity of Western Europe have correctly been seen as of vital interest to the United States for 30 years or more. Powerful Soviet forces have been stationed close to the frontiers of Western Europe since the end of World War II. They have been growing more powerful and more numerous.

It was evident at the outset of this administration that NATO must continue to strengthen its will and determination to resist this challenge. In recognition of the need, President Carter -- immediately after his inaugural -- sent Vice President Mondale to Brussels to underline the U.S. commitment to the Alliance. In May, at the NATO summit meeting in London, the President himself proposed a number of short-run and longer-term initiatives for improving the deterrent forces of the Alliance. In August, he also made clear his categorical support for NATO's strategy of forward defense and flexible response, and the importance of these initiatives in the maintenance of a credible strategy into the 1980s.

Since May, 1977, the Defense Department has taken a number of specific steps to follow the President's lead. Responsibility for NATO-related programs has been centralized in both the Office of the Secretary of Defense and the Military Departments, and programs affecting the Alliance are to be given first claim on resources.

We inherited and have expanded a substantial program for modernizing our conventional forces; in particular, we are improving their capabilities to fight against Soviet forces in Europe. By carrying through with our programmed modernization and procurement, we will have "heavied up" 11 of 16 Army divisions and fleshed out a full 26 land-based tactical fighter wings. From FY 1977 to FY 1983, we are planning to acquire roughly 5,000 tanks and 18,000 heavy anti-tank guided missiles (or 24,000 including DRAGON) for the Army and more than 2,000 advanced tactical aircraft (A-10s, F-15s, and F-16s) for the Air Force alone.

We must complete this modernization program, and we may need to accelerate it in certain key respects. But it is not enough simply to increase the materiel available for NATO. We must make sure that the resources are used effectively. Buying the heavy equipment an Army division needs to fight effectively in Europe is of little value if that division takes months to get ready for combat, or if it arrives only after a failure of NATO's conventional defenses has forced us to resort to nuclear weapons. Nor is that investment of much value unless the division can fight effectively alongside our European allies. Reinforcement, readiness, and coalition warfare have to be our themes.

By the end of FY 1983, our plans and programs will bring about a dramatic increase in the speed with which U.S. Army and Air Force reinforcements could arrive in Europe. Currently, we could only augment our deployed ground forces by one or two divisions within 10 days of a deployment decision. By the end of FY 1982, we plan to be able to deploy five reinforcement divisions in the same amount of time. At present, we could probably get 40 tactical air squadrons from the United States to Europe in a week; by the end of FY 1982, we plan to move 60 squadrons in those seven days.

Dramatic as these results will be, they can be achieved without very large cost increases. In the case of the Army, we will reallocate war reserves and equipment (not needed for training U.S. based forces) to prepositioned storage in Europe, ready for the all-important units that arrive early. In the case of the Air Force, we plan to exploit the greater availability of tanker aircraft made possible by the cancellation of the B-1 bomber.

Our changes to the FY 1978 defense program have already included a wide range of measures to improve the readiness of early-deploying U.S. forces. We have increased both the manning of critical combat capabilities, such as tanks and aircraft, and the density of artillery and anti-tank weapons in our deployed units. By the end of FY 1979, this will entail about 8,000 more U.S. soldiers in Europe than were there at the end of FY 1977. More ammunition will be loaded on combat vehicles, and we will continue to improve the realism of our training exercises. Our readiness also benefits from improved morale and a continuing reduction in drug-related and race-related discipline problems.

Our European allies supply the major portion of NATO's conventional combat capability, and they have not been standing still either. Non-U.S. NATO anti-tank guided missile launchers in Central Europe will increase next year by almost 2,000, and stocks of the missiles themselves by 14,000. The United Kingdom, Belgium, and the Netherlands report plans to improve their reinforcement capabilities.

In order to eliminate duplication in these individual plans and make sure that NATO can fight with increased effectiveness, we launched two major improvement programs at the NATO ministerial meeting in May, 1977. Our Short-term Initiatives Program has already produced promising results in three critical areas -- readiness and reinforcement, anti-tank capabilities, and war reserve munitions. The NATO Long-term Defense Program will integrate plans in ten critical areas of allied conventional and theater nuclear capability. That effort will challenge many vested interests and cherished but costly commitments to "go-it-alone" national programming. But if we are successful, we should get increased NATO effectiveness for each dollar invested in our programs.

Greater efficiency is necessary, but efficiency alone is not enough. It will not do much good to deploy forces to Europe faster if they lack the modern equipment necessary to be effective in European conditions against improved Soviet forces.

This modernization requires an increase in defense expenditures, although not as large a one as the previous administration programmed. Our initial review of the Ford FY 1978 budget resulted in a cut of $3 billion -- before the further $1 billion net reduction that followed from the FY 1978 B-1 amendment, for a total of $4 billion in reductions. Projected spending for FY 1979-1983 will also be reduced below the previously programmed levels. In FY 1979 alone, these reductions will amount to about $8.4 billion in current dollars. This will still leave us with a gradual increase in real defense spending. But an increase is needed if we are to continue the modernization and improve the readiness of our conventional forces.

Between FY 1971 and FY 1976, U.S. real defense spending declined by about two percent a year (beyond the drop in outlays for Southeast Asia), while the European allies combined made increases in real defense spending averaging two to three percent a year. At the NATO ministerial meetings of May, 1977, a multilateral agreement was reached to work to achieve a three percent real increase in defense spending. This budget supports that agreement.

C. The Security of Asia

Within this decade we have significantly altered our Asian deployments, base structure, and the way we think about our Asian defense posture. These policy changes have been undertaken in response to a number of major developments in East Asia over the past fifteen to twenty years.

The Sino-Soviet dispute and the focusing of PRC forces on the Soviet problem have led to a reassessment on our part of the likelihood of a U.S.-PRC conflict. As a result we no longer plan forces on the basis of a U.S.-PRC conflict, although a responsive conventional force structure as well as nuclear forces provide hedges against a potentially threatening China. To the extent that our forces are adequate to deal with security requirements in Northeast Asia, they should be sufficient to protect U.S. interests elsewhere in the region.

The Soviet Union has continued to improve its Pacific Fleet, and our defense policy for Asia increasingly emphasizes the need to counter the Soviet naval threat. Specifically, we believe that a war in Europe could be accompanied by war or the threat of war in Asia, with the principal danger coming from Soviet attacks on our naval forces and our lines of communications.

North Korean forces have been substantially modernized since 1968. However, South Korea has been growing in strength as well. She now has twice the population and several times the gross national product of the North. This expansion, and the continuing Sino-Soviet split, have led us to begin a further modification of the U.S. deployment in South Korea.

It should be emphasized that the planned modification does not entail either a sudden or complete withdrawal from South Korea or a reduction in our security commitments to Korea, Japan, and our other Asian allies. In fact, U.S. tactical air forces in Korea are to be strengthened, assistance to the South Korean armed forces is to be increased, and the phasing-out of the 2nd U.S. Infantry Division is to be carefully paced over a four-to-five year period, while other U.S. forces in the Western Pacific are to be held at current levels.

Such a gradual and cautious change should be much more conducive to stability in Asia than an abrupt reversal of policy that would be likely to result from frustration with an obsolete status quo. The United States is more than willing -- as it has demonstrated for 30 years -- to bear a share of the collective security burden commensurate with its wealth and stake in the international order. But where allies have developed the basic strengths necessary to greater self-sufficiency in defense -- and where they are not directly confronted by one of the superpowers -- the burden of collective security must undergo some adjustment. Otherwise, security cannot be truly collective, and it will not endure.

We have made a beginning toward a more modern and effective system of collective security. But much remains to be done. The policies and programs required to improve security -- and stability -- still further are discussed in the sections that follow.

SECTION III

DEFENSE POLICY

The U.S. defense posture is determined most importantly by the international context and our national security objectives. These factors delineate our vital interests and the critical commitments -- informal as well as formal -- we have made. They permit us to identify major forces potentially adversary to our programs for international security, peace, and stability. They specify the major trends -- in both the capabilities and the policies of other nations -- with which U.S. national security policies must be concerned. They tell us which of those nations we can best count on to share the burdens of collective security. They offer overall guidance as to the general magnitude of the defense task we face and the functions our defense will be expected to perform in the achievement of U.S. objectives.

Of these functions, three deserve particular emphasis because of their impact on defense planning and policy. The first function is to provide the foundation of strength and deterrence so necessary to the effectiveness of our other instruments of policy. The second function is to provide specific support to all our national security objectives. As one example of this second function, it is imperative that our defense plans and policies be compatible with our efforts to maintain national security through arms control. It is equally important that we adapt our defense posture and deployments to such general policy requirements as the maintenance of a powerful naval presence in the eastern Mediterranean, even though these deployments may not be optimal from some "strictly military" standpoints -- for example, from the standpoint of the posture needed to fight a general war. The third function is, of course, the conduct of effective and efficient military operations in support of national objectives. If and when such operations are required, it is particularly important that military force support rather than drive policy. At the same time, we should recognize that we are not able to calculate precisely what force is required to achieve a result independent of knowledge about enemy action.

In the light of these functions, our posture must have the flexibility and responsiveness to follow Presidential direction. The Department of Defense must not be committed to a single, inflexible war plan -- it must not have only a particular set-piece battle, campaign, or war in mind.

While these functions place important constraints on defense planning, they do not dictate a particular defense posture. In order to specify a force structure, deployments, and major defense programs, two further steps are necessary. First, major contingencies and their implications for force structure and deployments have to be analyzed. Second, programmatic options have to be developed and compared on the basis of cost and effectiveness.

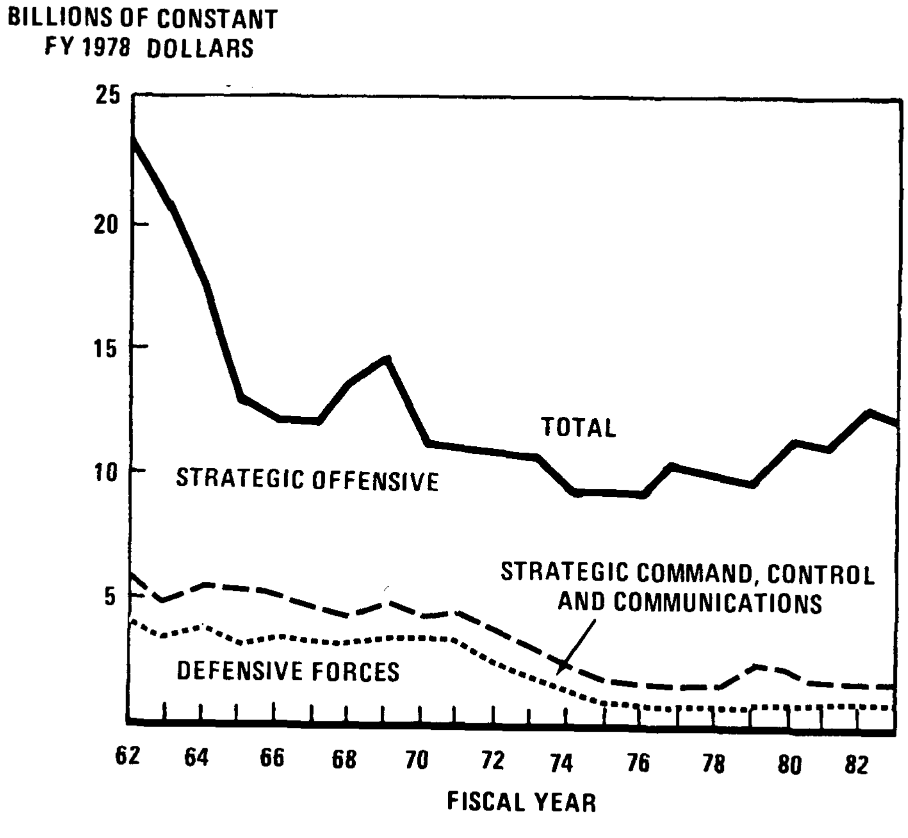
This section discusses the basis for our defense policies and general posture. It focuses on our strategic nuclear, theater nuclear, and conventional requirements, but it also deals with our needs for security assistance, intelligence, command-control-communications, and defense research, development, and production.

I. POLICY FOR THE STRATEGIC NUCLEAR FORCES

The Carter administration proposes, in the defense budget for FY 1979, to allocate TOA of $9.8 billion to its strategic nuclear program. The chart below shows the trend in TOA for the strategic nuclear forces since FY 1964. It is expressed in constant dollars, and is broken down according to offense, active defense, and surveillance and control.

Chart III-1

STRATEGIC FORCES BUDGET TREND



The requested appropriations will permit us, in FY 1979, to retain essentially the same level of strategic forces as we have programmed for FY 1978; development of the Mark 12A warhead for the MINUTEMAN III will not be completed until the end of the fiscal year. We expect that three major new systems will enter the force in FY 1980-81: the air-launched cruise missile (ALCM), the C-4 (TRIDENT I) missile backfitted into the POSEIDON submarine, and the TRIDENT submarine with the C-4 missile.

The FY 1979 ICBM force will consist of 54 TITANs and 1,000 MINUTEMAN, of which 550 will be multiple independently targetable re-entry vehicle (MIRVed) MINUTEMAN IIIs and 450 single-warhead MINUTEMAN IIs. The SLBM force will comprise 41 submarines, equipped with 160 POLARIS A-3 multiple re-entry vehicle (MRVed) missiles and 496 POSEIDON (MIRVed) missiles. The bomber leg of the TRIAD will be made up of 316 B-52 unit equipment heavy bombers, 65 FB-111 medium bombers, and 615 unit equipment KC-135 tanker aircraft. Approximately 30 percent of the total bomber/tanker force will be maintained on ground-alert.

Active strategic defenses will depend on six squadrons of active duty and ten squadrons of National Guard manned interceptors, and six AWACS (Airborne Warning and Control System) aircraft assigned to CONUS defense. In case of an emergency, CONUS-based tactical fighter squadrons and additional CONUS-based AWACS aircraft could be used to augment the dedicated anti-bomber defenses. All strategic surface-to-air missiles (SAMs) have been phased out of our continental defense system, although we still deploy SAMs from the general purpose forces in Flordia and Alaska. We have essentially closed down our one anti-ballistic missile (ABM) site. Its Perimeter Acquisition Radar will remain operational as a missile warning and attack characterization sensor, but the rest of the facility -- which was deployed to defend a MINUTEMAN wing -- has been deactivated and dismantled.

Major surveillance and early warning will be based on the early warning satellite system, the Ballistic Missile Early Warning System (BMEWS), the Space Detection and Tracking System (SPADATS), the soon-to-be operational PAVE PAWS and FPS-85 (operational) anti-SLBM phased array radars, and the anti-bomber Distant Early Warning (DEW) line, the mid-Canada line, and CONUS-based radars. Over-the-Horizon (OTH) radar remains a prototype development effort. A modest civil defense effort -- consisting primarily of crisis relocation planning, shelter surveys, improved communications and emergency planning -- will be funded as well.

A. Objectives

The general functions of the strategic nuclear forces are by now well established. The possibility of a strategic nuclear attack on the United States itself is very low. But since the consequences of such an attack would be so catastrophic, we must maintain a powerful strategic force to deter it. Because of our unique role in the collective security system of the West, we have a special obligation to deter nuclear attacks on our allies, on other nations the security of which is deemed essential to the United States, or on our forces overseas. In addition, the United States and its allies must be free from any coercion and intimidation that could result from perceptions of an overall imbalance or particular asymmetries in nuclear forces. The strategic forces, in conjunction with U.S. and allied theater nuclear and conventional forces, also have a role to play in deterring non-nuclear attacks -- particularly large-scale conventional attacks on NATO and our Asian allies.

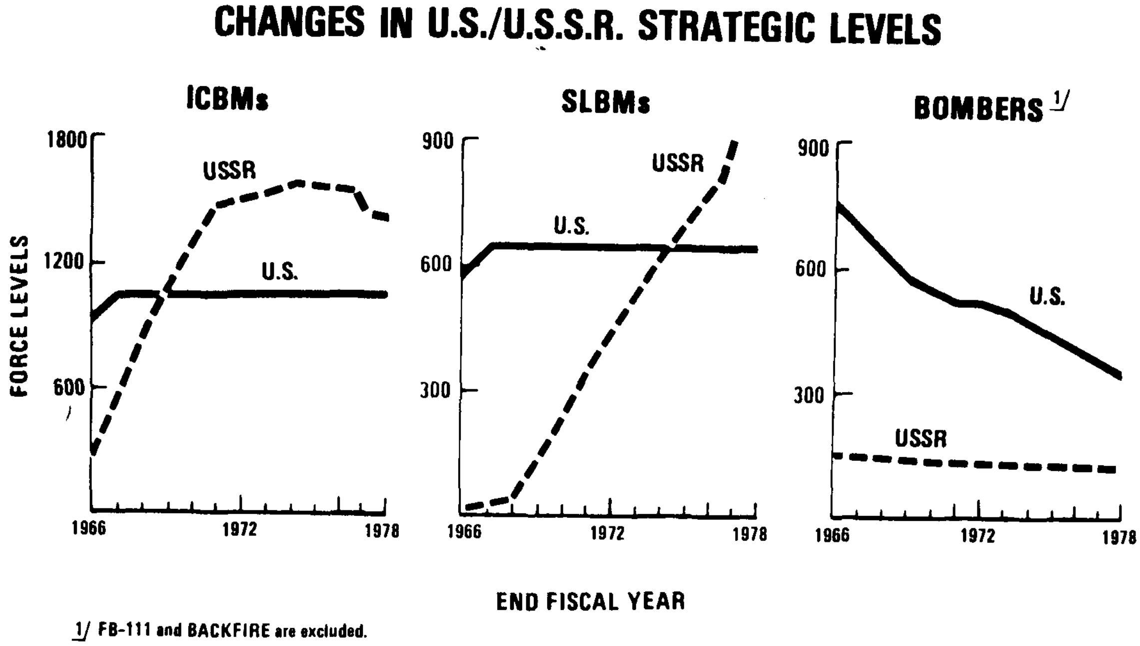
The Soviets have developed, and are fully capable of maintaining, powerful strategic forces of their own. As a consequence, we must also acknowledge that unless one side or the other is careless -- and allows a major imbalance to develop -- or makes serious miscalculations, a condition of mutual deterrence and essential equivalence is likely to prevail in the future, just as it does today. As long as strategic nuclear forces exist in the world, this is an acceptable situation, the most acceptable available; in fact, it is in everyone's interest to accept it. We want mutual deterrence to be so stable that it cannot be upset in a crisis. We want it to be so well designed that neither side will be tempted to try to upset it over the longer term. These are the two essential types of strategic stability that we seek.

We seek these objectives through a combination of specific, equitable, and verifiable arms control agreements and unilateral force modernization. Whenever possible, we prefer to reach our goals through arms control agreements. The soundness of both strategic force modernization and arms control agreements will be evaluated in the light of these objectives.

B. Soviet Capabilities

The U.S. strategic nuclear posture required to perform these functions is shaped in large measure by the nuclear capabilities of the Soviet Union. These capabilities have undergone a considerable transformation during the last 12 years, as shown in Chart III-2. In FY 1966, the Soviets deployed only 224 ICBMs; we now estimate that force at over 1,400 launchers. Soviet SLBM launchers stood at 29 in FY 1966; today, the number is over 900. During this same period, the Soviet BISON/BEAR force has remained relatively stable.

Chart III-2



The Soviets have built their missile forces to the limits of the Interim Offensive Agreement of 1972, which -- even though it expired on October 3, 1977 -- each side has said it would respect (if the other does) until a new SALT agreement replaces it. The Interim Agreement on Strategic Offensive Arms, it will be recalled, permits the Soviets a strategic missile force of 950 SLBMs in 62 modern submarines and, in effect, some 1,400 ICBM launchers. As their SLBM force has expanded over the threshold of 740 launchers, the Soviets have been deactivating their older SS-7 and SS-8 ICBM sites as required by the Interim Offensive Agreement.

We are uncertain as to the future course the Soviets might take with respect to their strategic offensive forces in default of a SALT II agreement. However, there is no doubt about their ability to deploy more missiles and bombers than we believe they are programming at the present time. Indeed, it is estimated that, without a SALT II agreement, the Soviets could have over 3,000 strategic delivery vehicles by 1985.

Soviet defenses have not changed appreciably during the past year, although we now know somewhat more about certain aspects of them than we did before. The Moscow ABM system -- which could reach a considerable area around Moscow -- still consists of the GALOSH missile and 64 launchers, although the ABM Treaty permits its expansion to 100 launchers. Anti-bomber defenses continue to be based on roughly 10,000 surface-to-air missile launchers, and on 2,600 manned interceptors.

We believe that the primary purpose of the BACKFIRE is to perform peripheral attack, theater, and naval missions, although it has some intercontinental capability, and can reach portions of the United States on one-way, high-altitude, unrefueled missions. Since 1974, the BACKFIRE has been in production at a rate of two to 2.5 aircraft a month.

Total Soviet force loadings (weapons that can be carried by strategic missiles and bombers) have risen from around 450 in 1965 to over 4,000 at the present time.

1. Current Deployments

The U.S. and Soviet strategic postures as of January 1, 1978 are shown in Table III-1. Also shown are estimates of the two postures at the end of FY 1978, assuming no further arms control constraints.

Table III-1

U.S. AND USSR STRATEGIC FORCE LEVELS

	1 JAN 1978		END FY 1978	
	U.S.	USSR	U.S.	USSR
OFFENSIVE				
OPERATIONAL ICBM LAUNCHERS 1,2/	1054	1400+	1054	1400+
OPERATIONAL SLBM LAUNCHERS 1,2,3/	656	900+	656	900+
LONG-RANGE BOMBERS 4/				
OPERATIONAL 5/	349	140	347	140
OTHERS 6/	225	0	225	0
VARIANTS 7/	0	120	0	120
FORCE LOADINGS 8/ WEAPONS	9000	4000+	9000	4500
DEFENSIVE 9/				
AIR DEFENSE				
SURVEILLANCE RADARS	57	6500	57	6500
INTERCEPTORS 10/	324	2600	330	2600
SAM LAUNCHERS 11/	-	10,000	-	10,000
ABM DEFENSE LAUNCHERS 2/	-	64	-	64

1/ Includes on-line missile launchers as well as those in construction, in overhaul, repair, conversion, and modernization.

2/ Does not include test and training launchers, but does include launchers at test sites that are thought to be part of the operational force.

3/ Includes launchers on all nuclear-powered submarines and, for the Soviets, operational launchers for modern SLBMs on G-class diesel submarines.

4/ Excludes, for the U.S.: 3 B-1 prototypes and 68 FB-111s; for the USSR: Backfire

5/ Includes deployed, strike-configured aircraft only.

6/ Includes, for U.S., B-52s used for RDT&E, other miscellaneous purposes and those in reserve, mothballs or storage.

7/ Includes, for USSR, Bison tankers, Bear ASW aircraft, and Bear reconnaissance aircraft. U.S. tankers (641 KC-135s) do not use B-52 airframes and are not included.

8/ Total force loadings reflect those independently-targetable weapons associated with the total operational ICBMs, SLBMs, and long-range bombers.

9/ Excludes radars and launchers at test sites or outside CONUS.

10/ These numbers represent Total Active Inventory (TAI).

11/ These launchers accommodate about 12,000 SAM interceptors. Some of the launchers have multiple rails.

The Soviet civil defense program, which underwent significant shifts of emphasis in the late 1960s and early 1970s, is more extensive than was estimated a year ago. The provision of shelters is a key element in the program.

Blast shelters are available for the top national leadership in cities and at relocation sites outside cities. Hard shelters are also available for the rest of the leadership down to the city level.

Shelters for essential personnel, including key industrial workers, have been given emphasis in recent years. Most of the blast shelters estimated to have been built since 1968 are at industrial, administrative, and institutional facilities. We have only limited information about the adequacy of supplies and life-support systems for the shelters.

Evacuation of non-essential personnel (defined as about 70 percent of the urban population) remains the chief strategy for protecting the general population.

As the country has developed, the Soviets have expanded and modernized existing industries. They have also constructed new plants in both existing industrial areas and developing regions such as Siberia. There is only limited evidence of Soviet hardening of industry to any significant degree. Soviet plans do, however, provide for crisis implementation of hasty hardening and rapid shutdown methods for protecting critical facilities and equipment. Overall, there has been no significant reduction in the vulnerability of Soviet industry to nuclear attack.

The table below shows the correlation among cities, population, and industrial capacity as it was in 1970. The distribution has not changed appreciably since then. Although some new industrial plants are being constructed away from the major urban areas, the lion's share of new capital investment -- more than two-thirds in the latest 5-year plan -- is related to the modernization and expansion of existing Soviet plants. Furthermore, new capital investment in existing facilities is projected to increase at a faster rate than investment in new and somewhat dispersed plants. Thus, what may appear as a modest increase in the proportion of dispersed industry is more a manifestation of what, earlier, was a high concentration of industry rather than a concerted effort to disperse now.

Soviet population has become more concentrated during the past decade. The urban population has increased by about 29 percent, while the rural population has declined by 10.5 percent. Total population has increased by 11 percent.

Table III-2

Cumulative Percentage Distribution of
Soviet Population and Industrial Capacity

Number of Cities	1970 Population	1970 Industrial Capacity
10	8.3	25.0
50	20.0	40.0
100	25.0	50.0
200	34.0	62.0
400	40.0	72.0
1,000	47.0	82.0

I have already made public my assessment that the Soviets now have a limited, operational anti-satellite (ASAT) capability. This judgment is based on the eight tests the Soviets have run against target vehicles since they resumed their ASAT program in 1976.

2. Force Improvements

The Soviets are not only maintaining these large capabilities; they are also modernizing them and developing a number of systems for possible future deployment. All of these activities, it should be added, are -- like our own modernization programs -- taking place within the limits set by the 1972 SALT agreements.

a. Intercontinental Ballistic Missiles (ICBMs)

The deployment of fourth-generation ICBMs -- the SS-17, SS-18, and SS-19 -- continues at a rate of approximately 125 a year. There now are over 100 SS-18 launchers converted from SS-9 launchers, along with more than 60 SS-17 and over 200 SS-19 launchers converted from SS-11 launchers. All three missiles can carry either high-yield single warheads or multiple independent reentry vehicles (MIRVs). The SS-17 and SS-18 are designed for cold launch; the SS-19 for hot launch. In a cold launch, the missile is "popped out" of its silo by a gas generator before the main booster motors are fired. As a result, the silo is not heavily damaged and could be reloaded, although it would be a slow process. A cold launch also allows the firing of a larger throw-weight missile from a given silo.

We believe that the SS-19, because of its combination of accuracy and yield, though with fewer reentry vehicles than the SS-18, is currently the most capable of the three newer missiles.

The Soviets have essentially completed development of a fourth ICBM -- the SS-16 -- which we believe to be intended as a land-mobile system, although it can also be placed in silos. It is a solid-fuel, three-stage missile with a post-boost vehicle (PBV). However, it currently carries a single warhead.

In our judgment, the mobile SS-20 intermediate range ballistic missile (IRBM), which consists of the first two stages of the SS-16, is already being deployed. We estimate that it has a range of at least 3,000 kilometers and can carry three MIRVs to that distance. We estimate that it will replace or augment the current force of medium range ballistic missile (MRBM) and IRBM launchers, and that, with a successful multiple refire capability, it could provide roughly three times the number of warheads of the older force.

In addition, the Soviets have a fifth generation of ICBMs in development, estimated to consist of four missiles. Flight testing of one or two of these missiles could begin at any time, with the others following by the early 1980s.

b. Submarine-Launched Ballistic Missiles (SLBMs)

The Soviet SLBM force continues to undergo both expansion and modernization. Construction of the YANKEE-class submarine has stopped at 34 units and 540 tubes. However, we believe that a new solid-fuel missile with a post-boost vehicle, greater accuracy and range -- the SS-NX-17 -- may be back-fitted into some or all of the YANKEES. To date, only one unit has been so fitted.

The Soviets now have a total of 27 DELTA submarines. The DELTA Is and IIs carry the SS-N-8, a single-warhead missile with a range of at least 7,800 kilometers. A new submarine, the DELTA III, is now undergoing sea trials. The Soviets are also testing the SS-NX-18 -- a very long-range liquid-fuel missile with a post-boost vehicle and up to three MIRVs. Both the SS-N-8 and the SS-NX-18 will permit the Soviets to cover targets in the United States from patrol areas as distant as the Barents Sea and the waters of the North Pacific. With the SS-N-8, the Soviets already have a system of greater range than TRIDENT I.

c. Long-Range Bombers

The Soviet heavy bomber capability continues to rest principally in the small and aging BISON-BEAR force consisting of 100 turboprop BEARs and 40 BISONs. However, we now expect to see the first prototype of a new modern heavy bomber in the near future. If deployed, this aircraft would presumably replace the BISONs and BEARs as the backbone of the Soviet intercontinental bomber force.

The BACKFIRE bomber is being deployed in Soviet Long-Range Aviation and Naval Aviation units at a steady pace.

Both the BEAR and BACKFIRE can carry air-launched cruise missiles with ranges of about 600 kilometers. There is no current evidence that the Soviets have developed a cruise missile comparable to our ALCM, although we believe they could do so within the next five-to-ten years.

d. Active Defenses

The Soviets continue to adhere to the terms of the ABM Treaty. As permitted by that treaty, they are funding a very active anti-ballistic missile (ABM) research and development program.

Since the large Soviet anti-bomber defense system continues to be vulnerable to low-altitude penetration, the Soviets are making short-run efforts to improve detection and tracking, principally by elevating radars so as to improve their line-of-sight against low-flying objects. The Soviets have also deployed and continue to modernize small numbers of the MOSS aircraft for airborne early warning, and continue to modernize their manned interceptor force with newer FLOGGER B (MIG-23) and FOXBAT A (MIG-25) aircraft.

The main long-run effort is likely to go into the development of a true look-down radar and the shoot-down capability to go with it. Such a combined capability could become operational as early as the early 1980s, although it is more likely to take place later. In addition, work is proceeding on a new surface-to-air missile.

The Soviet anti-submarine warfare capability is evolutionary in character. Each succeeding platform and sensor tends to be more capable than its predecessor. The main emphasis is on ASW against the SSBNs of the United States, with the VICTOR-class attack submarine (SSN) constituting the most capable ASW platform. As yet, however, neither the VICTOR nor other Soviet ASW systems represent a serious threat to our nuclear powered ballistic missile submarines (SSBNs).

e. Passive Defenses

The objectives of the continuing Soviet civil defense program -- which may absorb one percent of the annual defense budget, and involve over 100,000 full-time civilian and military personnel -- appear to be: continuity of centralized government and control through protection of the political and military leadership; maintenance of essential economic operations through protection of key workers, of some food supplies, and essential equipment; protection of the majority of the population by means of shelters in basements and subways, but mostly by evacuation from major urban centers.

C. PRC Capabilities

The strategic nuclear programs of the People's Republic of China have continued to develop at a slow pace. We estimate that the PRC now has in operational status liquid-fuel MRBMs, liquid-fuel IRBMs, and on the order of 80 TU-16 medium bombers with operational radii of around 3,000 kilometers.

A liquid-fuel ICBM has been used successfully in the PRC satellite program; a few such missiles could be deployed by 1980.

As has been the case for some years, the PRC possesses one G-class diesel submarine with missile launching tubes, but without missiles. We believe, however, that work continues on the development of a nuclear-powered submarine and the missiles to go with it.

In December, 1970, the PRC launched the HAN-class nuclear-powered attack submarine, believed to be the prototype to develop the full hull form and propulsion system for future nuclear ballistic missile and attack submarines.

The PRC has continued its nuclear testing program. During FY 1977, two atmospheric tests were conducted.

D. Contingencies

At the present time and for the foreseeable future, only the strategic nuclear forces of the Soviet Union constitute a potential threat to the United States and its allies. However, the strategic missiles of the PRC are now capable of reaching U.S. allies and bases in the Western Pacific.

It is extremely difficult to believe that the Soviets would ever seriously consider using these forces, and it is even more difficult to believe that they would contemplate any nuclear employment except in the gravest of crises. Nonetheless, it is a characteristic of the ballistic missiles in the strategic forces that they can strike with very little warning, and (as time goes by) with increasing accuracy, against a wide range of targets. As a consequence, we have been obliged to make the contingency of a Soviet surprise attack on our strategic forces the fundamental test of the adequacy of those forces and the main basis for our strategic nuclear planning.

With the expansion of the Soviet strategic offensive forces and the advances in Soviet command-control-communications (C^3), we have had to take several other possibilities into account as well. The Soviets, among other options, could avoid attacking our main population centers. They could withhold some of their offensive capabilities for follow-on strikes. They could attack a wide range of military and economic targets in addition to our strategic forces. They could even use their forces quite selectively against a small number of targets. In short, the Soviets are acquiring capabilities that will give their nuclear forces some of the flexibility that we have associated previously with only the more traditional military capabilities. All of these characteristics of flexibility are increasingly present in our forces as well.

None of this potential flexibility changes my view that a full-scale thermonuclear exchange would be an unprecedented disaster for the Soviet Union as well as for the United States. Nor is it at all clear that an initial use of nuclear weapons -- however selectively they might be targeted -- could be kept from escalating to a full-scale thermonuclear exchange, especially if command-control centers were brought under attack. The odds are high, whether the weapons were used against tactical or strategic targets, that control would be lost on both sides and the exchange would become unconstrained. Should such an escalation occur, it is certain that the resulting fatalities would run into the scores of millions.

E. Credible Deterrence

What counts in deterrence, however, is not only what we may believe, but also what Soviet leaders may believe. Unfortunately, we are quite uncertain about those beliefs.

An event that we may consider virtually certain, they may rank as very low in probability. What we may assume to be quite sufficient as a deterrent, they may regard as quite inadequate for themselves. What we may hope is credible as an employment policy, they may interpret as a bluff.

These kinds of uncertainties leave us with only one sound basis on which to design the U.S. strategic deterrent forces. They have to be made militarily effective, to ensure that the Soviets could never calculate the costs of a nuclear exchange as worth the risk. That is to say, we have to plan our strategic forces on the basis of two assumptions: first, that deterrence might fail; and second, that our forces must be given the capability to frustrate any ambition that an enemy might attempt to realize with his strategic nuclear forces.

In other words, we cannot afford to make a complete distinction between deterrent forces and what are so awkwardly called war-fighting forces. Nor should we continue to plan the force structure on one basis and our employment policies on another -- as we could when Soviet strategic forces were more modest. Only if we have the capability to respond realistically and effectively to an attack at a variety of levels can we achieve essential equivalence and have the confidence necessary to a credible deterrent. Credibility cannot be maintained, especially in a crisis, with a combination of inflexible forces (however destructive) and a purely retaliatory counter-urban/industrial strategy that frightens us as much as the opponent.

F. The Conditions of Deterrence

The conditions of credible deterrence follow from the need to make our strategic nuclear forces effective no matter how deterrence might fail or how an enemy might attack.

1. Survivability and Control

As has been recognized for many years, a deterrent will not be credible if it can be knocked out by an enemy first-strike. Nor should a strategic deterrent invite an escalatory response to a limited attack.

A vulnerable force could provide just such an incentive. Accordingly, whatever our employment policy for the strategic forces, we must ensure that, overall, our strategic forces can survive a full-scale surprise attack in sufficient numbers and characteristics to penetrate enemy defenses and destroy their designated targets.

Our forces must also be -- and they are -- under sufficiently tight control so that they cannot be triggered by accidents, false alarms, or unauthorized acts. We want to be capable at all times of responses that are deliberate, controlled, and in precise compliance with the directives of the President. It is not our policy to limit his choices to a single option, and they are not so limited.

2. Assured Destruction

One of the responses that must surely be available to the President is what has been called assured destruction. It is essential that we retain the capability at all times to inflict an unacceptable level of damage on the Soviet Union, including destruction of a minimum of 200 major Soviet cities. However, such destruction must not be automatic, our only choice, or independent of an enemy's attack. Indeed, it is at least conceivable that the mission of assured destruction would not have to be executed at all in the event that deterrence failed. But no potential enemy should be permitted to think that he could, at some point, attack U.S. or allied population and industry, or subject it to collateral damage, without prompt retaliation in kind.

3. Flexibility

Assured destruction cannot be the only response available to the President. We are quite uncertain as to how an adversary with increasingly sophisticated strategic nuclear forces might consider employing them in the event of a deep and desperate crisis. But we know that a number of possibilities would be open to him. As a consequence, we must have the flexibility to respond at a level appropriate to the type and scale of his attack.

As part of that flexibility, we must be able to launch controlled counterattacks against a wide range of targets -- including theater nuclear and conventional forces, lines of communication, war-supporting industry, and targets of increasing hardness: from aircraft runways and nuclear storage sites to command bunkers and ICBM silos. It should be added that a great many of these facilities -- including airfields and ICBM silos -- could remain priority targets for a second-strike.

Though the probability of escalation to a full-scale thermonuclear exchange would be high in these circumstances, we must avoid making that probability a certainty. At the same time, we must ensure that no adversary would see himself better off after a limited exchange than before it. We cannot permit an enemy to believe that he could create any kind of military or psychological asymmetry that he could then exploit to his advantage.

G. Essential Equivalence

These, I believe, are the conditions necessary to credible and high-confidence deterrence of nuclear attacks on the United States and its allies. Nuclear capabilities, however, are not solely instruments of deterrence; they are also part of the backdrop against which the nations that are the main actors assess one another and conduct international politics. Furthermore, the strategic forces can play a role in diplomacy -- either as a threat or, more subtly, as an inducement (to change camps, for example, so as to receive better "protection"). We owe it to our allies as well as to ourselves to assure that both explicit and implicit pressures can be confidently resisted.

In principle, if the conditions of deterrence are present, questions about relative power and influence should not arise as a consequence of comparing strategic forces. In practice, we cannot be certain that others will assess the U.S. deterrent by the same standards we use. We can undoubtedly help their assessments by avoiding exaggerated statements about U.S. weaknesses and Soviet strengths. The truth is that we are not midgets and they are not giants. But I do not see how, to be on the safe side, we can do otherwise than insist on and maintain essential equivalence with the Soviet Union in strategic offensive capabilities.

By essential equivalence, I mean a condition such that any advantages in force characteristics enjoyed by the Soviets are offset by other U.S. advantages. Although we must avoid a resort to one-for-one matching of individual indices of capability, our strategic nuclear posture must not be, and must not seem to be, inferior in performance to the capabilities of the Soviet Union.

Essential equivalence, as defined here, serves four major purposes. It helps to ensure that political perceptions are in accord with the military realities, and it minimizes the probability that opposing strategic forces will be used to seek any diplomatic advantage over us. It reduces the chance that one side or the other will become vulnerable to charges of a bomber or missile gap and contributes thereby to strategic stability. It enhances stability in a crisis by reducing the incentives for either side to strike first or preempt. And it sets a major objective for current and future SALT negotiations. The Soviets have insisted strongly on being treated as equals. We for our part must insist not only that the equality be real but also that all future arms control agreements codify that equality in the form of essential equivalence. We cannot afford to settle for anything less.

H. Capabilities

We currently maintain large and complex strategic nuclear capabilities in order to satisfy the conditions of deterrence. There are a number of reasons why we must continue to do so.

1. Second-Strike Forces

First and foremost, we need sufficient offensive forces to maintain an adequate alert rate and perform the strategic missions after an enemy first-strike. Where possible, as has been the case so far with our ICBMs and SLBMs, these forces should be designed so that they can take attrition, wait out an attack, and still retaliate with the necessary power. That is, we should avoid -- to the extent feasible -- having these forces depend too much on tactical warning for their survival -- especially if they are not recallable.

In the case of the bombers, which are difficult to protect on the ground -- but are recallable -- we do depend on warning of an attack for their survival. This means that a portion of the bomber force must be kept on a ground-alert. We must also maintain a network of high-confidence, independent early warning systems (with a very low rate of false alarms) that alert us to an attack in sufficient time to get the bombers off the ground. At additional cost, we could increase the number of alert bombers from the current 30 percent to 50 percent of the force, and to an even higher proportion during a brief emergency. But in the case of the bombers, as in the case of the SLBMs, the inventory of delivery systems must always be larger than the number of vehicles on day-to-day alert.

2. Attack Assessment and C^3

In order to employ our second-strike forces with deliberation and control, we need attack assessment capabilities to inform the National Command Authorities (NCA) of what is happening and has happened, and we need a survivable command, control, and communications (C^3) system to select and direct the necessary action. We do not want our response to be independent of or insensitive to the nature and weight of an attack. Accordingly, our second-strike forces must have the capability to execute either a full-scale retaliatory strike or smaller-scale counter-attacks on selected targets while the rest of the force is withheld. And we must know which of these options to choose. An attack assessment capability allows us to make a choice.

In the case of our C^3 system, flexibility means much more than the capacity to detect a nuclear attack and give the "execute" order to our forces. In addition to survivability and the ability to issue a last-ditch command to execute, our C^3 must provide secure, reliable communications and the capacity for high data rates so essential to the programming of new options as well as the implementation of preplanned options already on the books.

3. The TRIAD

To survive and respond as the President directs, we plan to continue distributing our retaliatory capability suitably among the three legs of the TRIAD. No delivery system is sure to be permanently invulnerable; with time and technology, any given platform could become susceptible to effective attack. For that reason, and because we want to complicate a potential enemy's problems, we must avoid reliance on only one type of delivery system, no matter how survivable it may appear at the moment. As with other investments, diversity must characterize our portfolio of strategic retaliatory forces.

The TRIAD gives us the necessary diversity. No potential enemy could expect to destroy the ICBMs, alert bombers, and on-station SLBMs in a simultaneous attack. In most circumstances, at least a large fraction of the forces in two out of the three components of the TRIAD would survive. The enemy's defenses would then have to deal with weapons approaching him from differing directions, at varying speeds, and along a variety of trajectories. There would be no way for him to escape without unacceptable damage.

We also maintain these three forces to hedge against unexpected breakthroughs in Soviet technology. It seems clear that in the current situation the best hedge against potential ASW threats lies in the air-breathing leg of the TRIAD. Improvements in SLBMs are clearly not a fully adequate hedge against future threats to the SLBM force. Additional fixed ICBMs in silos would suffer the same increase in pre-launch vulnerability we already expect for MINUTEMAN. Mobile ICBMs, such as the M-X, can hedge against an ASW development but not against a breakthrough (or breakout) in ABM capability -- although the much bigger payload of the M-X would provide substantial capability to saturate even large ABM defenses. Air-breathers (bombers or cruise missiles) are the hedge of first choice, with (especially mobile) ICBMs an important second, against possible threats to our essential SLBM force.

Obviously we want more from our forces than the ability to survive and penetrate an enemy's defenses. If control and selective targeting are to be more than an abstraction, sufficient numbers of both missiles and bombers must be designed to deliver both high-yield and low-yield nuclear weapons with great accuracy. And these weapons must be effective against a wide range of targets, including some very hard targets. I should add, in this connection, that the United States has no current desire or plan for a disarming first-strike capability against the Soviet Union. Provided the Soviets demonstrate a similar restraint toward the United States, we shall not seek such a capability in the future.

4. Reserves

If we are to have a degree of strategic flexibility, the forces in the TRIAD must be sufficient, on a second-strike, to accomplish our strategic objectives. They must also be large enough -- and some of them must be secure enough -- so that we can hold a portion of them in reserve for an indefinite period of time. As far as we can tell, this reserve force can be quite modest in size, but it must be long on endurance.. In other words, our total requirement for strategic warheads not only depends on alert rates, survivability, penetration probabilities, and the number and types of targets to be covered; it is also a function of the need for some residual postwar capability. The resulting requirement can be maintained within or below current and contemplated SALT constraints.

5. Active Defenses

Since the advent of modern ballistic missiles in large numbers, and conclusion of the ABM Treaty in 1972, we have reduced our continental anti-bomber defenses. It is essential, however, that we continue to maintain surveillance over U.S. airspace, and that we be able to exercise control over that airspace by dedicated CONUS defense forces with augmentation (as necessary) from our tactical air force. We must avoid allowing free rides by hostile foreign aircraft over U.S. territory.

The ABM Treaty, as amended, limits us (as well as the Soviets) to one ABM site of 100 interceptors and launchers, which in effect differs little from no ballistic missile defense at all. For reasons of stability, the United States will continue to support the treaty and rely primarily on offensive capabilities to achieve its strategic objectives. However, the treaty does not preclude either side from vigorous R&D on ballistic missile defenses. Considering the magnitude and momentum of Soviet ballistic missile defense programs, we must make certain that our own effort is sufficient. Such an effort, at a minimum, should focus on hedging against any sudden ABM deployments by the Soviets, on increasing our understanding of their technology, and on ensuring that, at all times, our offensive forces can penetrate their defenses without excessive losses.

I. The Current Situation

It should be evident from this review that the conditions of strategic nuclear deterrence have become increasingly demanding with the years. What is more, we have found no easy, simple, one-time solution to these requirements. I am confident, nonetheless, that as of today, the U.S. strategic nuclear forces -- even after absorbing a full-scale surprise attack -- could still deliver thousands of warheads to targets in the USSR. I am equally sure that the Soviets could retaliate on a comparable scale against the United States. While the number of arriving Soviet warheads would be smaller, the total megatonnage delivered would be larger. The current strategic situation, in short, is one of mutual deterrence.

The conditions of essential equivalence also prevail. While each side confronts problems with specific force elements, there is a rough balance of strategic capabilities when measured against a variety of static and dynamic indicators. A strategic equilibrium is in effect.

With restraint on both sides, this situation can be maintained. We favor restraint and -- precisely to ensure stability and equivalence -- we continue to negotiate in SALT for specific, equitable, and verifiable agreements to control the strategic nuclear capabilities of the United States and the Soviet Union. We continue to believe, moreover, that stable mutual deterrence can be maintained at substantially lower strategic force levels than the two sides deploy at the present time. On the other hand, if the Soviets do not opt for restraint by SAL agreement, but choose increased forces instead, mutual deterrence can still be maintained by the appropriate U.S. force deployments.

We are making some progress in SALT on both constraints and reductions. If the eventual SALT II agreement meets our expectations, it will:

-- mean somewhat lower levels of strategic delivery systems and MIRVs than was envisaged at Vladivostok or in later talks -- and lower than we estimate we would face if there were no agreement;

-- introduce an important new sublimit on deployments: a sublimit on the total number of MIRVed ICBMs;

-- permit us to deploy an air-launched cruise missile (ALCM) force to maintain the effectiveness of the bomber leg of the TRIAD;

-- constrain to some degree the pace of technological change, but preserve U.S. flexibility to continue R&D on various types of cruise missiles and mobile ICBMs;

-- meet specific allied concerns by omitting forward-based systems (FBS) and allied systems while fully preserving cruise missile options;

-- place some limits on BACKFIRE, although important details of the limits are still being negotiated.

While the United States would have preferred a more far-reaching agreement, the one that is now beginning to take shape will constitute a significant step toward meeting our strategic objectives through arms control, and could lead to further mutual restraint, both qualitative and quantitative. The reductions in Soviet launchers, coupled with the sublimits on MIRVed ballistic missiles in general, and MIRVed ICBMs in particular, will help to preserve perceptions of essential equivalence and will contribute to military equivalence and stability. Mobile ICBM research and development can continue on a schedule that will not inhibit our present plans. Work can go forward on ground-launched and sea-launched cruise missiles.

In sum, we are drawing close to an agreement that will serve our strategic purposes. Even with such an agreement, however, we will have to continue looking to our own exertions in several key areas to ensure the conditions of deterrence. Under present conditions, SALT alone cannot preserve long-term strategic stability; it must be supplemented by prudent U.S. decisions to ensure the strategic deterrent.

Unilateral U.S. actions will continue to be necessary for three basic reasons. First, strategic nuclear systems continue to evolve quite rapidly as a result of technological developments alone. Second, the Soviets are exploiting many of these developments in their large strategic programs, just as we are. Third, the power and credibility of our strategic deterrent are sensitive to what the Soviets do.

J. Future Dangers

The Soviet contribution to the dynamics of the competition is especially worth noting. To the extent that there has been an interaction between the strategic postures of the United States and the Soviet Union, much of the impulse for it may have come in the 1950s and 1960s -- however unwittingly -- from the United States. Now, however, it is the Soviets who are driving the interaction. Their current programs have breadth, depth, and momentum.

Exactly what the Soviets are trying to accomplish with their large and growing strategic capabilities is uncertain. Perhaps it is pure deterrence. But if it is, their definition of pure deterrence appears quite different from our own. Conceivably they are as interested as we are in the concept of options and controlled nuclear campaigns. They probably have the capability, even now, to employ their offensive forces with some flexibility, and we cannot preclude their being quite selective in their targeting. Much of what they are doing both offensively and defensively coincides with the actions that would support a damage-limiting strategy. And it is within the realm of possibility that they are attempting to acquire what have been called "war winning" capabilities.

Whatever the intentions and motives of the Soviets, we face two related problems as the result of their activites. They are the increasing vulnerability of the U.S. ICBM force and the expanding scope of Soviet active and passive defenses.

1. The Threat to the ICBM Force

The potential vulnerability of our existing silo-based ICBM force (MINUTEMAN and TITAN II) is a major issue of concern to us, but it is important that the issue be approached in perspective. Because ICBM silos are fixed and known targets, we have recognized for years that once Soviet accuracy improved enough, the silos would become vulnerable. Anxiety about the threat posed by the Soviet ICBMs of the SS-9 and SS-11 generation was, for example, one of the grounds for the silo-hardening program begun in the late 1960s and just now nearing completion.

It is now clear that all three of the "fourth generation" ICBMs the Soviets are now deploying -- the SS-17, SS-18, and SS-19 -- have the potential, with feasible accuracy improvements, to attain high single-shot kill probabilities against U.S. silos. A relatively small fraction of the current generation Soviet MIRVed ICBMs could, by the early-to-mid-1980s, reduce the number of surviving MINUTEMAN to low levels. In our Comprehensive SALT Proposal, given to the Soviets in March 1977, it was not the limits on numbers of launchers, but those on modifications, replacements, and total numbers of flight tests that offered the prospect of extending the survivability of MINUTEMAN -- and, even with that proposal, there would have been some question of the survivability of MINUTEMAN. In short, MINUTEMAN vulnerability was not a problem created by SALT, nor it is a problem we can solve with a SALT II agreement. We would have the same problem without such an agreement -- only in that case we would have other problems as well.

In recognizing that the MINUTEMAN vulnerability problem is a serious concern for us, we also realize that the Soviets would face great uncertainties in assessing whether they would have the capability we fear -- and still greater uncertainties as to its military or political utility. On all the technical judgments -- how accurate the missiles are, how reliable, how well the system would work in actual practice, whether they could explode two reentry vehicles on each silo without excessive fratricide, or only one -- we, quite properly, are conservative, from our point of view. Similarly, the Soviets must make cautious assumptions from their perspective. In particular, they must recognize the formidable task of actually executing (as planned) a highly complex massive attack in a single cosmic throw of the dice.

Even if such an attack worked exactly as predicted, the Soviets would face great risks and uncertainties. First, they would necessarily have to consider whether the U.S. missiles would still be in their silos when the attack arrived, or whether, given our capability to have unambiguous confirmation of a massive attack, we would launch from under the attack. Second, and more important, an attack intended to destroy U.S. silos could kill at least several million Americans and would leave untouched at least the alert bombers and at-sea SSBNs with thousands of warheads. The Soviets might -- and should -- fear that, in response, we would retaliate with a massive attack on Soviet cities and industry. The alleged "irrationality" of such a response from a detached perspective would be no consolation in retrospect and would not necessarily be in advance an absolute guarantee that we would not so respond. In any event, any Soviet planner considering U.S. options would know that, besides massive retaliation, the surviving U.S. forces would also be capable of a broad variety of controlled responses aimed at military and civilian targets and proportioned to the scale and significance of the provocation. Indeed, with ALCMs deployed on the surviving alert strategic bombers, we would still have a very substantial capability to destroy remaining Soviet silos, though with some hours of delay.

In short, the vulnerability of MINUTEMAN is a problem, but even if we did nothing about it, it would not be synonymous with the vulnerability of the United States, or even of the strategic deterrent. It would not mean that we could not satisfy our strategic objectives. It would not by itself even mean that the United States would lack a survivable hard target capability or that we would necessarily be in a worse post-exchange position in terms of numbers of weapons, payload, or destructiveness.

All this is by no means to say we can or should ignore the problem. There would be political costs were the Soviets to appear to us, to our friends, or to themselves to have such an unbalanced or unmatched capability against a key element of the U.S. force. It would clearly be desirable to keep all three TRIAD elements survivable if we can do so at costs commensurate with the benefit, and without negating our overriding interest in strategic stability. We are actively studying a variety of responses to the challenge. One of these is the continued examination of mobile ICBMs, discussed in detail below. And, while we are doubtful that any future SALT agreement -- except possibly one involving very deep cuts in MIRVed ICBMs and severe limits on technological innovation and on testing -- can cure the problem, agreements may be a way to reduce its significance both by reducing the relative importance of the land-based forces and by moderating the strategic competition generally.

2. Active and Passive Defenses

The second and related problem is that major active and passive defenses -- coupled with the ability to eliminate the bulk of the MINUTEMAN/TITAN force -- might seriously degrade our retaliatory response in some circumstances. If the Soviets believed that they could protect most of their population, and simultaneously cause major damage to the United States, they might calculate, on this basis, that they could gain a meaningful military advantage. However, they would have to violate or abrogate the ABM Treaty in order to gain this supposed edge.

Neither MINUTEMAN vulnerability nor Soviet civil defense on the scale we now see can seriously degrade our basic retaliatory response. But we must be concerned about perceptions of Soviet superiority based on these two factors. We do not need to and we should not allow such expectations to develop in the Soviet Union, in other parts of the world, or in the United States itself. The programs in this defense budget seek to ensure that we are able as necessary to nullify any such perceived advantages, no matter how remote or unrealistic they might prove to be. The Soviets should understand that they cannot explore these avenues to nuclear superiority -- however illusory -- without paying a heavy price for their actions.

K. Issues

The most immediate issue raised by these problems is how we can best retain the control and flexibility currently inherent in the MINUTEMAN force. The issue is complicated in part by uncertainty about the speed with which the Soviet threat to MINUTEMAN -- primarily a function of the SS-18 and SS-19 ICBMs at the present time -- might become serious.

1. ICBM Vulnerability

Continued development of the MX missile will give us the option for a major hedge against projected ICBM vulnerability in the late 1980s. Before then, our main insurance will come from the SLBM and heavy bomber forces.

The insurance will not be perfect. TRIDENT -- with all its advantages -- is by no means a complete substitute for MINUTEMAN. In any event, we should avoid becoming excessively dependent on any one type of strategic launch platform. The need to continue exploring the prospects for strategic stability in SALT could also result in some temporary constraints on our deployment of cruise missiles. However, those restraints will be only temporary, and will in fact expire before we are ready to deploy the constrained systems.

In the meantime, we must push ahead with the air-launched cruise missile (ALCM) and maintain our ability to penetrate Soviet defenses with manned aircraft. Later-model B-52s will give us the necessary platforms for both the ALCM and defense penetration in the near-term future. To hedge against longer-run needs, we now plan to continue RDT&E on the B-1 and also plan to explore a number of possible options for other penetrating bombers.

2. Soviet Damage-Limiting

I am not persuaded that the right way to deal with a major Soviet damage-limiting program would be by imitating it. Our efforts would almost certainly be self-defeating, as would theirs. We can make certain that we have enough warheads -- including those held in reserve -- targeted in such a way that the Soviets could have no expectation of escaping unacceptable damage. In my judgment, not only is that a fully manageable task; it would not necessarily require more warheads beyond those we already program.

To say this is not to rule out an expansion of the very modest civil defense program we already have. Fallout shelters and planning for the relocation of urban population in a crisis can make sense as a supplement to our policy of flexible response -- both in demonstrating our determination to have choices between catastrophe and paralysis, and in helping to minimize damage should deterrence fail. But we have the time to review and debate the possibilities. Crash programs are not what we need -- in civil defense or elsewhere.

L. Conclusions

To those who are convinced that the Soviets are aiming at meaningful strategic superiority, the programs and options I have provided here may seem inadequate. To others, some of these policies and programs may appear to be the result of excessive concern about very unlikely events, and contrary to the precepts of common sense.

In an arena where the stakes are so high and the uncertainties so great, common sense is not always an infallible guide. It may be reasonable in daily personal life to equate the implausible with the impossible; nuclear calculations involving the survival of the nation require us to distinguish between the two.

It is tempting to insist that with the acquisition of a modest but survivable nuclear capability, we can achieve security and stability, and no longer have to respond to the initiatives of others. It is equally tempting to assert that if only we are restrained, others will surely reciprocate. But knowledge is the enemy of certitude. Excessive arms acquisition through caution and hedging in the face of uncertainty can be counter-productive; excessive restraint can have its dangers as well. Even in an era of detente, strategic stability rests on more than goodwill; it also requires strength. The Carter administration plans to demonstrate both.

II. POLICY FOR THE GENERAL PURPOSE FORCES

The capabilities we program primarily for the defense of overseas theaters, and as our contribution to collective security, comprise not only the General Purpose Forces, but also the bulk of the National Guard and Reserve Forces and the Airlift and Sealift Forces. They contain nuclear as well as conventional capabilities. Their FY 1979 direct costs, in TOA, are estimated at \$55.4 billion in the program budget.

The program total represents 44 percent of the total defense budget, or nearly six times as much as we spend on the strategic nuclear forces. With these resources, we plan to support capabilities that include ground forces of 28 active and reserve divisions, land-based tactical air forces of more than 36 active and reserve fighter/attack wings, three Marine air wings, 12 carrier air groups, naval forces (not including SSBNs) of 458 major combatants and auxiliaries, and strategic airlift forces of 17 squadrons.

A. The Theater Nuclear Forces

Our Theater Nuclear Forces are an integral part of the General Purpose Forces. As such, they cannot be described as a full-fledged and independent capability, but are meant to complement the strategic nuclear and conventional forces. The capability we maintain exclusively for theater nuclear warfare consists of atomic demolition munitions, shells, bombs, warheads, and depth charges, along with a few specialized delivery systems such as PERSHING and LANCE missiles. Otherwise, we depend primarily on our conventional ground forces, a number of dual-purpose weapons systems such as cannon and tactical aircraft, and elements of our strategic nuclear forces for the execution of such theater nuclear options as may be required. The total number of warheads available for theater or tactical use is very large.

The Soviets deploy a much larger number of long-range delivery systems, especially in the USSR, that are specialized for theater nuclear warfare, although the total number of Soviet theater and tactical nuclear weapons is probably far smaller than our own. Also, the Soviets separately train their conventional forces to operate in a chemical and radiological environment.

In effect, we have incorporated nuclear firepower into our total theater posture. As a consequence, the costs of maintaining these capabilities are relatively modest. We estimate these costs at roughly $2 billion a year, including the costs of the nuclear weapons themselves, which appear largely in the budget of the Department of Energy.

1. Importance of the Forces

There is no evidence that nuclear firepower can substitute for the other elements of a conventional capability. Nor is it at all clear that anything approximating a traditional military campaign could be fought with nuclear weapons. Nonetheless, the theater nuclear forces play a vital role in our overall posture of deterrence and collective security. For those of our allies who lack nuclear capabilities, or possess only a modest nuclear arsenal, the U.S. theater nuclear forces have a symbolic importance that transcends their direct military value. They are the visible evidence of the broader U.S. commitment and of the linkage between our deployed posture and the strategic nuclear forces. This reason alone would be sufficient for us to conclude that major land-based nuclear deployments should be continued overseas, and that changes in those deployments should be made only after careful consultation with the interested allies.

Symbolism is not the only basis for the theater nuclear forces. It continues to be U.S. policy that we will resist attacks on the United States and its allies by whatever necessary means, including nuclear weapons. We have made no secret of our view that conventional forces are an essential component of the collective deterrent, and that any conventional aggression should be met initially by conventional means. We also recognize that nuclear decisions -- and especially collective nuclear decisions -- would be difficult and could be time-consuming, which makes strong non-nuclear capabilities all the more important. But the United States remains determined to do whatever is required to prevent the defeat of its own and allied forces. Our strategic and theater nuclear forces serve as the ultimate backup to our NATO commitments. Not only do they provide the means to strike NATO-related targets; they also dramatize to a potential attacker that any conventional attack could set off a chain of nuclear escalation, the consequences of which would be incalculable.

Many of our NATO allies participate in Programs of Cooperation under which the United States stockpiles in Europe the nuclear weapons that would be provided for allied delivery systems. As required by law, the weapons remain in the custody of U.S. personnel until released by the President for actual use. However, these arrangements ensure not only that nuclear weapons will be available to allied forces, but also that the allies will be able to participate in critical nuclear decisions.

We believe that the current theater nuclear force posture, along with other forces -- conventional and strategic nuclear -- provides a significant deterrent to major, premeditated, conventional attacks. The theater nuclear force posture also helps to deter a first use of nuclear weapons by others.

2. Soviet Capabilities

The Soviets have substantially improved their theater nuclear capabilities during the last decade, and especially their forces oriented toward Western Europe. In at least some doctrinal writings, they appear to have adopted the view that a conventional war in Europe need not necessarily lead to a nuclear exchange. But, for the most part, their military doctrine continues to stress the likelihood of escalation to nuclear conflict and the need for combined nuclear and conventional operations. They continue to equip and train their forces to fight in both chemical and nuclear environments. And they continue to improve their capabilities for offensive warfare with both chemical and nuclear weapons.

The Soviets have deployed a significant number of theater nuclear delivery systems, and we believe that they have stockpiled the nuclear weapons for them. Their practice has been to retain these weapons in the USSR and to depend on warning to permit their rapid deployment to an essential theater. However, we are quite confident that they sent nuclear warheads as well as launchers to Cuba in 1962, and it is conceivable that they may have have deployed some nuclear weapons to Eastern Europe.

Just as we have done, the Soviets have developed tactical nuclear capabilities organic to their ground forces. They have nuclear launchers at divisional and higher levels. These consist of the FROG series, the SCUD B, and the SCALEBOARD. In addition, the more modern Soviet fighter/attack aircraft such as the SU-17 (FITTER C/D), SU-19 (FENCER), and MIG 23 and 27 (FLOGGER) are probably dual-capable. The other members of the Warsaw Pact also have FROG and SCUD launchers and some nuclear-capable aircraft, although the warheads for them remain under Soviet control. Much of this capability is longer in range than the counterpart NATO systems.

While these are powerful forces, the Soviets have deployed even longer-range systems with a theater or peripheral attack capability in the USSR itself. These systems include light and medium bombers, the large MRBM and IRBM force which is being modernized with the mobile SS-20 MIRVed missile, and submarines and surface ships armed with ballistic and cruise missiles. NATO and the United States have hardly any forces with characteristics substantially comparable to this capability on the continent of Europe. It is worth noting, moreover, that none of these peripheral attack systems are now covered by the negotiations in SALT and MBFR.

3. Contingencies

The largest part of the Soviet theater nuclear capability is concentrated against Western Europe. This concentration, and the emphasis in Soviet military doctrine on nuclear preemption, mean that we must plan for the possibility that the Warsaw Pact rather than NATO would be the first to use nuclear weapons. Such a use might occur at the outset of a conflict or after a preliminary conventional campaign. It might be confined initially to a narrow sector of the front, or it could be initiated on a theater-wide basis. In either event, we probably could not count on significant tactical warning of such use.

The Soviets have deployed nuclear capabilities in the Far East as well as in Eastern Europe, and the PRC has now developed what is essentially a regional nuclear capability. The possibility exists, therefore, that a conflict in Asia could entail the use of nuclear weapons by two or more belligerents.

An additional danger is that, with further nuclear proliferation, highly vulnerable nuclear capabilities could be introduced into traditionally unstable areas and could increase the probability of local preemptive attacks. Equally disturbing is the possibility that terrorist groups might attempt to seize nuclear weapons from the stockpiles of the United States or other nations. Unfortunately, this risk suggests concentrating our stockpiles in fewer storage sites, which to some degree increases our vulnerability to military threats.

4. The Conditions of Deterrence

We believe that the U.S. theater nuclear forces can contribute to the deterrence of nuclear contingencies, and some non-nuclear contingencies as well, provided they satisfy certain conditions.

To be fully credible as a deterrent, they should be deployed forward in critical areas such as Europe as well as at sea. They should be able to survive a variety of threats, ranging from sabotage and terrorism to nuclear attack. They should also be maintained at a high state of readiness and be able to attack time-urgent targets. However, readiness should not be at the expense of our conventional firepower, and it must not sacrifice the peacetime security of our nuclear stockpiles and weapons. We cannot afford to tie up major conventional capabilities during an emergency in order to improve and expand our nuclear alert. While the dispersal and alertness of our tactical nuclear systems are important, we cannot allow these needs to interfere with the protection of our weapons from terrorist attacks or sabotage.

Because we cannot preclude a first use of nuclear weapons by prospective enemies, the theater nuclear forces should incorporate a degree of second-strike capability. We must be concerned here, as we are with our strategic nuclear forces, that delivery systems be able to survive surprise attacks in sufficient numbers to perform their assigned missions. This means that wherever possible we should emphasize field deployments, mobility, and concealment rather than high alert rates and a heavy dependence for survival on tactical warning, which is bound to be very short where theater-based nuclear forces are concerned. Survivable command-control-communications are also essential.

The problems of providing reliable second-strike forces based on a crowded land mass are bound to be severe. They mean that, in a variety of ways, we must maintain links between the theater and strategic nuclear forces. These links, in any event, are bound to be strong since -- as I indicated earlier -- there are grave questions about the feasibility of controlling escalation if nuclear weapons are ever used, whether tactically or strategically.

Despite these uncertainties, we have an obligation (within resource constraints) to build control and flexibility into our theater nuclear forces. Certainly we would want our nuclear strikes to minimize collateral damage, as SACEUR's constraints policy has required for many years. We also continue to believe that the force we apply should be commensurate with the needs of the situation, and that the National Command Authorities should have targeting options. Furthermore, we cannot be sure how, in an emergency, the Soviets might decide to target their nuclear weapons. Should they consider a deliberate, controlled, and limited use, they should also know that we would not be paralyzed and could respond effectively in kind.

We believe that three types of theater nuclear options are necessary in light of these considerations. They are:

-- Limited nuclear options designed to destroy selectively a number of fixed enemy military or industrial targets and, in so doing, to demonstrate a determination to resist attack by whatever necessary means.

-- Regional nuclear options intended, as one example, to destroy the spearheads of an attacking enemy force before they could disrupt the front and achieve a major breakthrough.

-- Theaterwide nuclear options directed at counter-air and counter-missile targets, lines of communication, and troop concentrations in the first and follow-on echelons of an enemy attack.

The possible use of nuclear weapons in a theater means that a potential enemy must consider a wider dispersal of his attacking forces than might otherwise be the case in a conventional conflict. This, in turn, makes the task of a conventional defense more tractable. However, such a dispersal increases the number of discrete targets for nuclear weapons, and would drive up the stockpile requirement for nuclear deterrence. Unless good target acquisition capabilities were available, especially for the identification and fixing of transient tactical targets, the number or yield of the weapons would probably have to be even higher to compensate for locational uncertainties.

To ensure flexibility in our ability to use nuclear weapons, it makes sense to tailor warheads to targets and minimize the collateral damage and enhance friendly troop safety wherever they might be used. Reduced blast/enhanced radiation weapons permit this kind of flexibility. In particular, they would provide a much improved nuclear capability against the Warsaw Pact armored threat. If the President decides to produce them, and if our allies agree, we are prepared to deploy them for the LANCE missile.

These weapons would not lower the nuclear threshold: the consequences of using any nuclear weapons are so uncertain that the decision to release enhanced radiation weapons would be no easier than any other nuclear decision. They would make our constraints policy of minimizing collateral damage easier to achieve, and improve somewhat the chances that a tactical use of nuclear weapons could be kept under some degree of control. In those respects they would constitute a useful addition to our capability. But they are neither a panacea nor a special cause for alarm.

5. The Adequacy of the Forces

The adequacy of our theater nuclear forces would be most severely tested in Europe, where they face the large nuclear and conventional capabilities of the Soviet Union. Whether our forces could meet this test must be a matter of some conjecture.

As far as I am able to judge at this time, the deployed theater nuclear forces are adequate in sheer size. The peacetime security of the nuclear weapons stockpiles has been improved. Storage sites have been consolidated and their protection substantially increased. The weapons themselves are being made more secure by the addition of permissive action links designed to minimize tampering.

We must, however, be on guard against any attempts by the Soviets to achieve a first-strike capability with their theater nuclear or even their newer and longer-range conventional forces. For the NATO theater nuclear forces to serve their deterrent purposes, we must modify them, as necessary, to prevent the Soviets from achieving such a capability.

6. Conclusions

We are working with our allies to develop the measures best suited to modernize NATO's nuclear weapons posture and reduce the vulnerability of these forces to nuclear attack. Pending decisions on that score, there are several other steps worth taking. With allied concurrence in the changes we are proposing, we will continue appropriate modernization of the nuclear stockpile in Europe. Where measures can be instituted to reduce the vulnerability of storage sites, command-control-communications, and delivery systems to conventional attack, we will proceed with them as well. They have the merit that they will increase our confidence in both our conventional and our nuclear capabilities.

Although we must review the suitability of our theater nuclear posture in light of the continued Soviet emphasis on peripheral attack and theater nuclear capabilities, I do not consider that our forward deployment of theater nuclear forces can be at issue. These forces have played an essential political and military role in collective security. Despite the need to change the emphasis of our strategy as Warsaw Pact capabilities evolve, I expect these forces to play an essential role in the future.

As far as the United States is concerned, the strategic guidance for NATO remains as valid today as it was a decade ago. The Alliance still needs a mix of strategic nuclear, theater nuclear, and conventional forces to assure its security. So do our friends in Asia. It is our firm policy to continue our nuclear contribution to the mix.

B. The Conventional Forces

Despite the attention we must give to the nuclear forces -- both strategic and tactical -- it is now generally agreed that the conventional forces of the United States and its allies deserve at least equal (and at present, in my view, greater) emphasis.

Recognition that we would have to restore the conventional forces to a place of equality with our nuclear capabilities is not new. The demand for larger and more capable non-nuclear forces had already arisen in the early 1960s. The members of NATO acknowledged the legitimacy of the demand in 1967 when they agreed to modify their previous dependence on nuclear defense and deterrence. As recently as May, 1977, the Alliance affirmed that while modern collective security would require a spectrum of nuclear and non-nuclear capabilities, the strengthening of NATO's conventional forces must be given first priority.

1. The Importance of the Conventional Forces

The reasons for this repeated emphasis are important and worth recalling. Nuclear equivalence between the United States and the Soviet Union is now a fact. But for many years before its arrival, during which the United States was ahead of the USSR by most measures of nuclear strength, a nuclear standoff or stalemate had nevertheless existed for all practical purposes. This standoff did not lessen the rivalries or intensity of international politics. It simply increased the probability that those who challenged the emerging postwar order would feel less restrained about threatening the use of conventional military power. For some years, indeed, it has been reasonable to suppose that because of the nuclear standoff, the use of nuclear weapons would be the last rather than the first step in the application of military power. Admittedly it has been useful for planning purposes to consider contingencies such as surprise nuclear attacks that occur without any other military preliminaries. But the more likely contingencies are those that begin with the clash of conventional arms. We should know; we have been involved in two such wars since 1945.

If this is the likeliest order of events in the future, and if the use of nuclear weapons continues to be a leap into the unknown, a heavy burden is bound to fall on the conventional forces of the United States and its allies. We must strive for non-nuclear deterrence and stability as seriously as we search for deterrence and stability in the nuclear realm. We may wish to follow an employment policy of controlled escalation to nuclear arms, but we should not be forced to choose such a policy for lack of adequate conventional capabilities. If we are serious about the avoidance of nuclear war, if we do not want to cross the nuclear threshold except by the most deliberate choice or after a nuclear attack, the conventional capabilities of the United States and its allies must be sufficient to cope with any realistic non-nuclear challenge to our vital interests. This means that our requirements must be shaped to an important degree by the non-nuclear (including the chemical warfare) capabilities of the Soviet Union.

2. The Conventional Capabilities of the Soviet Union

Since the mid-1960s, the Soviets have increased the size of their land and tactical air forces from 1.4 to 2 million men (not counting 450,000 border guards and internal security units of an essentially military character). Much of this expansion is accounted for by the Soviet buildup in the Far East, which went from 20 divisions and over 200 fighter/attack aircraft in 1965 to the present totals of around 40 divisions and more than 1,000 fighter/attack aircraft. However, approximately 150,000 men have been added to the Soviet forces in Eastern Europe during the past decade, including the 70,000 men and five divisions deployed in Czechoslovakia since 1968.

During the last 12 years, all told, the Soviets have increased the number of their divisions from 148 to over 170, added about 1,300 aircraft and 24 regiments to their air armies, and substantially expanded the capacity of their strategic airlift. Soviet naval forces during this period have remained essentially constant in size, but have been upgraded significantly in quality. Since the late 1960s, the Soviets have also been improving their chemical warfare capabilities.

a. Ground Forces

As far as we can judge, the personnel in the Soviet general purpose ground forces consist of a little more than 1.8 million men. This means that the Soviets continue to maintain their divisions at varying levels of readiness. We estimate, for example, that about a third of them are fully-equipped active units deployed primarily to support Warsaw Pact allies or along the Sino-Soviet border. The remaining two-thirds are at reduced or cadre strength and have varying percentages of active duty personnel and equipment assigned to them.

In addition to the 40 or so divisions in the Far East (with most of them in the vicinity of the Sino-Soviet border), there are over 90 divisions stationed west of the Urals, with 31 of them in Eastern Europe. A central reserve consists of more than 30 divisions.

The Soviets have been expanding the structure of their tank and motorized rifle divisions, adding to their non-divisional combat capability (at Army and Front levels) and modernizing their equipment, most notably in the 20 divisions of the Group of Soviet Forces Germany (GSFG). Since the 1960s, about 1,000 men have been added to each of the tank divisions, and approximately 1,500 to each of the motorized rifle divisions. At least in the GSFG, modern tanks, self-propelled artillery, new anti-tank guided missiles, armored personnel carriers, attack helicopters (including the heavily armed MI-24 HIND and MI-8 HIP), and organic air defenses have been provided in quantity. About half of the tanks in the GSFG are the T-62, and the T-64 is now being deployed in significant numbers. The T-64 is a 35-tonne tank with armament, fire control, ammunition, and armor material that are probably the same as in the T-72. Because of these similarities, we had previously mistaken it for the T-72. Whether and where the T-72 may be deployed is still uncertain, but it has been shown in the Moscow parade.

Approximately half of the armored personnel carriers in the GSFG are BMPs, more properly characterized as armored fighting vehicles than as APCs. The newer artillery consists of a heavy, mobile, multiple rocket launcher and the self-propelled, armored versions of the 122mm and 152mm guns. Organic air defenses are now made up of the S-60/57mm anti-aircraft gun, the ZSU-23/4 fully-tracked, radar assisted anti-aircraft gun and five types of mobile or man-portable surface-to-air missiles.

These are impressive augmentations and improvements, though the exact levels of GSFG readiness and sustainability are uncertain. Around 20 percent of the enlisted personnel are new recruits rotated into the divisions every six months. Most of their training takes place within the divisions. Maintenance and logistic support organic to the divisions have been made secondary to combat capability, and rear-area logistic support for the divisions is quite skeletal, at least in peacetime. The Soviets appear confident, it should be added, that they need not be prepared for a surprise attack on Eastern Europe by NATO. Having the tactical initiative and being able to choose their own time make these deficiencies less serious.

b. Tactical Air Forces

Soviet Frontal Aviation consists of 16 air armies. The total fighter/attack, electronic countermeasures (ECM), and reconnaissance force consists of approximately 4500 aircraft. In addition, some 500 BADGER/BLINDER medium bombers could be used for conventional operations. Of the 16 air armies, four are located in Eastern Europe. The others are stationed in military districts in the USSR.

The Soviets continue to modernize their air armies with late-model MIG-21s (FISHBED), MIG-23s and 27s (FLOGGER B and D), SU-17s (FITTER), and SU-19s (FENCER). Nearly 80 percent of the fighter/attack elements in Frontal Aviation are now made up of these four aircraft.

The MIG-23s and 27s, SU-17s, and SU-19s have substantially better ranges and payloads than their predecessors. We also believe that their avionics and ECM capabilities have been upgraded and may be on a par with those of the F-4. As a consequence, they now have a significant capability -- previously lacking -- to conduct deep air-superiority and interdiction missions employing nuclear or conventional munitions, and to attack high-value targets such as command centers, nuclear storage sites, stockpiles of ammunition and equipment, and both aerial and maritime ports of entry in Western Europe.

c. Naval Forces

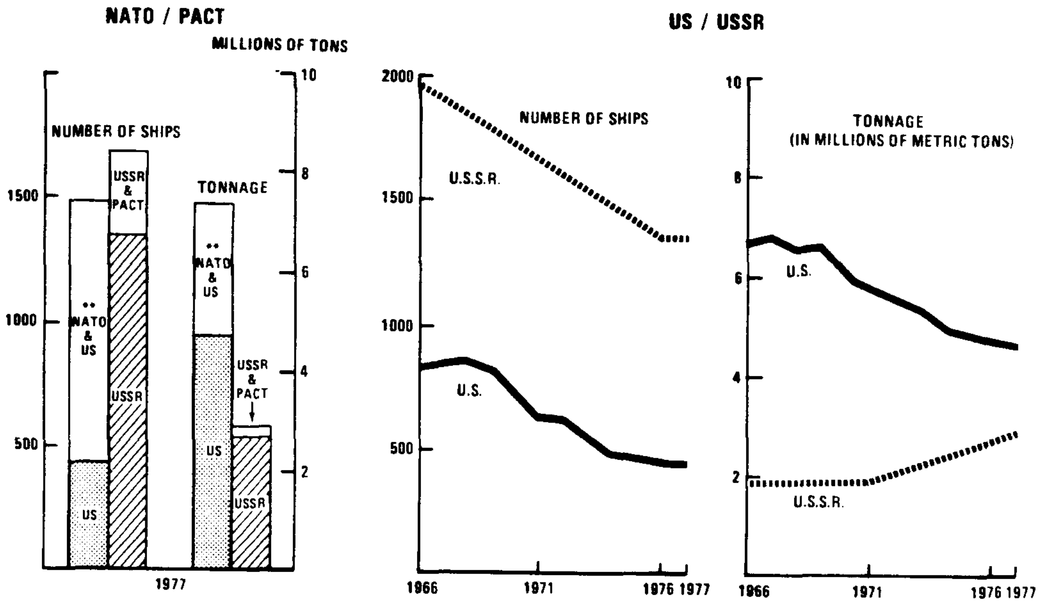
The overall size of the Soviet general purpose forces navy remains about the same as it was last year. The principal surface combatant force consists of one KIEV-class light ASW carrier (with two more under construction), two MOSKVA-class ASW helicopter ships, and 230 other surface combatants. The general purpose submarine force (excluding SSBNs) contains 195 attack and 65 cruise missile submarines.

The Soviet fleet, in addition, now deploys 82 amphibious ships. Direct support is provided by 58 replenishment ships and 166 other major auxiliaries. As has been previously noted, the Soviet merchant marine is already integrated with the navy and is acquiring military support capabilities, especially in the form of roll-on/roll-off ships, of which 25 are now in service. Naval infantry consists of approximately 12,000 men.

Trends in the general purpose forces navies of the Warsaw Pact and NATO are shown in Chart III-3.

Chart III-3

CHARACTERISTICS AND CHANGES IN GENERAL PURPOSE*COMBATANT NAVAL FORCES



* DOES NOT INCLUDE BALLISTIC MISSILE CARRYING SUBMARINES
** NON-US NATO DATA FOR 1976

The Soviets assign over 350 of their medium bombers to Naval Aviation, including the BACKFIRE. These aircraft, in combination with a system for surface ocean surveillance, give them a rapid response, extended range anti-ship missile capability.

The Northern and Pacific fleets continue to emphasize defense against U.S. aircraft carriers and interdiction of the major shipping lanes. ASW against strategic submarines also remains an important mission, and we believe that the new aircraft carrier KIEV was designed primarily for this purpose. In addition, we must anticipate a growing Soviet interest in the power-projection mission. The KIEV, with its vertical/short takeoff and landing (V/STOL) aircraft and long-range standoff anti-ship missiles, is suited to a secondary role of limited power projection, and can perform such missions as strike, interdiction of sea lines of communication, and close air support of operations ashore.

3. Contingencies

These capabilities, along with the forces of allies -- principally in the Warsaw Pact -- give the Soviets a number of military options. Owing to the heavy concentration of forces in Eastern Europe and the western military districts of the USSR, the largest and (from the standpoint of U.S. interests) the most dangerous contingency would be an attack on NATO by the Warsaw Pact. Such an attack could be launched against the northern and southern flanks of the Alliance as well as against the Central Region, and it could be undertaken by ready forces already deployed in Eastern Europe as well as by these forces after having been heavily reinforced (in a matter of weeks) from the USSR.

Recent events in the Middle East could lead to a peaceful settlement of the disputes that have torn the region for so many years. However, we have to allow for the long history of Arab-Israeli wars and the expanding Soviet capability both to challenge the U.S. Sixth Fleet and to project light combat forces into the Middle East itself. We cannot rule out the possibility that, as in 1973, the Soviets would consider sending forces there to attempt to change the outcome of a renewed conflict.

Another contingency that must concern us would be action by the Soviets to deny the United States and its allies access to the resources of the Persian Gulf. The Soviet naval presence in the Red Sea and the Indian Ocean is not overwhelming at the present time, and we are negotiating to stabilize U.S. and Soviet naval forces there. Potentially more impressive are the divisions (mostly low readiness at this time) and fighter/attack aircraft the Soviets maintain in the vicinity of eastern Turkey and Iran. An attack into these areas, while unlikely except as part of a much larger conflict, could undermine the security of the entire industrialized world.

In Northeast Asia, several contingencies must continue to occupy our attention. A major clash between the Soviet Union and the PRC remains a possibility; if it occurred, it would have widespread and damaging repercussions. While the military balance on the Korean peninsula is reasonably stable, tensions between North and South Korea remain sufficiently high so that we cannot rule out a resumption of their conflict.

In a world full of surprises, other and less predictable military threats to our interests could arise. Furthermore, some of the more likely conflicts could spread rapidly beyond their initial confines. The involvement of the United States and the Soviet Union in the Middle East or Persian Gulf could lead to threats and pressures in Europe. War in Europe, if it were not rapidly limited and terminated, could expand to the Far East. For most of these eventualities, should they be of any substantial duration, we would expect the sea lanes to Europe, the Middle East, the Persian Gulf and Northeast Asia to be contested.

The application of non-military means should help to preclude some of these contingencies. To the extent that our diplomacy can contribute to the resolution of international disputes, it substitutes for -- and is preferable to -- the threat or use of force. We have every interest in encouraging that substitution wherever possible. It seems doubtful, however, that the substitution can be complete under present conditions. Military power remains essential to political persuasion and fruitful compromise in many areas. At the same time, the deterrence of military violence is of the utmost importance to us. In many areas of the world, conflict would mean not only conventional warfare but also an increased probability of nuclear exchanges. We have strong incentives to prevent either eventuality from happening.

President Carter has already made it clear that the United States does not rule out the use of nuclear weapons if the United States, its friends, or its forces are attacked. However, we continue to believe that we and our allies are best served by basing our collective security on a firm foundation of conventional military power. We cannot depend on tripwire theories or abstract calculations about cool and studied escalation. What we seek in conjunction with our allies is a major conventional capability sufficient to halt any conventional attack.

I realize, in light of the expanding Soviet capabilities for conventional warfare, that the feasibility of providing the necessary countervailing power is once again in question. However, the plain facts are that we are perfectly capable -- given the will -- of doing whatever is necessary. As Table III-3 shows, NATO has the basic resources of population and wealth to counterbalance the Warsaw Pact.

It also does a great deal of what is necessary to have a solid and credible conventional deterrent. The issue is not one of feasibility or even of great sacrifice; it is an issue of will, determination, prudence, and efficiency. We should be clear on that score.

Table III-3

TOTAL NATO AND WARSAW PACT ASSETS

	NATO 1/	Warsaw Pact
GNP ($ Billions)	3,367	1,240
Population (Millions)	554.8	365.7
Military Manpower (Millions)	4.8	5.2

1/ Includes France.

4. The Strategic Concept

We should be equally clear that neither the United States alone nor the United States and its allies need to match Soviet and Warsaw Pact conventional capabilities man for man or gun for gun in order to counterbalance them. An important component of Soviet non-nuclear power is currently tied down in the Far East, and it gives every appearance of staying there for a long time to come. There can hardly be any question, moreover, that the Soviets have different perceptions of threats, strategic problems, and methods of dealing with them than we do. Perhaps most important of all, it is highly unlikely either that the Soviets could (much less would) undertake simultaneously all the contingencies that must necessarily concern us, or that we would find it necessary to respond simultaneously to all of them.

Because of these constraints, we continue to believe that if we prepare for a limited number of critical and demanding contingencies, and deploy our forces prudently, we and our allies can produce a conventional deterrent to a high standard of confidence. Accordingly, it is our policy to be able, in conjunction with allies, to deal simultaneously with one major and one minor conventional contingency.

Because Europe continues to be of such vital interest to us, and because the Soviets deploy so much of their conventional military power west of the Urals and in Eastern Europe, we regard an attack on Western

Europe as the appropriate major contingency against which to design our conventional forces. Because the Middle East and the Persian Gulf are areas of such volatility and importance (to Europe even more than the United States), and because forces committed to this theater could become tied down -- and therefore not immediately available for transfer to Europe -- we consider a contingency there, which could involve Soviet forces, as an appropriate case for the purposes of U.S. force planning. Because Northeast Asia remains another region of the greatest importance to the United States, we believe that an attack on South Korea by North Korea (assisted logistically from the outside) should be the scenario used as another test of the adequacy of our forces for a contingency outside of Europe.

These contingencies are not simply methodological conveniences that we use as the basis for generating a non-nuclear defense posture. They are serious, real-life contingencies for which we must specifically prepare. Indeed, it is precisely because they are so serious that the Carter administration has invested and, with the support of Congress, will continue to invest so much effort particularly in the improvement of NATO's defenses.

I note, however, that owing to the unpredictability of events and the ever-present possibility that sudden demands on the defense establishment will differ from our best-laid plans and preparations, we must avoid concentrating on these contingencies to the exclusion of other dangers and our other security commitments. If we are adequately prepared for a major and a minor contingency, we should have the resources and the flexibility to deal with most other eventualities. But that expectation must not keep us from examining a variety of less central cases and developing the necessary hedges in equipment, training, and supplies to cope with them. Among the industrialized democracies we are the only one with worldwide security commitments. Our defense posture must reflect that fact.

5. The Conditions of Deterrence

The precise force structure needed for the deterrence of conventional warfare is bound to be a matter of some debate, especially when U.S. capabilities are intended to complement rather than substitute for those of our allies. However, there should be no real issue about the main conditions of conventional deterrence under current circumstances.

What we face increasingly in Europe and elsewhere is the possibility of attacks launched in the expectation of gaining tactical surprise and quickly defeating the defense with mass, shock, and speed. This emphasis on a modern form of short, intense war is not surprising. Attackers, however much they may glory in war, rarely have an interest in prolonged campaigns. Under modern conditions, moreover, quick victories may be essential if the risks of nuclear escalation are to be avoided.

We cannot assume, however, that because plans postulate a short war, actual campaigns will fit the model. Nor can we risk substituting the facade for the substance of true combat capability. History furnishes inspiring examples of units that fought off attackers ten or more times their size. But no one would seriously argue that these are desirable odds to face, or that deterrence based upon such a large and unfavorable asymmetry would inspire great confidence or have much effect.

If deterrence is to work, we must be serious in our plans and preparations, and potential enemies must know we are. To be serious, we must satisfy a number of conditions of deterrence with our conventional forces.

a. Forward Defense

These forces, both U.S. and allied, must be sufficient in the first instance to hold a forward defense in such critical areas as Europe and Northeast Asia. A forward defense is attractive militarily because it usually requires fewer forces than would be needed to conduct an orderly retreat, stabilize a front, and subsequently recover the territory that had been lost. Politically, a forward defense is essential. We do not accept the view -- and still less do our allies -- that it is tolerable to trade allied territory for the time in which to mobilize and deploy additional U.S. and allied forces. We remain as committed to the NATO policy of a strong forward defense as we have been in the past.

We recognize, however, that with the improvements that have taken place in the GSFG, the requirements of a forward defense in Europe have increased in stringency. Forces must be more alert and able to occupy their emergency defense positions more swiftly. Ample stocks of modern war reserve munitions must be in forward areas. Above all, SACEUR (the Supreme Allied Commander, Europe) not only must have a well-manned front; he must also have mobile reserves on hand to contain and destroy enemy attempts at a breakthrough. Although NATO remains a defensive alliance, it must be able to counterattack. A potential enemy must not believe that he could win quick cheap victories or that the war would be fought for or involve solely the territory and other assets on our side of the line.

b. Firepower

Conduct of a forward defense under modern conditions requires substantial firepower at the forward edge of the battle area (FEBA). To provide it, there is no substitute for a solid front of ground forces with attack aircraft -- fixed and rotary wing -- in direct support. Only ground forces can hold territory and provide the fine-grained defense necessary to halt enemy breakthroughs. But we also need to break up the momentum of the attack, disrupt its command-control, and attack the enemy's reserves. The firepower of the tactical air forces is required to perform these missions.

While the ground forces would be holding their positions and conducting defensive operations, at least initially, the tactical air forces would be taking the offensive. Their effectiveness would depend on their success in determining the direction of and reducing the enemy's first wave of attack, and on locating and disorganizing his second and third echelons. Moreover, they would have to perform these missions while coming under attack themselves from enemy fighter/attack aircraft and from ground-based defenses. Local air superiority, passive and active defenses for both ground and tactical air forces, survivable and centralized command-control, and rugged aircraft with low-altitude penetration capabilities are among the necessary conditions to a forward defense against a powerful enemy with Blitzkrieg on his mind.

c. Rapid Reinforcement

Because the United States has worldwide commitments, and because the future is uncertain, it would be a mistake militarily to invest all our conventional power in forward deployments. Such large overseas deployments would be politically unacceptable as well.

We need to keep an adequate rotation base along with a central reserve of ground and tactical air forces in the CONUS with the versatility to operate in a number of different theaters, but with the firepower and the protection to meet and defeat the increasingly mature ground and tactical air forces of the Soviet Union. At the same time, because of the current emphasis in modern Soviet doctrine on surprise, mass, shock, and speed -- especially in the European theater -- it is an essential condition of conventional deterrence that we and our allies be able to reinforce our forward defenses at a rate sufficient to counterbalance any mobilization by a potential enemy.

Our allies are in the best position to provide the bulk of this rapid reinforcement capability. But a major U.S. contribution would be essential as well, in part to strengthen our own deployed forces, but also to bolster the allied theater-based and mobile reserves to be provided to SACEUR.

How much time would be available for reinforcement would depend on the particular location of hostilities within the theater. However, while I believe that we continue to exaggerate the speed with which the Soviets could mobilize effective combat units and deploy them into East Germany, the time would probably be sufficiently short so that only the prepositioning of division sets, other equipment and supplies, and the use of strategic airlift would permit us to maintain a conventional balance in Europe. In short, General Nathan Bedford Forrest's exhortation still stands: Get there first with the most men (erroneously rendered as "git thar fustest with the mostest").

d. <u>Readiness</u>

It should be evident that modern conventional warfare and its deterrence place a heavy premium on combat readiness. This, I should add, is a relatively new requirement for the United States in peacetime, and one to which we have not become entirely accustomed in our thinking or in the allocation of our resources. Our tradition has been one of initial dependence on the efforts of friends while we took the time to convert from a peacetime to a wartime economy, built up our forces, and produced in quantity the prototype equipment we had developed between the wars, or even after the new one had begun.

Now we face a situation where we are in the front lines of collective defense and deterrence and must depend as much on our own efforts as on those of allies to discourage and, if need be, defeat an initial attack. The luxury of a relaxed peacetime posture is no longer open to us; we cannot afford to concentrate our resources on the development and procurement of new weapons at the expense of our ability to maintain and operate them efficiently. An essentially standby capability that we can invigorate and eventually bring to a high level of performance in a prolonged crisis is simply not enough. To satisfy the demands of a forward defense -- together with the needs for diversified firepower from sophisticated weapons sytems and rapid reinforcement -- we must depend principally on forces that are in a high state of combat readiness at all times.

This means, to begin with, that where the United States is concerned the forces we allocate to forward defense and rapid reinforcement must, for the most part, be active-duty forces. In principle, reserve forces can be brought to the level of readiness necessary to meet the deadlines of modern warfare, as Israel has demonstrated. In practice, we are able, thus far, to match that performance only with our reserve air units and selected support forces that do not require extensive training in units.

The affiliation of high-priority Reserve Component Army battalions and brigades with some of our active divisions has been an attempt to show the way to higher readiness in our standby ground forces. Other Army reserve units are also being upgraded. The results of these efforts are not yet clear. In the meantime, our first line of defense must depend primarily on the relatively expensive and manpower-intensive active-duty forces. Not only must these forces be fully equipped and highly trained; they must also have ample stocks of modern munitions and other supplies, and their equipment must be well maintained.

Our capability for modern warfare is not so extensive that we can afford to let modern equipment stand idle for lack of spare parts, maintenance, and overhauls. In fact, readiness in this broad sense is such an essential condition of modern deterrence that, in some instances, we may be better off (within a given budget) sacrificing new procurement in order to acquire the funds necessary to maintain the tested equipment we already have in our inventories.

Such trades are bound to be unpopular, running as they do against our traditions; and they may not always be desirable. But forces without a high complement of combat-ready personnel and equipment -- however sophisticated the (out-of-commission) weapons may be -- are not likely to carry much weight in defense against (or deterrence of) a Blitzkrieg.

e. Sustainability

One of the central issues we face in the design of our conventional posture is how much sustaining capability we should maintain -- or, to put it another way, how long a conventional war (and at what consumption rates) we should be prepared to fight. How we resolve this issue will have an important impact on our general purpose forces budget and on our combat capability.

The issue is not new. It first arose along with the widespread belief that any clash among the great powers would escalate to general nuclear war. It was revived by the evidence of Soviet plans to fight a short, violent campaign in Europe that would last no more than a few weeks (if everything were to go according to their plans).

We are examining this issue at the present time, and I do not wish to prejudge the outcome of our studies. However, there are several considerations we must obviously take into account before reaching any major decisions about the degree of sustainability we should maintain or acquire. First, there continue to be uncertainties about the length of the war for which, at least hypothetically, the Soviets might be preparing. Second, at the very least, we and our allies must have the capability to outlast them -- or equal their staying power to the time by which nuclear escalation becomes very likely.

The last point is obvious but important. As I have already indicated, deterrence is based to an important extent not only on our capabilities, but also on our record of performance and the seriousness with which we go about our business. One mark of our seriousness is the determination not merely to stop an attack but to carry the war to the enemy and make him pay a long-term price for his transgression. To show that determination, we should acquire enough sustainability to indicate that we would and could charge an enemy heavily for having disturbed the peace.

How far we should go in that direction awaits further analysis. However, I should point out that we already have, and undoubtedly will continue to maintain, one major "long war" hedge: namely our National Guard and Reserve forces, although some of these units are identified for early deployment, particularly reinforcing elements which provide logistics support. Other such hedges will be appropriate as well, provided that they are not maintained at the expense of our capability for prompt initial defense.

f. Sea Control

The need for sea control and general purpose naval forces invariably arises as a part of the sustainability issue. However, even if we were to decide that never again would we fight more than a two-week war, our need for sea control and naval forces would still be substantial. The presence that naval forces provide, as in the case of the Sixth Fleet, undoubtedly contributes to deterrence and stability. Their ability to perform the sea control mission helps to underwrite the peacetime freedom of the seas so essential to our commerce and prosperity. And the availability of this capability enables us to use the sea lanes in a prolonged crisis with the assurance of protection. Similarly, sea control can provide powerful support to our diplomacy as was the case, in 1962, when President Kennedy directed a quarantine of Cuba. Beyond these functions, if we are to reinforce and sustain our overseas forces -- especially in Europe -- after the initial phase of a defense against a Blitzkrieg (as I believe we should be prepared to do), we must turn to the sea lanes for the movement of 95 percent of our tonnage, and to sea control for its protection. Control of the seas may, indeed, be essential to any successful termination of hostilities. We cannot plan on being able to end a short war successfully unless our adversaries know that we can reinforce our deployed forces and sustain them.

I should add that, while we are quite uncertain as to how a conventional war in Europe might evolve, we would want to maintain naval and other forces in the Western Pacific at all times. We need them there as evidence of our determination to fulfill our treaty commitments, but that would not be their only function. They might well serve as a deterrent to the spread of the conflict; they could possibly immobilize other forces disproportionate to their size; and they would -- in sufficient quantity -- enable us, together with our allies, to keep the sea lanes open to Japan and Korea in the event that deterrence should fail.

g. Power Projection

Even if Europe and the Middle East were the only concern of our conventional forces, power projection would be important to deterrence. For force planning purposes, we focus particularly on the Central Region of Europe, but the northern and southern flanks of NATO are in danger as well. Both areas have seacoasts that lend themselves to amphibious operations and sea-based airpower.

The ability of the United States to project its power swiftly to the flanks should reassure our allies there and reduce the probability of limited operations by the Soviets to gain better access to or control over the North Atlantic and Mediterranean.

The geographical conditions that would permit the conduct of amphibious operations and air support exist in the Middle East, Persian Gulf, and Korea as well. And as the power projection capabilities of the Soviets expand, it is essential that we have the mobile power at sea to anticipate or respond to their actions and to operate against bases they might have or establish. Indeed, this last requirement could prove particularly important to the establishment of sea control.

6. The Adequacy of the Posture

a. Central Europe

The primary test of whether we currently satisfy these conditions of deterrence comes from a hypothetical Warsaw Pact attack in Central Europe. If we have reasonable confidence of halting such an attack, it would be logical to assume that we have the basic forces to deal with other contingencies of a less demanding nature.

Basically, there are several levels of attack by the Warsaw Pact against which we should measure the adequacy of our conventional posture. At the first level, the Pact could use a portion of its forward deployed forces; at the second level, all the deployed forces of the Pact could come into play; at the third level, the attack could consist of the entire deployed force plus reinforcements from the western military districts of the Soviet Union. Another possibility would be an attack beginning with the lowest level of forces, but accompanied by a mobilization and deployment that would continue until the full force was engaged.

The third level of attack is the most demanding in the sense that it tests the adequacy of the full U.S. force structure, including our reinforcement and resupply capabilities. Attacks by the forward deployed Pact forces are also important, however, not only because of the Soviet emphasis on surprise and Blitzkrieg, but also because of the tests to which they put other aspects of the NATO posture -- forces in place and very early reinforcements.

It should be evident, moreover, that if NATO is vulnerable to an attack by forward deployed Pact forces, our ability to deal with the larger attacks could be irrelevant. We would derive little satisfaction from having engaged in a massive mobilization only to discover that Europe had been lost during the process. Of course, the Soviets would also be taking risks with quickly prepared attacks. Command and control would not be fully established, follow-up forces would not be immediately available, and coordination would be marginal. Therefore, a Warsaw Pact attack with little or no warning is unlikely.

(1) Deployed Attacks

Neither the Soviets nor the other members of the Pact engage in large-scale maneuvers in Eastern Europe. It is estimated, nonetheless, that after a short period of preparation the Pact could execute an attack with two "fronts." It is believed that we would probably have some warning of this attack.

After another short period, the Pact could add another "front." NATO would probably receive fairly substantial warning if the attack occurred only after the larger force had been assembled.

With adequate warning, NATO could have the forces in the Central Region to halt these attacks. However, there are enough vulnerabilities in the posture of the Alliance so that we could not count on that result with confidence.

(2) Mobilized Attacks

It is conceivable that the Warsaw Pact, with more time, could make ready all of its forces in Eastern Europe and bring in additional divisions from the western military districts of the Soviet Union and more aircraft from reserve and training establishments. However, many of the Pact divisions would probably be at less than full combat readiness. Although NATO might receive considerable warning of preparations for this attack, the Soviets would probably seek to achieve tactical surprise.

NATO has the inventory of ground and tactical air forces necessary to stop even this attack, at least by most of the measures available. However, the Alliance would encounter serious problems in bringing its basic power to bear in this short a time because of:

-- shortages of both direct and indirect firepower (primarily anti-tank weapons and heavy artillery);

-- shortages in stocks of combat consumables, including ammunition, and war reserve materiel to sustain intense combat by NATO allies;

-- shortages in allied ready reserve units such that it would be difficult to match the Pact buildup in the early days of mobilization while awaiting the arrival of the heavy U.S. ground and tactical air forces;

-- continuing weaknesses in the U.S. reinforcement arrangements for ground and tactical air forces -- with too few prepositioned division sets (POMCUS), too few stocks of ammunition and other combat consumables, and a continuing shortage of bed-down facilities and protective shelters for our deploying aircraft.

On a longer-term basis, the Alliance, in addition to acquiring greater interoperability, also needs to provide for better electronic warfare capability, upgraded army and theater-wide air defenses (with AWACS), and better rationalization and standardization of doctrine and equipment.

Actions we are proposing, and taking, to overcome these weaknesses are discussed in Section IV. As far as the United States itself is concerned, the main problem is less one of force structure than of readiness and sustainability -- the currently programmed strength of 16 active Army divisions and 26 Air Force fighter-attack wings is sufficient for an initial defense in light of Pact and allied capabilities. What we need are:

-- heightened combat readiness and alertness for the forces deployed in Europe, along with greater responsiveness to warning and appropriate facilities for wartime C^3, manned and ready in peacetime;

-- continued restoration of existing prepositioned division sets (POMCUS), the addition of more division sets, and larger stocks of war reserve materiel and combat consumables in the theater;

-- improvements in the reinforcement system for ground and air forces so that existing and additional prepositioned stocks can be exploited more rapidly, and fully equipped forces can be deployed into the theater; and

-- greater interoperability with allied forces achieved by the modification of existing equipment and procedures.

b. The Flanks

Contingencies in the Central Region of NATO could be accompanied by attacks on one or both of NATO's flanks. In the Northern Region, Iceland and Norway would require allied support in the event of a Soviet effort to break out of the Murmansk area. In the Southern Region, Greece and Turkey would need modern tactical air support to buttress their defenses against Pact attacks on Thrace and efforts to seize control of the Dardanelles.

The United States would not bear the sole burden of supporting Iceland and Norway, but could make a significant contribution to their defense with a Marine Amphibious Force and fighter/attack support. The U.S. Sixth Fleet and land-based tactical air would be available to provide air support on the southern flank in addition to their other missions, although the vulnerability of naval forces to surprise attack when in the eastern Mediterranean must remain a matter of continuing concern.

This does not mean that I am generally satisfied with the situation on the two flanks; I am not. However, I continue to believe that the main problems come from weaknesses in the indigenous defense forces rather than from the magnitude of our direct force contributions. Clearly the most efficient use of our resources is in helping to strengthen the indigenous capabilities and improve their integration with other allied capabilities, especially in the south.

c. Northeast Asia

Our strategic concept calls for the capability to deal with only one major contingency at a time. What we provide in the form of ground and tactical air forces to help our allies halt a Warsaw Pact attack in Europe should be more than adequate to deal with any foreseeable contingency in Northeast Asia. To the extent that our rapid reinforcement system needs improvement (particularly in the form of expanded strategic airlift) to deal with Pact buildups in Europe, the improvement should suffice to manage any requirements we might have in the Far East. Even at the peak of the Korean war, our deployments never exceeded eight divisions and 12 land-based tactical air wings -- well below what we are capable of providing at the present time.

It is our policy, nonetheless, to maintain a strong defense posture in the Western Pacific, not only as a demonstration of our interest and presence in the region, but also because we would want to deter any reckless actions in Northeast Asia at a time when crisis threatened in Europe and our main forces were oriented toward NATO. In addition, while withdrawal of the U.S. 2nd Infantry Division is appropriate in light of present and potential South Korean ground capabilities and our own need for greater flexibility in the allocation of our limited number of divisions, we will continue to provide powerful support to the ROK (Republic of Korea), to help deter a North Korean attack. The principal forces immediately available within the Western Pacific will be nine squadrons of land-based fighter/attack aircraft (of which three squadrons will be based in Korea), the two brigades of the Third Marine Amphibious Force, including its organic air, in Japan (Okinawa), and the 20-25 combatants of the Seventh Fleet, which will include two aircraft carriers.

We will also maintain the capability to reintroduce additional combat forces, including the 2nd Division and a larger complement of tactical fighters, should conditions so dictate. With Japan as the northern anchor, we should be able to man a strong defense perimeter in the Western Pacific with tactical air and naval forces, and only a modest commitment of ground forces. The programmed force structure and posture would permit us to do so.

d. The Middle East

This administration has made it clear that the United States will honor all its commitments. This does not mean, however, that we must have the forces available to meet all of them simultaneously. We continue to believe that if we have the capability to deal with a minor contingency simultaneously with (or prior to) a major contingency in Europe, we will have sufficient flexibility to cope with most eventualities. There remain, however, a large number of possible contingencies from which to choose for the purpose of sizing and testing the adequacy of our minor-contingency forces. Each would place differing demands on the size, composition, equipment, and training of these forces.

Although there is no right way to design around this complexity and uncertainty, we believe that a contingency in the Middle East qualifies as an appropriate test on several grounds. We have vital interests in the area; it is an area that still lacks stability; and it is sufficiently distant from the United States to make exacting demands on some of our capabilities (such as lift, base structure, and communications), especially if another great power becomes involved militarily on the opposing side. Put to that test, the several Army divisions, Marine amphibious forces, and air wings that would not be immediately required for an initial defense of NATO should be adequate for this purpose.

e. The War at Sea

None of these contingencies directly test the bulk of our naval forces. It is evident, however, that all of them would require control of the sea and air lines of communication necessary to the resupply and reinforcement of our forces in one or more of these theaters.

For planning purposes, we cannot preclude the occurrence of a minor contingency in the Middle East immediately prior to a major contingency in Europe. These two possibilities (and the presence of major Soviet forces in the Far East) would dictate the maintenance of a deterrent or combat posture in the Western Pacific, to prevent the war from spreading or to apply military pressure there. Thus, in the event of a major emergency, we would want to be able to provide sea control forces sufficient to maintain our lines of communication in the Mediterranean, the Atlantic, and the Pacific. Provided that our allies could control the exits from the Baltic and the Black Sea, the main threats to the air and sea lanes would come from the Soviet squadron already in the Mediterranean and the submarines and aircraft of the Soviet northern and Pacific fleets. Containment of these threats would necessitate the establishment of a series of barriers in narrow seas and point defenses of capital ships and shipping based on mines, submarines, land-based aircraft, surface combatants, and sea-based aircraft. In addition, the Soviets might try to evade some of these defenses by the predeployment of submarines and surface combatants, and the use of overseas bases for refitting and resupply. U.S. or allied power projection forces would then be needed to neutralize these bases.

A campaign against Soviet naval forces -- and particularly the submarine threat -- could be prolonged, and allied shipping losses would probably be significant. As of now, however, we believe that the minimum necessary military and economic cargoes could be delivered to the theaters of combat, and that both the submarine and the air threats could be brought under control within an acceptable time.

Whether we could count on this outcome in the future -- as Soviet submarines become quieter and Soviet naval aviation and surface combatants grow more capable -- is uncertain. So is the appropriate response. However, we plan to keep 12 carriers in the active force. It also seems reasonable to continue aiming for a first-line nuclear attack submarine force of about 90 boats, and we are likely to need on the order of 250 surface combatants for the protection of capital ships, amphibious forces, underway replenishment groups, and convoys. However, a 600-ship active navy is not feasible in the next decade. For this reason, and particularly because the cost of nuclear ships is so high, we still need to review further the mix of ships proposed by the previous administration. These issues are examined more closely in Section IV.

f. Conclusion

The active forces of the United States provide the main basis for an initial defense in the event of a major attack on our interests, and would bear the brunt of combat in any short war. Accordingly, they constitute the backbone of our non-nuclear deterrent. They should be such that an enemy confronted with these forces (and with those of our allies) would conclude that his prospects for a quick victory were poor. However, if we lacked the capacity to sustain a defense beyond this initial phase, he might believe he could outlast us and gain his ends after a more prolonged campaign. Our National Guard and Reserve forces provide a major deterrent to this possibility. In most respects, they are adequate for the purpose. However, programs to modernize their equipment, improve their readiness, and provide war reserve stocks continue to be necessary.

III. OTHER CAPABILITIES

In principle, decisions about force structure should determine our needs for operations and maintenance, procurement, and personnel. In practice, these programs are sensitive to a number of other factors, and do not follow directly from decisions about our force structure and posture. Indeed, some of our most essential programs are not directly and may in some cases be inversely related to the size, composition, deployment, and readiness of our forces. I refer in particular to security assistance, intelligence, C^3, and our investment in research, development, and production base.

These programs will be given more detailed treatment in Section IV. They have required particularly searching review both because of the way they have evolved and because of developments that now affect them.

A. Security Assistance

Since the end of World War II, the United States has viewed security assistance as a major instrument of our policy. Security assistance helps to:

- -- strengthen our collective defense arrangements, as in NATO;
- -- maintain regional military balances, as in the Middle East;
- -- secure base and operating rights for U.S. forces, as in Spain and the Philippines;
- -- compensate for the withdrawal of U.S. forces from overseas positions, as in Korea; and
- -- strengthen bilateral political relations.

These will remain the principal objectives of our security assistance programs.

1. Background

U.S. security assistance is provided in several ways: by grant aid under the Military Assistance Program (MAP), now a small part of the total; by commercial sales, which account for about ten percent of the total; and by government-to-government Foreign Military Sales (FMS), made on a cash or credit basis and accounting for most of the activity.

The International Security Assistance and Arms Export Control Act of 1976 strengthened Congressional controls over security assistance. It provided for the elimination of MAP, except in countries specifically authorized by Congress, and tightened congressional oversight and review of all programs.

During the period from 1950 to 1977, the United States programmed under MAP or sold about $126 billion in defense articles and related services. In 1977, U.S. sales were made to 77 countries and international organizations and amounted to more than $11 billion. As of end FY 1977, unfilled foreign orders for U.S. defense articles and services amounted to more than $39 billion.

Since our withdrawal from Southeast Asia, over 60 percent of U.S. defense exports have gone to Middle East countries (specifically to Israel, Iran, Saudi Arabia and Jordan), while about a third have gone to NATO, South Korea, and Japan.

2. New Policies

On May 19, 1977, following a review of U.S. conventional arms policies, President Carter announced that henceforth the United States would regard arms transfers as an exceptional instrument of national security policy. In the future, the United States should take the initiative in reducing arms sales, and the burden of proof for a particular sale should rest on those proposing it.

The main points of the policy, as announced by the President, are that:

- The FY 1978 dollar volume (in constant FY 1976 dollars) of new FMS and grant aid commitments, except to exempt countries, will be reduced from the FY 1977 total. However, commercial sales monitored through the issuance of export licenses and transfers of services are not covered by this restriction.

- The United States will not be the first to introduce into a region newly developed, advanced weapons systems that would create expanded or significantly greater combat capabilities. Furthermore, any commitment for the sale or coproduction of such weapons is prohibited until they are deployed with U.S. forces.

- The development or significant modification of advanced weapons systems solely for export is prohibited.

- Coproduction agreements for significant weapons, equipment, and major components are prohibited. A limited class of items will be considered for coproduction, with restrictions on exports to third countries.

- As a condition to the sale of certain weapons, the United States may, in addition to existing legal requirements, stipulate that we will not entertain any requests for transfers to other countries.

- Authorization at the policy level of the Department of State will be required for actions by U.S. agents or private manufacturers who might promote arms sales abroad. U.S. embassies and military representatives abroad will not promote arms sales.

3. Implementation

These controls will be binding unless the President decides that extraordinary circumstances dictate an exception. Furthermore, they will not apply to such major allies as the members of NATO, Japan, Australia, and New Zealand. The President also indicated that we will continue to fulfill our commitments to Israel and honor existing foreign contracts.

As a result of the new policy, the United States has declined a request from Pakistan to buy A-7 aircraft on the ground that they would introduce significantly greater military capabilities on only one side of the South Asian balance. We have also refused to sell F-18L lightweight fighters to Iran because they are not now programmed for U.S. forces.

Human rights in prospective recipient countries will be an important factor in deciding whether a particular arms transaction should go forward. In fact, the Congress has already amended the Foreign Assistance Act to this end. The President must now design security assistance programs so as to promote the observance of internationally recognized human rights, and dissociate the United States from governments that violate them.

4. Prospects

A major reduction in the international arms traffic will take a long time and will require multilateral cooperation. Nonetheless, the United States hopes, by setting an example of restraint, to persuade other exporting nations that restraint is in their interest as well. The United States and the Soviet Union are already discussing the possibility of establishing a joint working group on conventional arms transfers, and we will meet with other arms suppliers to discuss multilateral measures for the control of these transfers. We will also encourage regional agreements among purchasers to limit arms imports.

Although restrictions on arms sales could eventually lead to the loss of some U.S. jobs, and some industries and geographical regions could be adversely affected, the aggregate economic impact of our policy on the United States should be modest.

B. Intelligence

At a time of increasing Soviet military capabilities and persistent international turbulence, ranging from terrorism to economic competition, timely knowledge of current events and likely future occurrences is critical to our national security. Accurate intelligence and analysis provide an essential basis for the planning and management of our forces and the development of our policies. The role of intelligence is to provide as realistic as possible a view of forces and conditions in the international environment.

As the nation's primary consumer of intelligence information, the Department of Defense is also the largest investor in intelligence programs, which range from technical collection systems to mapping for the field commander. The Defense Department's major role in U.S. intelligence is the result of large and varied needs for intelligence; and the demands of the "consumers" are as diverse as the means to collect the required intelligence.

Certain of those intelligence needs are especially worth noting:

-- Senior decision-makers, both inside and outside the Department, require accurate information and objective estimates about political-military and economic situations of current and future importance on which they advise the President. Indeed, such information is critical to negotiations, international agreements, and policy toward international diplomatic and military developments.

-- Defense planners, responsible for weapons systems and for designing the structure of U.S. military forces, require detailed data and projections on which to base recommendations as to the size and capabilities of forces, deployments, and research and development.

-- The primary objective of U.S. forces is to deter attacks on the United States and its allies. The defense intelligence community supports this objective by assessing and evaluating the technical developments and force deployments of potential enemies.

-- Operational commanders need intelligence for tactical warning as well as for tactical support to detect and determine the activity and mission of potentially hostile forces.

-- In the event of war, it will be critical to have intelligence-gathering systems that are responsive to the needs of operational commanders. The design and planning for this war-fighting contingency is a major challenge for Defense intelligence.

Great effort is directed toward satisfying the specific intelligence needs of these varied consumers. The Defense Department has a particular responsibility to support tactical commanders at all levels worldwide.

The Defense intelligence community is faced with a number of challenges to the successful accomplishment of its missions.

First, the international environment has significantly increased in complexity. Changing political alignments and growing economic interdependence are but two factors contributing to this trend. Consequently, greater requirements for intelligence collection and analysis are levied on intelligence organizations.

Second, the military capabilities and sophistication of hostile foreign governments have grown steadily. Detailed knowledge of these developing capabilities across a broad spectrum is required for our own force and countermeasures development.

Third, Soviet activities and those of other countries who are adversaries of the United States continue to expand in all areas of the world. In order to forewarn policy-makers of situations harmful to the United States, Defense intelligence must keep pace. Recent events in the Middle East and Africa, in particular, have resulted in new demands for intelligence collection and analysis.

Fourth, while technological developments have increased our capabilities to collect information, our ability to exploit and analyze this information properly to support intelligence consumers has not increased commensurately.

The intelligence community is being adapted to meet these challenges. A reorganization of the intelligence community has taken place, in line with provisions of a new Executive Order. A Policy Review Committee (Intelligence) of the National Security Council has been established to act as a "consumers' union" and set the requirements and priorities for national intelligence. The budgetary process for intelligence is being overhauled to give more centralized direction by the Director of Central Intelligence to the entire National Foreign Intelligence Program (NFIP) of the various departments and agencies. This reorganization will also ensure the necessary balance between the efficiencies of a centralized budgetary system and the flexibility required to manage those intelligence assets essential to the operations of military forces.

Within the Defense Department, management of intelligence policy has been placed under the Deputy Under Secretary of Defense for Policy. A recent statutory reorganization of the Department established two Under Secretaries -- one for Research and Engineering, and one for Policy. The new Deputy Under Secretary for Policy is responsible for confirming requirements and priorities for intelligence collection, production, research and development, as well as systems acquisition. The Assistant Secretary of Defense for Communications, Command, Control, and Intelligence, who is also the Principal Deputy Under Secretary of Defense for Research and Engineering, has principal staff responsibility for intelligence resource management. In this way, we should make the best use of our intelligence apparatus to satisfy both national and departmental requirements.

Security restrictions on the dissemination of intelligence to those who need and can use that information remain a concern. Efforts are underway to downgrade and declassify more rapidly classified materials, restrict unnecessary compartmentation and provide to intelligence consumers in a timely manner that information they can effectively utilize.

Our ability to analyze and evaluate intelligence has not kept pace with our ability to collect data. Greater attention should be given to intelligence analysis and the improvement of our dissemination capabilities.

C. Command, Control, and Communications (C^3) Policy

Survivable, reliable and secure command, control, and communications (C^3) systems are essential to the effective implementation of strategy, control of forces, and employment of weapons. The significance of our C^3 systems can, in part, be judged by the extensive measures taken by the USSR (at great cost) to permit the destruction, exploitation and disruption of C^3 functions of potential adversaries. We must continue to improve our own C^3 capabilities through better management and exploitation of our technology base to assure coordinated control of our forces and the undisrupted functioning of our systems.

We have defined the following broad policy goals, objectives and guidance:

-- Our strategic and tactical communications and command and control systems should provide effective command support during peace, crisis, and war, and during the transition from one state to another.

-- The threat to our C^3 systems must be regularly reviewed to ensure that the systems connect and have a response time consistent with the needs of our forces in carrying out their missions. To aid in this requirement, a common threat model must be developed and maintained.

-- The need for new C^3 systems and improvements to existing ones must be justified by the Mission Element Need Statements, in accord with OMB Circular A-109. To ensure that proper C^3 systems are developed and existing ones kept modern, the views of the operating forces must be solicited. In addition, there must be an interaction between operational objectives and technology in the definition of C^3 requirements. A strong effort should also be made to ensure compatibility with existing C^3 systems, doctrine, and procedures, and ongoing related developments.

-- It is particularly important to achieve interoperability among our forces for joint operations, and to attain interoperability with our allies to the extent necessary for combined operations.

-- To meet the challenge of Soviet offensive C^3 countermeasures to our strategic and tactical forces, our objective must be to reduce drastically enemy capability to exploit, spoof, jam or target our C^3 systems, and in turn, to disrupt his ability to control his forces. Cooperation with our NATO allies will be necessary to ensure that a coordinated C^3 countermeasures capability is achieved in the European theater.

-- The durability and survivability of our C^3 assets must be increased. Consideration will be given to mobile/transportable C^3 systems that have minimum set-up time; reduced reliance on fixed overseas systems; hardened systems; avoidance of single node voice and data communications; and redundant or distributed systems to support the backup chain of command in the event of loss of primary command structures.

D. Investment

Finally, there is a large and vital area -- comprising research, development and weapons acquisition -- which takes a major part of the long-run investment required to maintain the effectiveness and vitality of the defense establishment at an acceptable cost. No one questions the need for an R&D program of major proportions: to improve efficiency, to modernize, to exploit new opportunities, and to understand the activities of other and more secretive powers. Nor is there any doubt about the need for a modern and efficient production base adequate to satisfy current equipment and supply requirements. But while these capabilities are necessary, some question exists as to whether they are sufficient, in light of:

-- the role of the United States as the principal defender as well as the arsenal of collective security, and hence without the time any longer to convert to a wartime economy after a war has begun;

-- demographic trends which mean a decreasing number of people in the 18-to-26 age group during the next decade and the increasing probability that technology and machines will have to substitute increasingly for personnel;

-- the likelihood of smaller standing forces both in the United States and Europe, and probably in the USSR as well;

-- as one consequence, the possible reversion of nations to alternative strategies of mobilization, with warm production lines or large stockpiles of equipment and supplies;

-- the major investment program of the USSR (in production base as well as R&D capability), with the payoffs already visible in higher quality of materiel, but without any major sacrifice in numbers;

-- the continuing competition with the USSR, despite the efforts to control or moderate it, with the ever-present potential for confrontation and crisis;

-- the continuing fact that military success remains to an important degree a function of numbers and saturation tactics, especially in nonnuclear conflict.

Our choices and plans are discussed in light of these developments in Section IV. It is clear, however, that this area of capital investment is not one about which we can afford to be complacent.

SECTION IV

DEFENSE PROGRAMS

CHAPTER I

NUCLEAR FORCES

STRATEGIC NUCLEAR FORCES

I. STRATEGIC OFFENSIVE FORCES AND PROGRAMS

A. Program Basis

Factors used in planning our strategic forces are discussed in Section III. I am confident that our current strategic forces and those we propose are consistent with the continued maintenance of essential equivalence under current Strategic Arms Limitation Talks (SALT) agreements. With time, and the completion of new agreements, the composition and size of these forces will undoubtedly change. We hope that the size of the forces on both sides can be significantly reduced, and their characteristics made less threatening. However, we will continue to insure that any strategic arms limitation agreement is equitable and consistent with the concept of equivalence of nuclear forces.

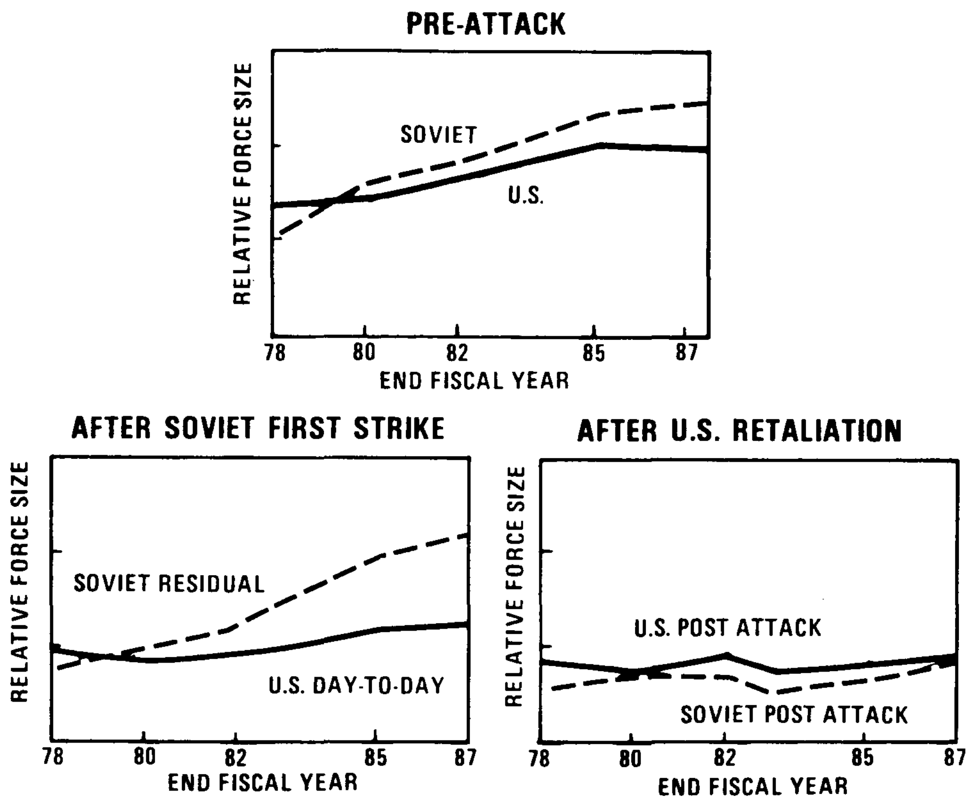
There is no generally accepted single way to compare our strategic capability with Soviet capability. However, our primary measure of strategic capability is our ability to retaliate after a Soviet first-strike. Analyses show that, over a range of hypothetical major wartime events, our current forces could ride out a massive Soviet first-strike and retaliate with devastating effect. Chart 1A-1 shows comparative U.S. and Soviet force capabilities under various scenarios. The comparison considers projections of the Soviet offensive and defensive threat under a SALT II agreement (U.S. forces include cruise missiles on B-52s but exclude wide-bodied cruise missile carriers, B-1, and MX) but does not consider changes in the size or characteristics of the Soviet target base. The charts show, for example, that for the scenario in which the Soviets strike first, with U.S. forces on day-to-day alert, we are planning for an increased retaliatory capability. As the early 1980's evolve, the U.S. residual forces increase with the deployment of the cruise missile. We plan this capability increase:

- -- to offset growing Soviet strategic armaments in order to ensure that there is no doubt as to our capability in the minds of Soviet leaders, in the minds of our allies, or even in our own minds should we be faced with a moment of deep crisis; and

- -- to hedge against the uncertainty of future political and technological events.

CHART 1A-1

U.S. AND SOVIET STRATEGIC FORCES COMPARISON (DAY-TO-DAY ALERT)



Note: Relative force size is a measure of force capability to destroy a given set of economic and military targets. The charts are based on U.S. day-to-day alert forces. Soviet "pre-attack" forces are those on day-to-day alert; Soviet residual forces after a first-strike are those which could be generated; and Soviet post-attack forces assume that the same Soviet bombers and SLBMs could be generated prior to U.S. counterforce retaliation. When both sides are on a generated alert, or when the U.S. strikes first, the relative force size measure is more favorable to the United States than shown in these charts.

The matter of perceptions, to which increased second strike capability contributes, has been addressed in Section III. To hedge against the unexpected, we maintain three separate strategic forces, ICBMs, SLBMs and air-breathing systems, in part to ensure that breakthroughs in offensive or defensive technology do not unacceptably degrade our retaliatory capability.

The recent cruise missile decision and its emphasis on air-launched weapons recognized a growing relative reliance on the Submarine Launched Ballistic Missile (SLBM) leg of the TRIAD and the need to hedge against potential Anti-Submarine Warfare (ASW) threats or a breakthrough in Anti-Ballistic Missile (ABM) capability. A basic motivation of the TRIDENT program, with its longer range missile and quieter submarine, is also to hedge against unexpected ASW developments, while providing a cost/effective replacement for our aging SLBM force. Similarly, development of a new Intercontinental Ballistic Missile (ICBM), the MX, that may be deployed in a mobile mode is motivated by a desire to maintain the option of having a survivable ICBM leg of the TRIAD to hedge against both the expected threat -- e.g., the growing threat to MINUTEMAN silos -- and the unexpected.

In addition to being able to inflict unacceptable damage on the Soviet Union in retaliation, our surviving strategic offensive forces must have the ability to:

-- implement a range of selective options to allow the National Command Authorities (NCA) the choice of other than a full-scale retaliatory strike if needed; and

-- hold a secure force in reserve to ensure that the enemy will not be able to coerce the United States after a U.S. retaliatory strike.

Force characteristics consistent with these objectives are being pursued in each element of the TRIAD. The MK-12A warhead, combined with greater accuracy, will improve the flexibility and effectiveness of a portion of the MINUTEMAN III force. MX and TRIDENT II would provide higher survivability as well as high effectiveness and flexibility against the full range of threat targets.

We are investigating the feasibility of improved SLBM accuracy and pursuing improved SLBM command, control and communications (C^3) which would provide SLBMs greater effectiveness and flexibility in the execution of various response options and as part of a secure reserve.

Finally, the accuracy and yield of the cruise missile married with the bomber will provide the National Command Authorities (NCA) with a system, on a recallable launcher, that can be employed against virtually the entire target spectrum with high effectiveness and low collateral damage.

B. Program Description and Status

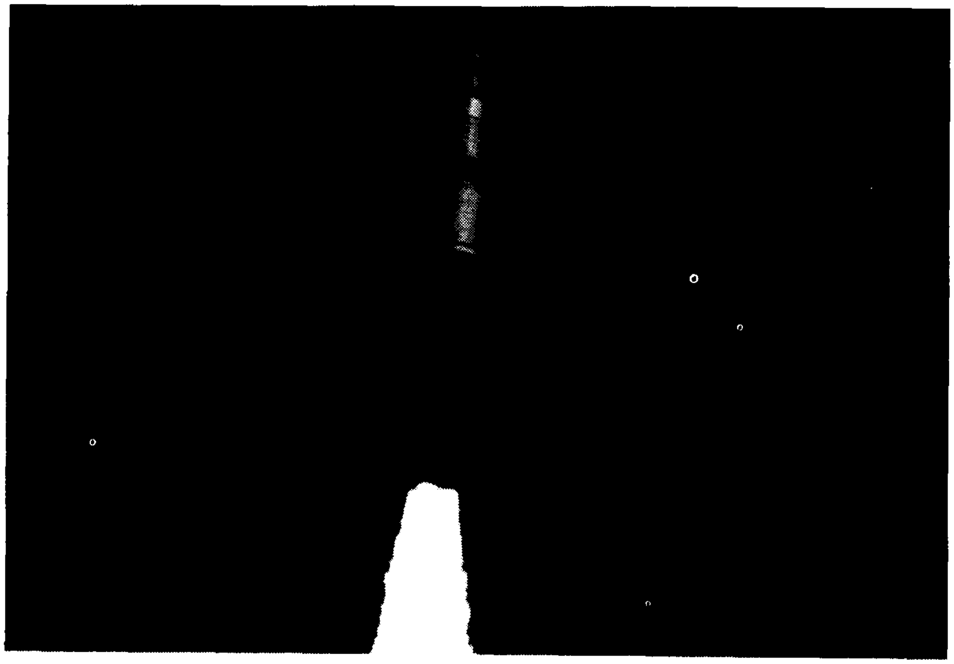
1. ICBMs

The unique role played by the ICBM force in the current TRIAD of strategic forces is well recognized. The ICBM combines yield, accuracy and timely response which alone permit it to be deployed effectively against the entire range of targets. It enjoys the additional advantages of secure and timely command, control and communications, and operating costs which are markedly less than those of bombers or SLBMs. Today, the ICBM force contributes significantly to the effectiveness of our deterrent forces.

The projected vulnerability of both the United States and Soviet silo-based ICBM forces is also well recognized. It exists with or without SALT limitations though it may be possible to delay that vulnerability through SALT proposals, it is doubtful that this situation can be reversed by a negotiated accord. Increasing silo vulnerability does not mean the end of the TRIAD concept, however, even if we do nothing more than upgrade the silos to enhance survivability. The silo-based ICBM force will continue to remain a potent force against which the Soviets would have to allocate considerable effort to destroy with even medium confidence. Moreover, there would be considerable uncertainties associated with any Soviet attempt to execute a coordinated and successful attack against all U.S. MINUTEMAN silos. Fratricide, missile reliability, and possible operational degradation of Soviet ICBM accuracy are all complicating factors. Nor can an attacker ignore the possibility that we might launch our ICBMs under attack -- an approach which requires the greatest caution, but through which vulnerability problems are avoided. The seemingly paradoxical situation that results from these technological and strategic considerations is that, in the early 1980s, we will not have much confidence that more than a small percentage of our silo-based missiles can survive a Soviet preemptive attack. But the Soviets could not be at all confident of destroying the bulk of our missiles.

If beyond the mid-1980s we desire to retain the same retaliatory effectiveness provided by today's ICBM force, we will need a more survivable ICBM basing mode, or a considerably more capable silo-based missile to maximize the retaliatory effectiveness of the small percentage of missiles expected to survive an all-out Soviet attack on the Minuteman Force in the mid to late 1980s. Mobility can provide the desired survivability. But there are potential problems associated with mobility, including verification uncertainties, land availability, and environmental concerns; mobility is also more expensive than silo basing. On the other hand, the technologies which bring increased missile retaliatory effectiveness are a cause of concern to some, who argue that a large throwweight ICBM would be destabilizing - that it would so threaten Soviet ICBMs that Soviet leadership in a crisis might be tempted to strike first, calculating worse consequences if it did not. To the extent that such a characteristic is a concern, it should be noted that the Soviets will have that capability against our silo-based missiles in the early to mid 1980s (though our silo-based missiles are a smaller fraction of our strategic force). Concerns about instability are thus not eliminated by failure of the U.S. to improve the hard target kill capability of its ICBM force.

But fixed silo-basing of MX could increase these concerns unless missile design characteristics precluded its effective use against Soviet silo targets, whereas a large investment in survivable mobile basing would more clearly signal that the U.S. is not interested in first use. With silo-basing, the retaliatory effectiveness of ICBMs would depend in part on capitalizing on the previously mentioned uncertainties surrounding a Soviet first strike, and on Soviet knowledge th*a*t we might launch on sufficiently well confirmed evidence that Soviet missiles were impacting or about to impact on the United States.



MINUTEMAN MISSILE

a. MINUTEMAN

This year's request, as last year's, does not contain funds for MINUTEMAN III missile production. The MINUTEMAN line is being progressively closed down as existing contractor commitments, including those which resulted from the denial of the FY 1977 MINUTEMAN rescission, are satisfied. Approximately 40 missiles to be produced with FY 1977 funds are being added to an already adequate inventory of MINUTEMAN III missile test and replacement assets. While we have no plans to deploy these additional MINUTEMAN III missiles, that option could be exercised on short notice and for little additional expense by making minor modifications to MINUTEMAN II silos and replacing MINUTEMAN II missiles with MINUTEMAN III.

We have deleted plans to modernize the MINUTEMAN II missile with MINUTEMAN III guidance, a new reentry vehicle and other improvements. In view of projected silo vulnerability in the mid-1980s when the improved MINUTEMAN II would first be available, the cost of this program, some $2.5 billion dollars, did not appear justified. This is not to say that we are willing to abandon the MINUTEMAN II. We will continue to take such action as necessary to ensure that the system remains a viable force through the program period.

The upgrade of MINUTEMAN III silos was completed during FY 1977, and the improvement of MINUTEMAN II silos is proceeding on schedule. We have added $2.1 million to this year's request for an improved site security system. A prototype radar signal processor will be developed to determine the feasibility of reducing the high number of false alarm security zone violations now occurring at MINUTEMAN launch facilities.

We have decided to initiate improvements in the Airborne Launch Control System (ALCS - Phase 3) announced last year, but at a lower funding level then projected. We are at the same time thoroughly reviewing this program to identify a less costly way to provide MINUTEMAN II and III missile status information, and MINUTEMAN III retargeting capability, to the ALCS aircraft. Five million dollars is being requested for this effort.

b. MINUTEMAN Improvements

The MINUTEMAN III Guidance Improvement Program continues on schedule. Five of seven flight tests have been conducted and the remaining tests, as well as implementation of final software improvements in the entire MINUTEMAN III force, will be completed by late FY 1978. To some extent, the effects of the guidance improvement program have already been realized by the gradual refinement of NS-20 guidance software.

We are requesting $22 million in FY 1979 to complete development of the MK-12A reentry vehicle and $68.7 million to continue procurement activities. MK-12A, with a greater yield than the MK-12, will be deployed on a portion of the MINUTEMAN III force.

Finally, we plan to initiate R&D on the ICBM C^3 integration program for both MINUTEMAN and TITAN.

c. Advanced ICBM Technology and MX

The near-term objective of the Advanced ICBM technology program is to provide the technology base for full-scale development of MX. In the long-term, if MX full scale development is initiated, this program will be continued at a modest level of effort to ensure a base of technology which can be accelerated quickly to counter Soviet offensive or defensive breakthroughs. Missile related efforts conducted through FY 1978 under this program include preprototype Advanced Inertial Reference Sphere (AIRS) development which promises significant improvements in ICBM accuracy, propulsion, computer, and cannister development. Basing technology development has included definition of vehicles required for mobility and will include construction of about 7.4 kilometers of trench near Yuma, Arizona to demonstrate feasibility of construction techniques and to validate cost and other technical estimates.

The FY 1979 program will continue both missile and basing development activities. System definition tasks initiated during FY 1978 will mature during FY 1979 to the point of prototypes for each missile subsystem. The basing validation tasks will be completed early in FY 1979 and system definition will then continue on the selected deployment option(s).

I had hoped that the MX basing concept would be sufficiently well determined by now so that we could proceed in the FY 1979 budget with full-scale development. But it is not, in terms of costs, survivability, and geographic location of a mobile version. I believe we will probably be able to reach the point of settling the basing concept or concepts in a way or ways acceptable from cost, strategic employment, and other standpoints later this year. If we decide to proceed, by early FY 1979 with full-scale engineering development, we will request any needed additional funds from Congress in a revised program.

d. Advanced Ballistic Reentry Systems (ABRES)

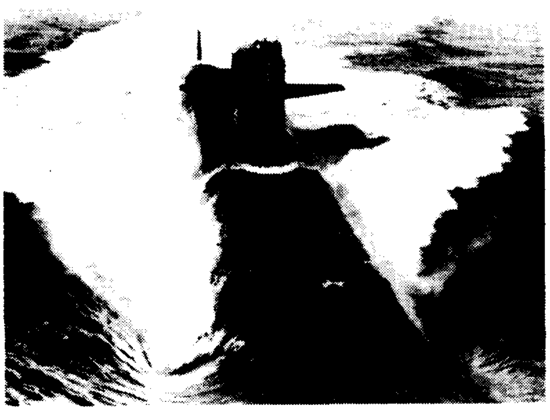
I propose to continue the ABRES effort at about the same level of effort as last year. The objective of this program remains the development of reentry and penetration technology. During FY 1979, in addition to reentry subsystem technology development (e.g., nosetips and heat shields), the program will include prototype ballistic reentry vehicle technology demonstration for application to MX and TRIDENT II, and demonstrations of technology for a maneuvering evader which could maintain current ballistic missile accuracy while evading advanced missile defense. A total of $105 million is requested in FY 1979.

2. Submarine Launched Ballistic Missiles (SLBMs)

The critical role of the SLBM force, as the most survivable element in the current TRIAD of strategic forces, both now and in the foreseeable future, is well established. The addition of the longer-ranged TRIDENT I missile to the force, in the TRIDENT submarine and by backfit into selected POSEIDON submarines, will enhance survivability by increasing the available in-range operating area. The ability of the SLBM force to patrol in the vast ocean areas presents a multitude of threat azimuths to potential enemies, and the ability to retarget rapidly missiles when directed, adds additional flexibility and potential capability to this sea-based force.

The nature of the SLBM force contributes to crisis stability. The existence of a survivable, at-sea ballistic missile force decreases Soviet incentives to procure additional counterforce weapons and to plan attacks on United States soil since such attacks would not eliminate our ability to retaliate. This survivability permits a secure reserve force which can threaten the recovery capability of any power, thereby preventing nuclear blackmail.

A TRIDENT II missile would provide the potential for a capability against the entire Soviet target spectrum, in a highly survivable system, through missile accuracy and throw-weight improvements utilizing the full volume of the TRIDENT submarine missile tube.



POSEIDON SUBMARINE

Artist's Conception of
TRIDENT SUBMARINE

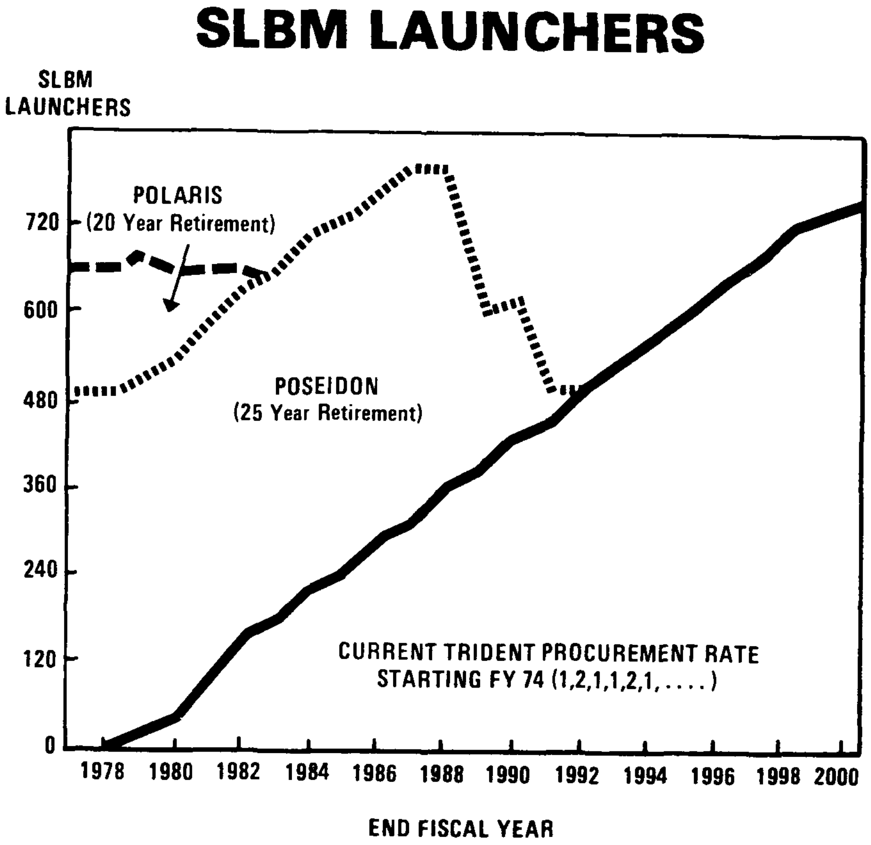
a. POSEIDON

The POSEIDON conversion program will be completed with the deployment of the 31st boat, USS DANIEL WEBSTER in FY 1978, thereby providing a fully MIRVED SLBM capability in the Atlantic Theater of Operations.

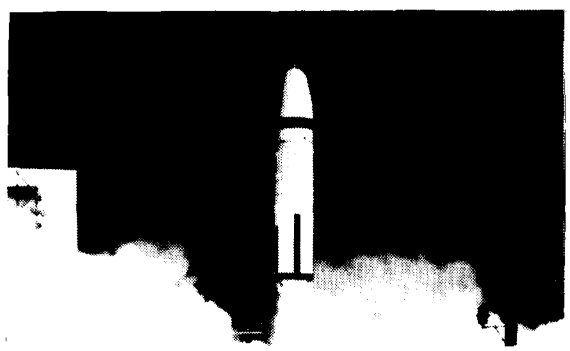
The POSEIDON Modification Program (POMP), which was initiated to correct deficiencies uncovered in flight testing of POSEIDON missiles, is proceeding into the final phase of missile reliability improvement. All pipeline missiles have been upgraded and operational missiles will be replaced as they are routinely returned to missile assembly facilities. It is anticipated that post-POMP missiles will be fitted on all deployed POSEIDON submarines later this year.

TRIDENT submarines provide technologically current, survivable, cost/effective replacements for an aging POSEIDON force. The relatively large size of the TRIDENT has been decided after extensive consideration of all aspects of survivability and capability required in a sea-based strategic deterrent system designed for operations through the 1990s. Sufficient volume is available within the hull for a power plant which will provide maximum speed, to the extent that may be useful for evasion of enemy ASW platforms, as well as quiet speeds for secure patrol operations and threat avoidance. Sufficient growth room has been provided in the missile launch tube for follow-on missiles, such as TRIDENT II, with the capability for improved accuracy and increased throw weight/range. Sufficient ship volume is also available for extensive sound quieting measures for additional survivability enhancement and for incorporation of future ship system improvements which will increase survivability and effectiveness. The current 31-ship POSEIDON force entered service during the five year period from 1963 to 1967. Unless we retain our POSEIDON force beyond their presently planned maximum extended service life of 25 years, a significant reduction in SLBMs will occur in the late 1980s and early 1990s since the POLARIS/POSEIDON force was built at a much faster rate than that planned for TRIDENT. As shown in Chart IA-2, at our current TRIDENT building rate of three ships every two years, a low level of 504 SLBMs will be reached in 1992 as compared to our current level of 656. However the smaller TRIDENT force will be at least as capable as the larger POLARIS/ POSEIDON force is today.

Chart IA-2



The 1976 Treaty of Friendship and Cooperation with Spain requires the relocation of our Rota-based SSBNs by July 1979. These submarines and their tenders will probably be supported at Kings Bay, Georgia. Training and personnel support will continue at Charleston, South Carolina. The backfitting of the TRIDENT I missile into these submarines will allow coverage of potential targets, upon departure from Kings Bay, and without lengthy transit, thereby reducing our dependence on overseas basing.



TRIDENT I MISSILE

b. TRIDENT

The TRIDENT building program continues at the planned rate of three submarines every two years, based upon the need to replace our aging POLARIS/POSEIDON submarines and the fact that TRIDENT continues to be the most cost/effective sea-based deterrent system we can identify. The FY 1979 budget funds one submarine and authorization is requested in FY 1980 for two additional ships.

The TRIDENT ship contractor, the Electric Boat Division of General Dynamics, has experienced difficulties in meeting the scheduled delivery of the first TRIDENT submarine. The contractor announced in July 1977 that the lead ship delivery would slip six months from the contract delivery date and in August the Navy estimated the slip at 12 months. Subsequent submarines are estimated to slip by lesser amounts with contract delivery dates, and related deployment schedules, recovered by the sixth boat.

The TRIDENT shipbuilding program has required a major expansion of facilities at the Electric Boat Division operations in Groton, Connecticut and the opening of a satellite facility at Quonset Point, Rhode Island. In addition, it was necessary substantially to increase manpower levels at the two locations. The program delays center on the failure to achieve initial productivity goals for these new facilities. Once the programmed productivity levels are achieved, the yard should be able to produce TRIDENT submarines at the proposed rate.

The TRIDENT I (C-4) missile is in production. The flight test program has been extremely successful and the missile should meet the planned first deployment in a backfitted POSEIDON submarine in October 1979.

TRIDENT I missiles will be backfitted into twelve POSEIDON submarines to support a deployed level of up to ten submarines. The introduction of the TRIDENT I missile with its 7400 kilometer (km) full payload range will provide a large increase in operating area for POSEIDON submarines.

The Mark 500 EVADER reentry vehicle concept has been successfully demonstrated in flight tests of TRIDENT I missiles. The option to place this reentry vehicle in engineering development will be maintained should we need to counter new Soviet initiatives in ABM development. No such effort is now planned.

c. TRIDENT II Missile

We are requesting funding for the continuation of the TRIDENT II concept formulation effort. A TRIDENT II missile would effectively utilize the full volume of the TRIDENT SSBN missile tube; a range of potential missile configurations is under study. Since the TRIDENT II could provide a capability in terms of payload, range, and accuracy against the full range of Soviet targets from a highly survivable platform, it is a valuable option to maintain while deciding the long-term overall structure of strategic forces. We may well wish to exercise that option at the appropriate time.

d. Improved Accuracy Program

We are continuing the Improved Accuracy Program which is designed to determine the extent of SLBM accuracy improvement attainable and to validate the performance of our current systems. As accuracy improvements become technically feasible, development can proceed for their use in current and future SLBM systems, as might be required by national policy and objectives.

3. Bombers

a. Air-Breathing Options

In our studies last year of modernizing the air breathing force, we have examined the widest range of alternative systems. Most of these alternatives, for one reason or another, fell by the wayside in the course of our review. First, the alternative of developing a new penetrating bomber that would be less expensive than the B-1 proved infeasible. Second, for a force of modernized FB-111s (the FB-111Hs) our analysis showed no significant advantage in cost/effectiveness over a force of B-1s for a 1977 deployment decision. Third, we eliminated the rebuilt B-52 (the B-52X). In terms of relative cost and effectiveness, the B-1 and the B-52X would be about equal until the mid-1980s. However, the total number of B-52 airframes is fixed, while the B-1 would have the advantage of a greater potential for increases in total capability. A fourth possibility was the standoff cruise missile carrier based on existing commercial aircraft or military transport designs, and carrying several dozen cruise missiles.

The cruise missile carrier turned out to be considerably more attractive if deployed along with a large number of smaller aircraft carrying cruise missiles, a number of penetrating bombers, or some combination of these. Moreover, it would provide the possibility of increasing our capability well above current levels. Therefore, while

I do not believe that we would want to rely on the cruise missile carrier alone for the air-breathing part of our retaliatory capability, it is strategically important to keep this potential near at hand as a hedge against unforeseen circumstances. That led us in our consideration to the last two alternatives: The B-1 versus the B-52 with cruise missiles.

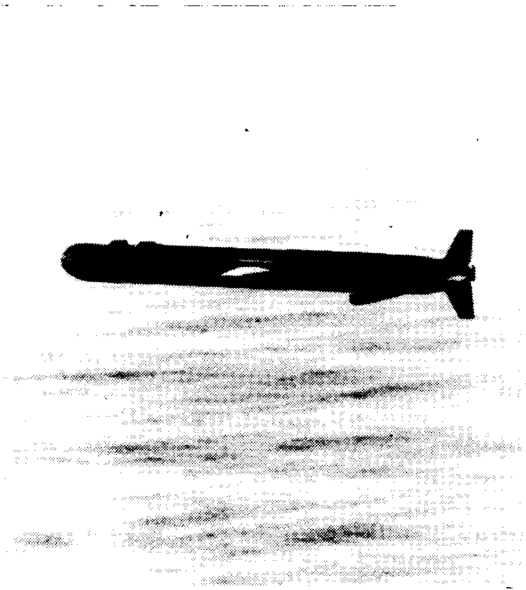
A central issue in the comparison between the B-1 and the B-52 with cruise missiles is the nature and effectiveness of the Soviet air defenses in the late 1980s and the 1990s. Inevitably, there are differences of opinion about the absolute and relative effectiveness of prospective Soviet air defenses in five, let alone twenty years. But, given assumptions as to scenario, the task to be done, costing ground rules, and other factors, coupled with assumptions regarding Soviet defenses that, if anything, favor the B-1 over the cruise missile, a B-1 force that would have had a capability equal to B-52s with cruise missiles would have been about 40 percent more expensive.

That estimate, I might note, is based on the assumption that the B-1's Electronic Countermeasure (ECM) equipment would have been at least moderately effective -- an inherently uncertain and, indeed, virtually unknowable factor. Of course the uncertainty as to future Soviet systems also influences our estimates of the cruise missile's ability to defeat enemy defenses by virtue of its small radar cross-section. But I have more confidence in the effect that the low detectability of the cruise missile will have on Soviet radars than in the effect that the B-1's radar countermeasures would have had. Testing to be completed over this year should provide the initial data with which to continue our assessments of projected force effectiveness.

Thus, the B-52/cruise missile combination is the better choice on the grounds of expected cost and effectiveness. Moreover, the B-52/cruise missile combination will curb our current trend toward excessive reliance on SLBMs, raising the number of penetrating weapons delivered by the air-breathing part of our TRIAD. Our analysis shows, that the B-52/cruise missile force will substantially increase our surviving relative force capability in the 1980s in the day-to-day alert case and that cruise missile carriers provide an option for even further increases. With cruise missile carriers and our forces on generated alert, our surviving forces would substantially exceed Soviet residual forces after a Soviet first strike.

I am certain that the cruise missile will improve the world's perceptions of the potency of our forces, not only by maintaining strategic force parity with the Soviet Union, but also by retaining a clear technological superiority. And finally, we are doing all this with a weapon that because of its long flight time, does not threaten a first-strike capability.

ALCM



TOMAHAWK

b. The B-1 Decision

My recommendation to the President, and his decision not to proceed with production of the B-1, were based on the conclusion that aircraft carrying modern cruise missiles will better assure the effectiveness of the bomber component of U.S. strategic forces in the late 1980s. Each B-52 can launch many missiles, with great accuracy, at different targets in the Soviet Union, from a distance of many hundreds of kilometers. Each carrier produces many small targets for Soviet air defenses to contend with. If additional warhead-carrying capacity is needed, that can come from new cruise missile carriers in addition to the B-52.

As previously noted, for equally effective forces, the B-52/cruise missile program results in significant savings in comparison with a modernization program based on the B-1. The cruise missile force buildup will occur at roughly the same rate and over the same period as had been planned for the B-1 deployment. Because the mixed force appeared to be the most attractive approach, the FB-111s and some modernized B-52s will be continued in the penetrating bomber role. Because of the uncertainties which will exist relative to the level of threat capabilities, we plan to continue our review of future penetrating bomber options.

c. B-52 Modernization

To implement the cruise missile decision, our B-52 development efforts are concentrated on the necessary avionics updates for the fleet and the modifications required for cruise missile carriage. A portion of the funds allocated to cruise missile research and development in the FY 1979 budget will be devoted to development of B-52 launchers and pylons. In addition, $131 million is included for B-52 avionics and electronic warfare systems development.

The B-52 avionics efforts will concentrate on increasing aircraft effectiveness and reducing support costs. Offensive avionics can be improved to enhance aircraft performance and reliability -- for example, we plan fleet wide conversion of some vacuum tube technology items in the navigation system to a more reliable, more accurate, and more easily maintained, system of modern design with nuclear-effects protection and improved accuracy. We are examining the proper ECM configuration for the B-52s assigned a standoff role compared to those assigned a penetrating role. Reliability and maintainability programs for defensive avionics are now being initiated along with advanced ECM developments (e.g., electro-optical and infrared countermeasures) against the fighter and surface-to-air missile (SAM) threats. Most of these avionics programs have been in development for a long while, but some of the defensive R&D programs will be new starts designed to permit the long-term retention of some B-52s in a penetrating role. The programmed offensive and defensive avionics modifications will also enhance the utility of the B-52s in their alternative conventional role.

The developments and the modifications needed for cruise missile carriage are straightforward. I will discuss the two missile programs separately, but I see no difficulty integrating the selected missile with the B-52. The warheads will be ready and the terrain mapping support will be available.

d. Tankers

Although the KC-135 force can support all the current requirements, recent studies indicate that there are scenarios in which a simultaneous demand on tanker assets in response to a crisis situation could tax the force beyond present and projected capabilities. We are pursuing these studies in an attempt to isolate future needs in this area.

The transfer of 128 Unit Equipment (U.E.) active force KC-135s to the air reserve components is continuing on the schedule reported last year. By the end of FY 1978, the program will be completed, with sixteen squadrons of eight U.E. aircraft each supporting world-wide refueling requirements. The active force and the reserve components will continue to maintain the total 615 U.E. KC-135 fleet in support of strategic and general purpose forces.

KC-135 REFUELING A B-52

e. Cruise Missile Carrier Aircraft

In my preceding remarks, I discussed a new, large aircraft as a possible Cruise Missile Carrier. This concept offers the potential for considerable expansion in our strategic retaliatory capabilities, if we should encounter such a need. Detailed studies of the several commercial and military aircraft candidates will compare their performance, capacity, and cost against their survivability and development risk. As a part of the development efforts, we are considering a demonstration launch from one of these carriers as proof of concept. I strongly support the development and study efforts, based on existing aircraft designs, as an excellent hedge against growth in future targeting requirements or other needs for more strategic capability.

f. B-1/R&D

As mentioned earlier, I view the B-1 primarily as a hedge against unexpected events. Because we see no dramatic change in the near-term threat, the chances of actually starting B-1 production again are small. I believe that it is clearly too expensive to keep production going merely to reduce prospective lead-time and start-up costs.

The FY 1979 budget requests $105.5 million for continued B-1 research and development, which when added to the $98.5 million of available FY 1978 excess assets will result in a $204 million FY 1979 program. An additional $10 million is requested for other bomber studies.

g. Cruise Missiles

As discussed earlier, the air-launched cruise missile program now has our highest national priority. Since we must be certain of its success, I believe we must, as a matter of prudence, maintain both the Air Force air-to-ground cruise missile AGM-86B (ALCM-B) and the air-launched version of the Navy TOMAHAWK cruise missile in full-scale development until a competitive flyoff determines which missile can best be employed in the air-launched mission. Both programs have been placed under the management of a Joint Cruise Missile Project Office to ensure uniform program management and facilitate the necessary interface testing that must occur between the cruise missile and the B-52 aircraft.

For the competitive flyoff, each contractor is scheduled to produce 14 test missiles leading to ten flight tests in 1979. Our earlier flight tests and those conducted in the competitive flyoff will ensure complete demonstration and evaluation of all risk areas so that we can make an air launched cruise missile selection in November 1979.

Contingent on the approval of the FY 1978 budget amendment, the accelerated development of both the air-launched TOMAHAWK and the AGM-86B cruise missiles as well as the associated B-52 modifications will provide a limited Initial Operational Capability (IOC) in March of 1980. Because of the delay in large-scale missile production that will be caused by the competitive flyoff, a full IOC will not occur until June of 1981. The FY 1979 budget requests funds for continued research and development and $178.3 million for procurement funding.

The sea-launched version of the TOMAHAWK cruise missile is proceeding with full-scale development, based on the recommendations of the DSARC held last year. The FY 1979 budget requests $152.1 million for missile research and development.

Production effort in connection with the Air Force Ground-Launched Cruise Missile, another version of the TOMAHAWK, has been accelerated to start in FY 1979. This effort, funded at $40.1 million, is related primarily to production of the launcher and command and control systems.

II. STRATEGIC DEFENSIVE FORCES AND PROGRAMS

A. Program Basis

Strategic defensive programs do not provide large-scale active defense of the Continental United States against nuclear attack. We do, however, maintain forces and programs to provide:

-- Peacetime surveillance and control of sovereign U.S. airspace to respond to inadvertent or blatant violations of that airspace.

-- Challenge to enemy bombers or airborne reconnaissance vehicles entering U.S. airspace in times of crisis.

-- Warning of a bomber, missile or space attack to preclude surprise Soviet attack on our strategic retaliatory forces or the National Command Authorities.

-- Prevention of a "free ride" by Soviet bomber forces.

-- R&D hedges against Soviet abrogation of the ABM Treaty, or technological breakthroughs in ballistic missile defense.

-- Survivability of U.S. space-based systems to ensure that we can operate effectively in a hostile space environment, and negate the effectiveness of Soviet space-based systems.

-- Enhanced U.S. population survival in the event of nuclear war.

B. Program Description and Status

1. Air Defense

a. Interceptor Forces

By the end of FY 1978, the interceptor force dedicated to CONUS air defense will consist of 11 F-106 squadrons (six Active and five Air National Guard (ANG)), three ANG F-101 squadrons, and two ANG F-4 squadrons. The ANG F-106 squadrons are being reduced from six to five to permit redistribution of F-106 assets among the remaining F-106 squadrons. This change will be accomplished without reducing our total ANG units, by converting the affected F-106 squadron to F-4s.

These air defense interceptor forces, augmented by Tactical Air Command (TAC) F-4 units, maintain peacetime alert aircraft at 26 sites around the periphery of the 48 contiguous states to ensure the sovereignty of our air space. Together with three Canadian CF-101 squadrons and Air Defense Forces in Alaska, they support deterrence of air attack and ensure the integrity of North American air space. In times of crisis, additional Air Force, Navy and Marine general purpose force F-4s are tasked to augment our peacetime CONUS air defense units.

In addition, to enhance our crisis air defense capability further, I have directed the Air Force to train and provide the logistic support required to commit the equivalent of one TAC F-15 wing to CONUS air defense in a crisis. In that way, we will meet requirements for a follow-on interceptor, at least on an interim basis, by using F-15s already procured or programmed for TAC, without incurring at this time the high cost of buying additional F-15s for the Aerospace Defense Command (ADCOM). Should projected enhancement in Soviet long-range bomber capabilities and the development of a Soviet cruise missile materialize, we may later wish to modernize our strategic defense force with a separate force of some follow-on interceptor (of which the F-15 would be one possibility).

We also continue to maintain an Active air defense F-4 interceptor squadron in Iceland, and an F-4 equipped, ANG tactical fighter squadron in Hawaii that performs an air defense mission. Additionally, in Alaska we maintain an Active Air Force F-4 squadron, that performs an air defense mission as well as in a tactical role. The Army also continues to maintain three active NIKE HERCULES (surface-to-air missile) batteries in Alaska, and the four general purpose force NIKE HERCULES and eight HAWK (surface-to-air missile) batteries operational in Florida.

b. <u>Surveillance and Command and Control Systems</u>

We are continuing the Joint-Surveillance System (JSS) program. The CONUS airspace surveillance element of the JSS will consist of 44 surveillance radar sites. Thirty-five sites will be operated and maintained by the Federal Aviation Administration (FAA), but the radar data will be jointly used by the FAA and Air Force. The remaining nine sites in CONUS will be under military control. In Alaska there will be 14 sites: 12 Air Force, one jointly-used Air Force site, and one jointly-used FAA site. Conversion of the surveillance element of the JSS is proceeding on schedule and should be completed in 1980.

The control element of the JSS will consist of four Regional Operations Control Centers (ROCCs) in CONUS, and one in Alaska. The Canadians also plan to deploy two ROCCs as part of their modernization of the existing joint NORAD air surveillance and control system in Canada. These seven centers will provide the command and control functions required for the peacetime airspace control mission and will replace the seven costly and outdated Semi-Automatic Ground Environment (SAGE) centers in CONUS and Canada and the manual Region Control Center (RCC) in Alaska. Cost savings of more than $50 million per year are expected when these obsolete centers are phased-out. Six additional E-3A Airborne Warning and Control System (AWACS) aircraft are being procured primarily to satisfy our CONUS air defense needs. These aircraft will augment the JSS in peacetime to enhance our capability to provide surveillance and control of U.S. airspace. In a crisis, these AWACS augmented with additional aircraft from the general purpose AWACS force, would provide North America with a survivable wartime air defense command and control system. Final deployment of the ROCC element of the JSS is currently planned for FY 1981 for the CONUS centers, and FY 1982 for the center in Alaska. Canadian centers will be deployed in FY 1981.

AWACS

c. Bomber Warning

I have decided to continue the CONUS Over-the-Horizon Backscatter (OTH-B) radar R&D program at a cost of $11 million in FY 1979. Technical feasibility testing will be completed by the end of 1980, after which time we will decide if system deployment is required to satisfy our bomber warning needs along the coastal air approaches to the United States.

Since experiments have revealed that a northern-looking OTH-B radar is not feasible because of auroral effects, we are also continuing R&D on improvement of the Distant Early Warning (DEW) Line at a cost of $5 million in FY 1979. Current planning, which is proceeding in NORAD in consultation with Canadians, envisages replacing the existing DEW radars with unattended automatic radars, along with the addition of other unattended sites, to provide improved warning against possible attack over the northern air approaches to North America.

2. Ballistic Missile Defense

a. Warning and Attack Assessment Systems

We plan to continue our policy of covering all potential strategic missile approach corridors with at least two different types of warning sensors (sensing different phenomena). Reliance will continue on the early warning satellite systems and the Ballistic Missile Early Warning System (BMEWS) radars for warning and assessment of ICBM attacks. Use of the FPS-85 radar at Eglin AFB, Florida and the deployment of the coastal-based phased-array radars (PAVE PAWS program) will permit phase-out of the seven obsolescent 474N SLBM warning radars now in operation, and will provide improved warning of long-range SLBM attacks. In addition, we have completed integration of the Perimeter Acquisition Radar Attack Characterization System (PARCS, formerly called PAR) into our missile warning system, and have transferred responsibility for its operation to the Air Force.

These systems, operating together, give us high confidence of unambiguous confirmation of a Soviet missile attack within a very short time after launch. Major programs are underway or planned to ensure continued effectiveness of these systems against improving Soviet strategic offensive capabilities. In addition to the deployment of improved SLBM warning radars, we are continuing to upgrade the BMEWS system to improve its reliability and attack characterization capability.

b. Ballistic Missile Defense (BMD) Research and Development (R&D) Program

An aggressive BMD R&D program is vital to this Nation's interests: to encourage Soviet compliance with the ABM (Anti-Ballistic Missile) Treaty, protect our technological lead in BMD, and guard against their unilaterally achieving significant breakthroughs in the field. The lead enjoyed by the United States in BMD at the time we entered into the ABM Treaty has greatly diminished. With the exception of the PARCS radar used for missile warning we have recently completed the deactivation of our only deployed BMD site, the SAFEGUARD facility in North Dakota. Our efforts have been completely reoriented from prototyping a system to examining more advanced concepts and technologies. The Soviets retain their Moscow ABM system in partially operational status, and continue development of advanced BMD systems. In addition, there are indications of a concerted effort on their part in technologies having potential applications for missile defense. These are banned from deployment but not development by the ABM Treaty of 1972.

Accordingly, a carefully structured U.S. BMD R&D effort has been maintained. It consists of two complementary efforts, an Advanced Technology Program and a Systems Technology Program. The evolving BMD technological base resulting from these programs could provide, if strategic arms limitation efforts lead us in that direction, cost-effective alternatives for maintaining the survivability of our strategic retaliatory elements in the ICBM threat environment.

The Advanced Technology Program is a broad research effort on the technology of all BMD components and functions. It comprises research programs on emerging technologies currently on the fringes of the state-of-the-art. One of its principal objectives is to maintain a technological lead over the Soviet Union. In addition, the program provides the technological basis for judging Soviet developments in BMD and assisting in the evaluation of our strategic offensive forces. Program objectives are achieved through major research efforts and key field experiments in missile discrimination, data processing, radar and optics technologies and a continuing search for revolutionary concepts and ideas.

The Systems Technology Program is a hedge against future strategic uncertainties. By drawing on technological accomplishments from the Advanced Technology Program, this program maintains a responsive capability to develop and deploy BMD systems for a number of possible future roles. This is accomplished by directing major efforts toward the most critical aspects of BMD technology -- the integration of components and the testing of critical systems concepts.

Kwajalein Missile Range (KMR) is operated as a national range supporting the testing of both strategic ballistic missile weapon systems and anti-ballistic missile defense systems. Advanced instrumentation in the form of radar and optical systems is available for tracking and data collection requirements. It is necessary that we continually improve KMR's instrumentation for the benefit of both offensive and defensive systems.

3. Space Defense

The Space Defense program attempts to deal comprehensively with the threats posed by Soviet satellites and anti-satellite systems. The program is a balance between near-term procurement, advanced development, and basic R&D. Last year our commitment to this effort was increased significantly.

The reasons for a comprehensive program are twofold. On the one hand, we credit the Soviet Union with having an operational anti-satellite interceptor that could be intended for use against some of our critical satellite systems. Not only are they improving their orbital ASAT interceptor, they are also engaged in other programs, including activities which appear to be ASAT related. We estimate that in the absence of an agreement effectively limiting their efforts, their ASAT capability will be substantially improved by the mid-1980s. On the other hand, we see the Soviets making increased use of satellites for tactical purposes that could include the targeting of U.S. ships. Their satellites represent a unique threat in the broad ocean areas where the Soviets lack alternative surveillance assets. In sum, it now seems possible that activities in space could become more competitive, and that we might have to take steps to deter attacks on our satellites, to deal with attacks should they occur, and to have the capability to destroy Soviet satellites if necessary. As the President has clearly stated, it would be preferable for both sides to join in on an effective, and adequately verifiable ban on anti-satellite (ASAT) systems; we certainly have no desire to engage in a space weapons race. However, the Soviets with their present capability are leaving us with little choice. Because of our growing dependence on space systems we can hardly permit them to have a dominant position in the ASAT realm. We hope that negotiations on ASAT limitations lead to strong symmetric controls. But in the meantime we must proceed with ASAT programs (for the present, short of operational or space testing), especially since we do not know if the Soviets will accept the controls on these weapons that we would think necessary.

There are three principal elements to our FY 1979 program: (1) improved space surveillance ($36.1 million), (2) increased satellite system survivability ($19.2 million), and (3) development of anti-satellite capabilities. Together with our arms control intiatives, they represent a strongly interrelated effort to protect our security interests in space systems. In the absence of negotiated controls our program seeks a balance of operational capabilities for the 1980s.

We are deploying attack-warning sensors on some satellites and making a major effort to bring together all the space surveillance data under a unified operational command system. In addition we are planning to improve the Space Detection and Tracking system (SPADATs) capability to detect and track satellites at high altitudes by developing and deploying the Ground-based Electro-Optical Deep Space Surveillance System (GEODSS).

Along with survivability for each space system, we need to ensure that space launch and support capabilities that are crucial to all of these systems are also survivable. To that end, a second, more survivable, satellite control facility is under study which will increase the orbital support capabilities needed for our next generation of space systems. The space shuttle will provide an overall increase in space system survivability, since survivability measures can then be added to satellites that would otherwise make these systems too heavy to be launched by existing expendable boosters.

Of particular interest this year is our progress in research and development of an ASAT system. We have several efforts underway.

4. Civil Defense (CD)

The strategic implications of civil defense are the subject of an ongoing interagency study directed by the National Security Council. The outcome of this study may result in recommendations for changes to the current civil defense program. In the meantime, we continue to maintain a modest civil defense program as a prudent hedge against an unlikely but disastrous event - the failure of deterrence followed by a nuclear war. The primary objective of the program is to develop a capability for surging, so as to reduce significantly the vulnerability of U.S. population to a major Soviet nuclear attack. The program will provide for dual-use in peacetime emergencies as well.

The key to achieving our primary objective (saving lives in the event of nuclear attack) is to develop the capability for relocating our people from potential target areas and metropolitan areas to areas of lower risk. Nuclear attack on the United States would most likely be preceded by a period of intense crisis. In that case we could have available the time which could be required to accomplish relocation of a major portion of our population.

Our initial focus, in attaining a national crisis relocation capability, will be on those regions of the country where crisis evacuation appears most feasible and credible, and planning presents the fewest problems. Such regions include the bulk of U.S. population in localities near our strategic offensive forces installations. Lessons learned in attaining a full operating capability for crisis evacuation for the population in those regions will then be applied in developing such a capability for the more densely populated urbanized areas of the United States.

In addition to the key capability for population relocation, the civil defense program would provide fallout protection for the population near places of work or residence. This protection would not be as effective as relocation, however.

The major elements include in our civil defense program for attaining these complementary capabilities are: development of crisis relocation plans, surveys of fallout shelter spaces in existing structures in potential target areas and crisis relocation host areas, maintenance of radiological defense systems and capabilities, development of State and local government emergency operating capabilities, maintenance of a national CD warning system, and peacetime training and exercising for those who would play key roles in actually implementing the program in time of crisis.

In addition, the FY 1979 program will include a substantial, vigorous CD research and development effort. Such an R&D effort is required to support the emphasis we are placing on planning for population relocation, and also to develop and field test potential low-cost techniques for protection of industries essential to the survival and recovery of our Nation.

TABLE IA-1

Acquisition Costs of Major Strategic Forces Modernization and Improvement Programs 1/

(Dollars in Millions)

Strategic Offense	FY 1977 Actual Funding	FY 1978 Planned Funding	FY 1979 Prop'd Funding	FY 1980 Prop'd for Authorization
MINUTEMAN Improvements (Silo Upgrade, Command Data Buffer, MK-12A Warhead, NS-20 Guidance Refinements and ALCS Phase III)	466.8	113.9	122.8	107.1
Advanced ICBM Technology, including MX	69.0	134.4	158.2	513.8
Development of Advanced Ballistic Reentry Systems and Technology (ABRES)	105.9	98.9	105.0	110.0
Conversion of SSBNs to POSEIDON configuration, Modification of POSEIDON Missiles	43.5 2/	26.9	16.0	17.2
Acquisition of TRIDENT Submarines & Missiles (TRIDENT II not included in total)	2,165.6	2,991.6	2,476.7	3,252.5
Development of TRIDENT II Missile		5.0	16.0	205.0
SSBN Subsystem Technology Development	1.9	2.9	5.4	12.8
Improved Accuracy Program	95.0	109.9	102.3	87.9
Modifications of B-52 Strategic Bomber	68.7	129.3	292.5	437.2
Research & Development of B-1 Bomber & Other Bomber Studies	482.7	443.4	115.5	109.0
Development of the Air-Launched & Sea/Land-launched versions of the Cruise Missile	186.1	508.4	423.9	103.5

1/ The figures in this table include the cost of RDT&E, procurement of the system and initial spares, and directly related military construction.

2/ Includes $3.3 million for ship cost growth in the FY 1975 conversion program.

Acquisition Costs of Major Strategic Forces Modernization and Improvement Programs
(Dollars in Millions)

	FY 1977 Actual Funding	FY 1978 Planned Funding	FY 1979 Prop'd Funding	FY 1980 Prop'd for Authorization
Strategic Defense				
R&D and Procurement of the Joint Surveillance System	15.8	14.0	50.3	95.4
Continued Development of the OVER-THE-HORIZON (OTH) Back-Scatter Radar	18.8	2.0	10.9	11.9
Development of Enhanced Distant Early Warning Line Radars	-	1.0	5.0	12.0
Development of Ballistic Missile Defense Advanced Technology	102.7	107.3	113.5	120.9
Development of Systems Technology (formerly Site Defense)	100.0	106.2	114.0	120.8
Continued Improvements in the Early Warning Satelite	61.4	126.1	187.4	238.3
Modernization of BMEWS (Ballistic Missile Early Warning System)	5.2	4.4	11.0	29.6
Development and Acquisition of the SLBM Phased Array Radar Warning System	7.0	6.9	3.7	5.2
Development and Improved Space Defense Systems	12.0	41.6	73.0	88.5
Civil Defense	86.0	92.0	97.0	101.0

CHAPTER I (Continued)

THEATER NUCLEAR PROGRAMS

I. PROGRAM BASIS

A. Missions

Theater Nuclear Forces (TNF) are maintained to complement and provide a link between conventional and strategic nuclear forces. TNF are intended to deter theater nuclear attacks, to deter conventional attacks in conjunction with conventional forces, and, if necessary, to respond as appropriate in the event of attack. TNF are not a substitute for conventional forces but provide the capability for a combined conventional and nuclear response in the face of a major failure of the conventional defense, even though conventional forces are planned to be sufficient to defeat conventional attacks. TNF are forward-deployed in those areas where they enhance deterrence, discourage proliferation by providing a definite U.S. nuclear commitment to our allies, and can be provided reasonable security. At present there are about 7,000 theater nuclear warheads deployed in Europe.

B. Foreign Capabilities

The Soviet Union and its Warsaw Pact Allies continue to improve their conventional as well as theater nuclear force capabilities. Current Soviet TNF include sea and land-based medium and intermediate range ballistic missiles, tactical and intermediate range aircraft, tactical rockets, surface-to-surface missiles, and sea-based cruise missiles. The new SS-20 MIRVed IRBM is assessed to be operational. All these forces could be used for nuclear attacks on targets in Europe, Asia, or the Middle East.

The People's Republic of China possesses nuclear forces which provide a regional nuclear capability against the USSR and areas of importance to the United States. Forces deployed at present consist of some short, medium and intermediate range ballistic missiles and a significant force of medium-range bombers capable of delivering nuclear weapons.

Other nations have, or soon may have, theater nuclear weapons. The United Kingdom and France have long-standing nuclear capabilities against targets in Central Europe as well as the USSR. The danger and uncertainties of further nuclear proliferation are apparent, but even today it is important to recognize that neither the United States nor the USSR is any longer the sole judge of where, when, and how nuclear weapons may be used.

C. FY 1979-83 Objectives

Theater Nuclear Forces are sized and structured to provide a capability sufficient to preclude an enemy from achieving a decisive advantage through first use of theater nuclear weapons. TNF provide, in conjunction with other forces, a broad range of responses appropriate to the provocation while reducing the risk of escalation to general war. These options are designed to terminate the conflict quickly on terms acceptable to the United States and its Allies at the lowest possible level of conflict. To achieve these goals TNF modernization objectives are directed toward:

-- Improving the survivability of TNF under nuclear or non-nuclear attack through greater mobility, increased hardness, and well planned dispersal;

-- Upgrading command, control, and communications systems to maintain responsiveness of TNF to military and political authorities;

-- Improving the accuracy and timeliness of operational intelligence and target information provided to both political and military authorities;

-- Modernizing aging TNF armaments with new systems that will provide an enhanced capability for militarily effective but limited employment.

II. PROGRAM DESCRIPTION AND STATUS

A. Battlefield Support TNF

Battlefield Support Systems provide the options and capabilities for nuclear strikes near the forward edge of the battle area. Particularly pertinent requirements for these systems include high survivability, high accuracy and appropriate yields to reduce collateral damage, and responsiveness to military and political authorities.

Our current capability for nuclear support of the battlefield includes cannon munitions (8-inch and 155mm rounds), LANCE surface-to-surface missiles which have replaced HONEST JOHN and SERGEANT in U.S.

units and most Allied units, some HONEST JOHN in a few Allied units for which no replacement with LANCE is planned, and tactical aircraft capable of delivering nuclear bombs.

Several changes have recently been made to improve our theater nuclear posture. Recent changes and accomplishments include:

-- Nuclear LANCE deployment for U.S. forces has been completed and is continuing on schedule for other NATO forces. Subject to the President's decision on its production, a reduced blast/enhanced radiation warhead is planned for the LANCE missile.

-- A new 8-inch artillery projectile is in engineering development.

-- A new 155mm artillery projectile to replace the current round has been approved for entry into engineering development.

-- Consultations continue with our NATO Allies on deployment in Europe of reduced blast/enhanced radiation warheads for LANCE.

Issues for the future include:

-- What should be the mix between 8-inch and 155mm nuclear artillery projectiles?

-- Do our NATO allies have enough LANCE and are launchers and warheads properly distributed in Europe?

-- What changes in tactical doctrine, hardware and target engagement systems are required to expand the role of tactical aircraft for nuclear support to the battlefield?

LANCE MISSILE

PERSHING MISSILE

B. Theater-Wide Strike TNF

Deep strike TNF are planned primarily for use in selected or limited operations short of the Soviet Union. Relevant requirements include survivability and the ability to withhold these forces.

Our current capability for theater-wide nuclear strikes is provided by carrier and land-based tactical aircraft, PERSHING surface-to-surface missiles, POSEIDON and United Kingdom POLARIS submarine-launched ballistic missiles, plus other additional U.S. strategic forces.

Recent changes in these forces include:

-- The assignment of additional POSEIDON reentry vehicles to the Supreme Allied Commander Europe (SACEUR).

-- The deployment of an additional wing of F-111s to the United Kingdom.

-- Provision of full nuclear capability for the F-16.

-- Ongoing replacement of older bombs in the nuclear stockpile by improved versions of the B-61 gravity bomb.

Programs for the near future include:

-- Development of cruise missiles in air, sea and ground launched versions.

-- Continued R&D for PERSHING II as a possible replacement for the currently deployed PERSHING 1A.

C. Defensive TNF

Systems in this category currently deployed in NATO include the NIKE-HERCULES surface-to-air missile and Atomic Demolition Munitions (ADM). These systems contribute less to the decisiveness, and thus deterrent value, of NATO's TNF capabilities than do surface-to-surface missiles, nuclear artillery and tactical aircraft, and are therefore given lower priority for retention or modernization. Relevant criteria for judging the value of these systems include advantages over conventional alternatives, military effectiveness, and political utility.

Developments related to defensive systems include:

-- Savings obtained from forgoing site security upgrade at NIKE sites where the nuclear capability is eliminated and from the redistribution of custodial personnel to other functions.

-- United States NIKE-HERCULES will be replaced over the 1980s by the PATRIOT surface-to-air missile system which is not planned to have a nuclear warhead.

D. Maritime TNF

The current maritime nuclear posture includes SSBNs and carrier strike aircraft (which are treated under the theater-wide strike category) anti-submarine weapons (ASW) and anti-air weapons (AAW). Most weapons support United States naval forces alone, although some are earmarked for support of Allied naval forces.

Developments relating to Maritime TNF include:

-- The United States has accomplished its program of changing the nuclear/conventional mix of AAW and ASW weapons on United States ships.

-- Development will continue for a nuclear land attack and conventional anti-ship TOMAHAWK cruise missile.

-- A NATO study will address political and military implications of maritime nuclear warfare.

-- Technological advances which can make conventional weapons more effective may further reduce the small current advantage of maritime and land-based nuclear defensive systems.

E. Posture of TNF in Europe

The bulk of NATO's land-based TNF is concentrated in the Central Region, while sea-based strike assets lend support to the limited land-based deployments on the Flanks. The large proportion of weapons positioned in the Center Region support United States forces, reflecting historical deployment patterns as well as the status of allied delivery unit certification programs (which certify the ability of units to deliver nuclear weapons), and warhead Programs of Cooperation (POC) (through which the United States provides nuclear warheads to allied units when these weapons are released by the President).

There are currently a large number of active nuclear weapons storage sites in Europe. Warheads which can be dispersed from these sites include cannon projectiles, PERSHING, ADMs and LANCE. The U.S. has initiated a program to upgrade the security of nuclear storage sites which will cost about $244 million for the sites in Europe. Construction is underway at a number of sites, with additional sites scheduled for contract award during 1978. I have also initiated a comprehensive evaluation and technology program to study solutions for our present and expected survivability and security problems within the Theater Nuclear Forces.

The distribution of TNF (operational units, nuclear storage sites) within the Center Region of NATO needs improvement. An appropriate balance which considers security and operational considerations as well as TNF survivability must be effected and to achieve this more nuclear storage sites may be required. A near-term measure to improve TNF distribution in the Center Region might be to convert existing conventional 175mm gun and dual capable (conventional and nuclear) 8-inch artillery tubes to the 8-inch howitzer certified for delivery of the new 8-inch nuclear projectile.

For the longer-term future, broader questions of NATO's TNF posture require attention, including the general issue of improving survivability, the size and mix of NATO's stockpile, and maintaining broad national participation. These are currently under review as part of the NATO initiatives promulgated by the Alliance in May 1977.

F. Command, Control, Communications and Target Engagement Systems

NATO's communications and other electronic systems provide command, control and intelligence support to NATO TNFs and the political and military authorities controlling them. These systems are meant to support the strategy of flexible response and permit escalation control if deterrence fails. Thus these systems must support consultation, efficient military application of weapons, and the ability to signal to the adversary.

While these systems do not have the high visibility of the nuclear warhead and delivery system components of TNF, they are nonetheless equally important. An effective deterrent posture depends to a large degree on the adequacy and survivability of these systems.

NATO maintains extensive communications and command centers, which require modernization, improved survivability, and ECM hardening as appropriate. Lower level communications systems as well as target acquisition and engagement systems are maintained and developed by individual NATO member nation's forces.

Recent developments in this area are that:

-- The Allied Air Forces Central Europe War Headquarters has become operational.

-- The NATO Nuclear Planning Group's Technology Study has been completed, establishing the importance of the "target engagement sequence" and describing its operation and possible improvements.

-- A number of techniques are being developed to improve all weather target acquisition capability in those areas where the second echelon of Warsaw Pact forces might be located.

CHAPTER II

THE CONVENTIONAL FORCES

INTRODUCTION

The most demanding contingency for our conventional forces is a Warsaw Pact attack on NATO. Our commitment to help defend Western Europe is firm and well-known. However, the impact of a possible war in Europe on U.S. force planning merits further discussion.

To a large degree, the current U.S. force structure has been derived from anticipated requirements for this contingency. Consequently, in the event of a NATO war, we expect to employ the vast majority of our conventional forces in Europe or at sea in supporting activities. Most of the programs which improve the General Purpose Forces enhance our capabilities for the NATO contingency.

Recognizing the importance of NATO, this administration has placed particular emphasis on improving our capabilities for the deterrence of a war in Europe, without diminishing our ability to respond to threats elsewhere in the world.

The following sections present our major programs in land, naval, tactical air, and mobility forces including a summary of NATO-related activities.

CHAPTER II (continued)

LAND FORCES

I. PROGRAM BASIS

A. Missions

U.S. land forces (Army and Marine Corps) must be capable of supporting the worldwide interests of the United States. This means that U.S. forces must be flexible, capable, ready, and strategically mobile. Much of the effort to improve U.S. land combat capability is directed toward improving their ability to fight in Europe against Warsaw Pact forces. It is recognized, however, that the capability must be versatile enough to function in a large number of other international situations. Fortunately, most of our programs to improve U.S. forces for NATO also increase their capability to fight elsewhere.

U.S. land forces will continue to evolve in the light of changes in technology, as well as the threat that must be faced. Because of these factors, they are engaged in the most extensive modernization program in their history, with nearly all types of combat equipment being upgraded.

B. Five-Year Program Objectives (FY 1979-83)

1. Increase Combat Capability

Over the five-year program, the combat capability of U.S. land forces will be increased by:

(1) improving readiness of active and reserve forces,

(2) modernization of combat equipment,

(3) improving sustainability, and

(4) greater efficiencies, to increase the combat capability of a given force structure.

The readiness improvement program is the principal function of the proposed spending increases for Operation and Maintenance. Readiness improvements are accomplished by improved training and maintenance of equipment, as well as by ensuring adequate equipment levels for units.

Personnel freed by management improvement actions have been used to increase the manning of combat units.

The Army is modernizing almost every category of equipment. Procurement funding priority is being allocated to four critical items: the XM-1 tank, the PATRIOT surface-to-air missile, the COPPERHEAD guided artillery projectile, and the BLACK HAWK utility/transport helicopter. In addition, a large number of Other Procurement, Army, items, particularly tactical communications equipment, are being modernized. Marine divisions are being modernized with improvements primarily in artillery, anti-tank weapons, tactical vehicles and communications equipment.

Sustainability of the force can be improved through procurement of war reserve stocks (equipment and ammunition), the ready availability of a domestic industrial base (in the event of a prolonged period of conflict), and by providing an adequate pool of trained individual replacements.

In an era of increasing personnel costs it is essential that the manpower-intensive land forces make most efficient use of available manpower. The Army is presently testing concepts for a restructured heavy division that we hope will provide more combat power per man than the current organization.

2. Improve Capability for a NATO War

Preparing to counter aggression in Europe is our major objective for the conventional forces. The initiatives discussed above improve our capability to fight in that theater. There are several efforts more specifically NATO-oriented, these include:

(1) rationalization, standardization and interoperability of equipment,

(2) increased readiness of forward-deployed units to fight on short warning,

(3) heightened ability of the United States to reinforce NATO rapidly, and

(4) increased sustainability of allied forces.

Increased standardization of equipment, spare parts, ammunition and fuels for greater interoperability among NATO allies would have a high payoff in terms of greater combat power per dollar invested. Several

NATO groups are working to improve interoperability for land forces, including the NATO Army Armaments Group and the NATO Military Agency for Standardization. An ad hoc interoperability committee has been pursuing standardization in tactical communications, cross-servicing, tank gun ammunition, fuels, and implementation of NATO standardization agreements. NATO has also endorsed a plan to develop a Periodic Armaments Planning System to enhance the interoperability of future equipment. Specific areas in which standardization efforts are underway for systems in development include U.S. and German studies on future surface-to-air missile systems as well as U.S. and German work toward interoperable subsystems for use on the XM-1 and LEOPARD II tanks.

Increased readiness of forward-deployed U.S. forces is being achieved in part by selective storing of basic ammunition loads on combat vehicles. The manning of tank companies in forward-deployed tank battalions will be increased to provide one additional crewman per tank in a test to increase the availability of effective tank crews. Recently, the Army announced the forward deployment of twelve additional eight-inch howitzer sections. Two 155mm self-propelled howitzer battalion equivalents are to be sent to Europe at a later date.

A significant outcome of the recent review of the five-year program was a decision to increase the Prepositioned Overseas Materiel Configured in Unit Sets (POMCUS), by adding several division sets of equipment to the present two and one-third. This step will significantly increase the U.S. capability to respond to a rapid Warsaw Pact build-up in the event of mobilization. Efforts are also being made to enhance air and sea lift capability.

An area of particular concern is the sustainability of our NATO allies in a conventional war. Greater balance in this area is an important U.S. goal in achieving NATO improvements.

II. PROGRAM DESCRIPTION AND STATUS

A. Force Structure

1. Active Forces

The current active Army consists of 16 divisions (a total of 51 brigades). The active Marine Corps comprises three Marine Amphibious

Forces (MAFs), each consisting of a division, a tactical air wing, and additional heavy combat support units. Four Army divisions, three separate brigades, and two armored cavalry regiments (totalling five and two-third division equivalents) are forward-deployed in Europe. One division is deployed in Korea. Separate Army brigades are stationed in Berlin, Alaska, and the Panama Canal Zone. One MAF is stationed in the Pacific. All other forces of significance are in the continental United States and Hawaii.

The present active Army force consists of 9 "heavy" (armored or mechanized infantry) and 7 "light" (infantry, airborne, air mobile) divisions. During 1979 one Army infantry division (the 24th) will be converted to mechanized. When all brigades are tallied, 31 out of 51 (or 61 percent) of the active Army brigades will be heavy, while the remaining 20 (or 39 percent) will be light by the end of 1978. The three Marine Corps divisions are essentially infantry, but are committed as elements of MAFs with organic armor, artillery, and tactical air. In addition, Marine units can be made heavier on deployment by the addition of up to five (three active and two reserve) tank battalions. Even with the conversion of one division, our land forces "light/heavy" mix will remain too light if our primary orientation is to be a NATO war. While some relatively light and rapidly deployable forces contribute to our ability to respond to possible contingencies outside of NATO, we envision other non-European conflicts requiring armored and mechanized units. The FY 1979-83 five-year program plans additional conversions of light Army divisions to heavy. No basic changes are planned for the Marine Amphibious Forces.

Our review of the balance of forces on the Korean peninsula resulted in a decision for a phased withdrawal of our ground combat forces in that region, retaining some ground support forces. This decision has brought about several changes to our programmed land forces structure. In FY 1978, we will convert an infantry battalion in Korea into an armored battalion. This action is being taken to strengthen the force that will remain in Korea after the first increment is withdrawn. Tanks for this conversion are available in Korea. By December, 1978, the first increment of 6,000 soldiers is planned for withdrawal from Korea. It will include a brigade of about 2,400 soldiers from the Second Infantry Division. Upon its return to the continental United States, this brigade will be converted to a mechanized brigade. We plan to retain the remaining forces to be withdrawn in the force structure, either as units or as increments to increase the manning and readiness of other existing units. Since we plan to convert the Second Infantry Division to a mechanized division, and need to re-equip the division as it withdraws, we have decided to delay converting the 9th Infantry Division to mechanized as previously planned.

2. Reserve Forces

The Army has eight National Guard divisions and 24 National Guard and Army Reserve separate brigades (a total of 48 brigades). The Marine Corps has one division and one air wing in reserve. Of the 48 Army reserve component brigades, 21 are armored or mechanized, while the remaining 27 are infantry. The Army is organized under a "total Army" concept in which a number of reserve units have been designated to "round out" active divisions upon mobilization. There are four round-out brigades and 11 round-out battalions. A high priority is assigned to maintaining the readiness of these round-out units.

The Army is also planning to establish a number of reserve battalions as special anti-armor units equipped with the TOW anti-armor missile. These are known as TOW light anti-tank (TLAT) battalions. The first battalion has been formed in the National Guard and is undergoing test and evaluation.

We recently completed a review of the capabilities of the Reserve Components and the ongoing programs to improve their status. This review showed that, although there has been improvement in the readiness of these forces, the Army units would have difficulty meeting our mobilization and deployment objectives. Furthermore, it is unlikely that previously designed programs will enable us to reach those objectives. At present, the reserve Marine division is able to meet these goals.

The problems we must solve are:

(1) how to recruit and retain personnel for the Reserve Components;

(2) how to raise the level of unit training;

(3) how to mobilize and process units for deployment fast enough to meet force demands that are anticipated; and

(4) how to meet casualty replacement demands in a period of combat until the Selective Service System becomes effective.

These problems are complex and require in-depth analysis to identify the costs and benefits of alternative solutions. Because the analysis done to date supports the expansion of our previous programs and initiatives to improve the Reserve Components, the FY 1979 Budget request proposes continued funding of those programs. More details are provided in the Reserve Forces report.

B. Modernization and Force Improvement

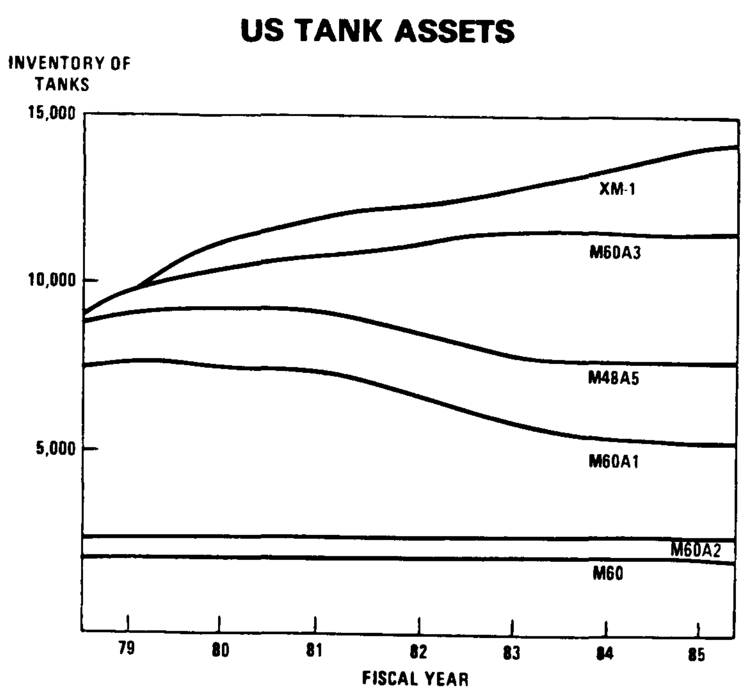
1. Close Combat

Close combat encompasses the activities of infantry and armor units directly engaging the enemy. Modernizing our forces for this mission means upgrading tanks, infantry carriers, and anti-armor weapons. These programs are particularly important because of the emphasis our potential enemies place on armored warfare.

(a) Tanks

Our tank program stresses increases in both the quantity of tanks and their survivability. A major goal at this time is to provide a smooth transition from production of the M-60 series to the XM-1 tank. At the end of the FY 1978 funded delivery period, the 105mm-gun tank inventory will be 77 percent of estimated U.S. requirements. The proposed program will increase this to 88 percent by the end of the FY 1980 funded delivery period. Chart IIA-1 shows the Army primary tank assets projected through 1985.

CHART IIA-1



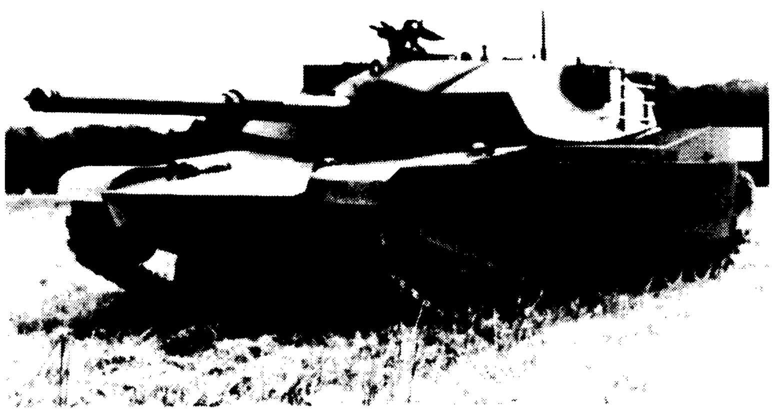
(1) M-60 Series Tanks

In FY 1978 we will continue to produce M-60 series tanks using the increased production capacity previously funded. In FY 1979 we will reduce production to 508 tanks and begin the phase-down by ceasing procurement of castings from the Wheeling, West Virginia, foundry. FY 1980 will be the final year of funding for production of M-60 series tanks, since by the end of the FY 1980 funded delivery period the first XM-1 tank production facility should reach a proven minimum sustaining rate of 30 tanks per month. In FY 1979 we propose to fund 480 M-60 tanks for the U.S. Army and 28 tanks for the USMC. This results in an average monthly production rate of 42 production units per month. The total request for these systems in FY 1979 is $401 million.

In addition, we will continue our major modification program for M-60 and M60A1 series tanks. In FY 1979 we request $98 million for the procurement of modification kits.

(2) XM-1

The first XM-1 tanks will be delivered during the FY 1979 funded delivery period. This tank represents a significant improvement in tank design and remains an essential component of our plans to counter Warsaw Pact forces. Although we continue to plan for maximum procurement of 60 tanks per month during the program period, we believe it prudent to provide maximum production facilities as soon as possible. This will allow us to produce at rates as high as 150 tanks per month should that be necessary. FY 1979 represents the first year of funding in an accelerated program to build XM-1 tank facilities. In FY 1979 we propose to fund 110 XM-1 tanks while in FY 1980 we propose to fund 569 XM-1s.



XM-1 TANK

We have not yet made a decision regarding the installation of a 105mm or 120mm gun for follow-on production. Tanks produced with FY 1979 and FY 1980 funds will be armed with the 105mm gun. The XM-1 tank is capable of accepting a 120mm gun if we decide that later production tanks should be so equipped.

(b) Armored Carriers

In FY 1979 and FY 1980 we will procure 1,207 M113 series armored personnel carriers. These carriers will be applied toward war reserves and will replace obsolete M114s and 1/4-ton trucks used as substitutes in CONUS-based units. In order to improve the mobility and armor protection of the TOW missile system, we have begun a program to modify M113 carriers. The modification involves the basic M113A1 chassis with an elevated two-launcher TOW turret which allows the missiles to be fired while the crew and vehicle are in complete defilade and protected with armor against indirect splintering munitions. This vehicle is known as the Improved Tow Vehicle (ITV). The total request for FY 1979 is $149 million, which will procure 910 M113s and 660 Army ITV modifications.

IFV/CFV - We have decided not to proceed with procurement, in its present configuration, of the Infantry Fighting Vehicle/Cavalry Fighting Vehicle (IFV/CFV), formerly known as the Mechanized Infantry Combat Vehicle (MICV). While our simulations and war games indicate that the proliferation of armor-protected anti-tank missiles provided by the IFV/CFV would greatly increase the anti-armor effectiveness of a combat unit, we are concerned whether this additional effectiveness is worth the high cost of the system. Accordingly, during the coming year, we will examine and undertake research and development of alternative, less expensive configurations of this concept.

(c) Anti-armor Weapons

Studies of the October 1973 Middle East conflict and of Soviet military literature have underscored the critical need for improved Infantry anti-armor weapons. The Advanced Heavy Anti-tank Missile System (AHAMS) will be designed to defeat advanced armored vehicles in the projected threat, with a minimum degradation owing to rain, smoke, dust, and sophisticated electronic and electro-optical countermeasures. In addition, this system will have an improved rate of fire and extended range to improve the odds against a numerically superior force. A competitive concept definition phase is underway now with the two best system concepts to begin development in 1979. A plan to explore the potential of a NATO cooperative effort has been initiated and discussions are taking place in appropriate NATO arenas.

2. Helicopters

Our helicopter programs for the ground forces are basically unchanged from last year. We are continuing to pursue a program that combines new production with vigorous modification. Our goal is to modernize what had basically been a Vietnam-era force by infusing the fleet with today's technology.

While we are certain that attack helicopters will contribute to the anti-armor battle, the extent of the contribution needs to be more carefully determined. The Army is conducting a series of field tests to define their utility. The Army and Air Force are also in the process of developing joint tactics for support of ground forces on the battlefield. Marine forces are currently organized as combined air/ground teams. Results to date indicate that the attack helicopter can be an effective tank killer and that proper tactics and employment concepts should be able to increase both helicopter effectiveness and survivability.

(a) Advanced Scout Helicopter (ASH)

The ability to control and direct the attack helicopter, day and night, on the sophisticated, armor-heavy battlefield is a critical need. The Army has stated a requirement for a scout helicopter, designated the Advanced Scout Helicopter (ASH), to locate and designate targets for engagement by the Advanced Attack Helicopter (AAH) and other remote, laser-guided ordnance delivery systems. We have validated the need for this airborne capability and believe that such a system should include the same Target Acquisition and Designation System (TADS) that is planned to be incorporated in the AAH. However, the specific development strategy for ASH (U.S., foreign, or "off the shelf"), its operational concept, and the potential for joint Service applications are issues that have not yet been fully resolved. Consequently, funds are provided in FY 1979 and 1980 only to maintain a program office, to conduct feasibility, commonality, and design studies and to prepare and release the request for proposals.

(b) COBRA-TOW

The TOW-armed AH-1S helicopter or COBRA-TOW represents a major model improvement of the earlier AH-1G gunship. Uprated systems provide the improved performance necessary to incorporate the TOW missile system, more capable fire control and stores management systems, an uprated gun and turret, and additional survivability features.

The COBRA-TOW acquisition plan includes both procurement of new production AH-1S helicopters and modification of existing inventories of AH-1Gs to the AH-1S configuration. Procurement of 297 new production AH-1Ss will continue in FY 1979 with 78 helicopters at a cost of $137 million. This program will be completed in FY 1980 with funding for 15 helicopters at $31 million. The FY 1979 request also continues the modification of existing AH-1Gs to AH-1Ss recognizing the relatively low cost and high payoff of this program. The COBRA-TOW acquisition plan will result in an homogeneous fleet of 987 AH-1S attack helicopters to fill the "low" side of the "high/low" attack helicopter requirement.

(c) Advanced Attack Helicopter (AAH)

The AAH is planned as the more capable, "high" side of the anti-armor attack helicopter fleet and as the Army's anti-armor helicopter of the future. This highly capable, day/night aircraft would be able to engage enemy forces with a broad range of both conventional and laser guided weapons. A totally integrated advanced technology program, the AAH would be more reliable, survivable, easily maintained, and possess more firepower than any existing helicopter. Hughes Helicopters of the Summa Corporation won the Phase I competition and has been awarded a full-scale engineering development contract to integrate fully all sub-systems -- the HELLFIRE missile system, the 30mm gun, the Pilot's Night Vision System (PNVS), and the Target Acquisition and Designation System (TADS) -- in the Hughes airframe. The current program calls for procurement of 536 aircraft. RDT&E funding is provided in FY 1979 and FY 1980 to continue AAH development. Initial procurement of 18 aircraft is planned for FY 1981.

ADVANCED ATTACK HELICOPTER

(d) HELLFIRE

Since the HELLFIRE missile system is being developed as a integral subsystem of the AAH it is covered here. While the helicopter-launched TOW missile provides a dramatic increase in attack helicopter capability, it is seriously limited because the launching helicopter must remain exposed to guide the missile to the target. The laser-guided HELLFIRE missile system represents an improvement over the TOW missile for helicopter applications. HELLFIRE, with its semi-active laser seeker, does not have to be guided to the target by the launching helicopter, but can home in on the laser illumination of the target from a remote source such as another helicopter (AAH or ASH) or a ground laser designator. Theoretically the attack helicopter could launch HELLFIRE while in defilade if the direction of the target were known and coordination with a remote laser illuminator could be effected. HELLFIRE speed, range, and lethality are also greater than TOW. Funds are requested in FY 1979 in the amount of $65 million to continue engineering development. In FY 1980, $14.7 million is requested for initial production facilities.

(e) UH-60A BLACK HAWK

The BLACK HAWK, known during its development phase as the Utility Tactical Transport Aviation System (UTTAS), is designed to replace the UH-1 (HUEY) in selected assault helicopter, air cavalry and aeromedical evacuation units. With a crew of three it can airlift a fully-equipped Army infantry squad of 11 troops into combat, resupply these troops while they are in combat, perform aeromedical evacuation, reposition reserves and conduct other combat support missions. BLACK HAWK incorporates the most current technology into a reliable, high performance, easily maintained system. The approved program is for 1,107 aircraft. Production was initially funded in FY 1977. FY 1979 funding at $378 million for 129 aircraft is requested; the FY 1980 budget level calls for 168 aircraft at $426 million, with both figures including spare helicopters.

BLACK HAWK HELICOPTER

3. Air Defense

Theater air defense is provided by a mix of ground-based and airborne air defense systems supported by radars, command and control systems, electronic warfare equipment, and passive measures such as camouflage, decoys, and dispersion. The air defense objective of ground-based systems is to limit the opponent's effectiveness in attacking critical assets so that land forces may maneuver with a minimum of interference from enemy air.

The Army is attempting to maximize the effectiveness of its current family of air defense weapons while concurrently developing a new family to meet the threat of the late 1980s. In the near term, the Army is continuing to modify its current systems as necessary and feasible, and is procuring additional IMPROVED HAWK missiles to overcome qualitative and quantitative deficiencies. Longer-term replacements continue in development or procurement for all the major field Army air defense systems:

High-to-medium-altitude missile systems--(which also have some low altitude capability) PATRIOT (Formerly SAM-D) for NIKE HERCULES and HAWK;

Short-range missile systems--U.S. ROLAND for CHAPARRAL;

Man-portable missiles--STINGER for REDEYE;

Mobile Gun Systems--DIVAD gun to replace VULCAN. We are also examining GEPARD as an interim solution.

Several new systems, wholly or partially within the air defense mission area, are candidates for NATO standardization, with PATRIOT, ROLAND, the F-16 and AWACS leading the list. STINGER is also a candidate for standardization.

(a) High-to-Medium Altitude Air Defense Systems (HIMADS)

(1) NIKE HERCULES and IMPROVED HAWK

NIKE HERCULES and IMPROVED HAWK continue to provide high and medium altitude air defense coverage. The U.S. HERCULES batteries in Korea have been transferred to the Republic of Korea. We envision that NIKE HERCULES will be phased out of the U.S. forces as PATRIOT becomes available. U.S.-funded major improvements to U.S. NIKE HERCULES systems have been kept at a minimum; however, we will continue to support allies who have deployed NIKE HERCULES batteries.

IMPROVED HAWK procurement and deployment continue for the Army. In addition to the two battalions procured, one each in FY 1976 and FY 1977, additional HAWK missiles continue to be procured to increase missile stockage in Europe.

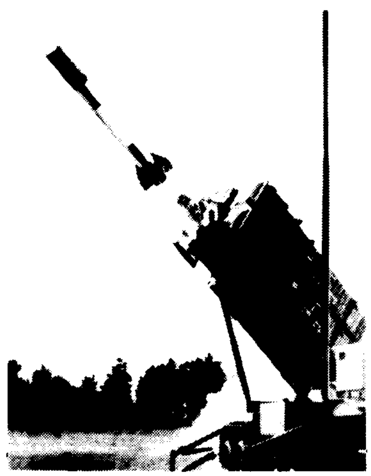
Modification of IMPROVED HAWK will continue in order to counter the electronic countermeasures threat, which is expected to be much more intense by the mid-1980s. The Army is examining how to enhance the interoperability of IMPROVED HAWK and PATRIOT for the period when both will be in the field.

(2) PATRIOT

We plan to replace both NIKE HERCULES and IMPROVED HAWK with the conventional warhead PATRIOT. Currently in full engineering development, PATRIOT is scheduled for a production decision (DSARC III) in April 1980. Testing has been highly successful. The most recent series of missile flight tests was conducted (eight successes in eight flights) using tactical prototype equipment in an ECM environment. The program has been restructured to achieve an IOC two years earlier than previously planned. This revised program would not alter any current development milestones.

NATO interest in PATRIOT has resulted in the establishment of NATO groups to explore potential co-production arrangements leading to NATO adoption of PATRIOT as a replacement for NATO NIKE HERCULES and the NATO HAWK systems.

Continuation of the PATRIOT development program calls for $228 million in FY 1979. The total development cost is estimated at $1.9 billion. First procurement funding is in FY 1979.



PATRIOT MISSILE

(b) Short-Range Air Defense Systems (SHORADS)

(1) CHAPARRAL and VULCAN

CHAPARRAL and VULCAN continue to provide mobile, short-range air defense for the active Army divisions and for critical facilities in non-divisional rear areas. IMPROVED CHAPARRAL has a forward engagement capability, an improved fuse and warhead, and increased resistance to countermeasures. Additional IMPROVED CHAPARRAL missiles have been procured for U.S. forces on the assumption that CHAPARRAL will remain in the active forces beyond the introduction of ROLAND.

Extensive improvements to VULCAN are not being pursued since emphasis is being placed on its replacement, the Division Air Defense Gun System (DIVADS).

(2) U.S. ROLAND

U.S. ROLAND has been chosen as the all-weather short range missile system to replace or supplement CHAPARRAL in the 1980s. Development continues on ROLAND with $23 million and $200 million (including spares) funded in FY 1979 for development and procurement, respectively. The approved procurement program is for systems to defend rear area vital targets and the Corps area. The Army is conducting a study that assesses the need for additional deployment of ROLAND as a divisional air defense system supplementing or replacing CHAPARRAL.

An OSD review to approve Initial Production Facilities is scheduled for March, 1978, and a DSARC III is scheduled for September, 1978.

(c) Man-Portable Missile System

(1) STINGER

STINGER is the advanced man-portable missile component of the theater ground air defense family. It will replace REDEYE in the Marines and the Army. STINGER provides defense for ground forces against attack by low-flying aircraft. It incorporates a passive infrared homing system of the "fire-and-forget" type. It represents a significant improvement over REDEYE in its capability to engage approaching aircraft, higher speed targets, its greater resistance to infrared countermeasures (IRCM), and its identification - friend - or foe (IFF) system. Procurement will begin in FY 1978 with the basic STINGER, followed with an anticipated buy of an advanced version with the Passive Optical Scanning Technique (POST) seeker (greater IRCM capability) beginning in FY 1981. RDT&E and procurement funding for FY 1979 is $25 million and $105 million respectively.

(d) Mobile Gun Systems

(1) Division Air Defense Gun System (DIVADS)

The Army has concluded that a divisional anti-aircraft gun system is needed to provide low altitude coverage for forward air defense. A DSARC held on January 5, 1978, reviewed an updated Army Cost and Operational Effectiveness Analysis for the DIVAD gun and approved the Army's request to proceed with the development program of competitive DIVAD prototypes. Ford Aerospace and Communications Corporation and General Dynamics, Pomona Division, have been selected to participate in the competition. The Army is to obtain full license rights on the competitive fire control systems so that they could be provided to our NATO Allies for use in their air defense guns. $90 million in RDT&E funding is provided in the budget for FY 1979.

4. Artillery Fire Support

Artillery fire support systems include cannon artillery systems, surface-to-surface tactical missiles and rockets and associated target acquisition and fire control systems. These force elements must be capable of furnishing effective fire support to the maneuver forces with both conventional and nuclear munitions. Warsaw Pact artillery -- cannon and rockets -- outnumber NATO artillery by a substantial margin in those forces expected to lead an attack in Europe. Besides this advantage in quantity, the Soviets have been improving the quality of their weapons. They have deployed two types of armored self-propelled artillery. We do not know how far they will go in replacing what is still a preponderance of towed artillery.

Soviet tactical doctrine calls for massing large quantities of artillery fire on a sector selected for a tank-led breakthrough. Unless countered, this tactic may seriously degrade the effectiveness of our lightly protected anti-armor weapons. It is unlikely that NATO (now or in the near future) will match the Warsaw Pact artillery capability in numbers of weapons. Therefore, it is important that we optimize the effectiveness of our smaller force. Several programs are underway toward this end.

(a) PERSHING

PERSHING intermediate-range missiles provide one of the more responsive and survivable nuclear delivery options for the European theater command. The Army needs additional PERSHING IA missiles to maintain the required stockage level. Therefore, funding of $66 million in FY 1979 is requested to complete procurement of the additional missiles.

The advanced technology development program for the PERSHING II terminally-guided reentry vehicle will continue in FY 1979 at a level of $10 million. When developed, these reentry vehicles can be retrofitted on existing PERSHING missiles and will vastly increase their accuracy, enabling the use of lower yield weapons to assure target destruction and less collateral damage.

(b) LANCE

Six LANCE battalions in Europe provide nuclear artillery fire to our two Corps commanders. The program to enhance the current LANCE capability with the modified warhead, an improved safety and arming device, and an improved sighting device will be completed with a request of $14 million in FY 1979. The procurement of nonnuclear LANCE missiles and warheads, which was initiated in FY 1977, will also allow the six LANCE battalions to contribute to a conventional war by supplementing the fire support available from cannon artillery and tactical aircraft. Pending a final Presidential decision to produce and with the concurrence of our NATO allies, additional missiles for nuclear warheads will be produced in FY 1979, at a cost of $64 million. We plan to arm these missiles with the new reduced blast/enhanced radiation warhead.

The effectiveness of the nonnuclear LANCE warhead - which I consider marginal - can be significantly improved through use of high-density fragments in the submunitions. An R&D program, funded at $6 million in FY 1979, will continue development of an improved warhead using high-density fragments, improved dispersal of submunitions, pyrophoric material, and random delay fusing on a selected number of submunitions. When this new submunition warhead is ready, existing warheads will be disassembled and reloaded.

(c) General Support Rocket System (GSRS)

The GSRS is a high rate-of-fire free rocket system to be used to supplement the fire of cannon artillery. Although cost per round will be higher than cannon fire, the system is cost/effective because a large investment in cannon artillery pieces would be needed to deliver the same quantity of ordnance on target in a short time. The GSRS will be of prime importance in the high intensity phases of a conventional war in Europe because of its capability to deliver counterbattery fire, suppress air defenses, and achieve high volumes of fire on area targets.

In January, 1977, a DSARC met on the GSRS and approved entry into Advanced Development with two competing contractors. In September, 1977, the Army selected proposals from Boeing Aerospace Company and Vought Corporation for Advanced Development prototypes. Because this system promises to correct a serious deficiency in the ground-based fire support available to our forces, the development is being accelerated to the maximum extent possible within acceptable risks. If the Advanced Development effort is successful, the system will enter a "maturation phase" (rather than the usual engineering development), concurrent with the preparation of production facilities to initiate early procurement.

(d) Cannon Artillery

The FY 1979 and FY 1980 programs stress procurement of dual-capable 155mm howitzers. (Dual-capable artillery has the ability to fire nuclear or conventional ordnance.) The M109A2 155mm self-propelled howitzer is the mainstay of U.S. artillery and will continue to be so for many years. The Army will increase the density of these weapons for our forces in Europe over the five-year program through conversion of unarmored 175mm self-propelled battalions. The M109 howitzer has the mobility and protection needed to support armored forces, while also offering excellent firepower and a variety of modern munitions.

While depending for the near-term on the M109, the Army is also considering longer-term requirements. An option being seriously considered is a prototype SP-70 howitzer, a joint development of the United Kingdom, Federal Republic of Germany, and Italy. We plan to procure one or more prototypes for testing whenever they become available. The Army also has an active R&D program to develop technologies for a new U.S. armored, self-propelled howitzer. In FY 1979 we request $65 million for 136 M109A2 howitzers. In FY 1980 we plan on $48 million for 91 weapons.

The Army has completed development of the M198 dual-capable towed 155mm howitzer. This weapon was developed to replace the M114 towed howitzer. The range of the M198 is fifty percent greater than the M114, and tests have proved it to be significantly more reliable. Battalions using this weapon primarily support our light (infantry and airborne) forces. Last year the Congress denied our request to begin full-rate production of the M198 because some development goals (primarily tube wear) had not been met. We have found the tube wear problem controllable, and this weapon is now ready for procurement. The FY 1979 Army request is $32 million for 107 weapons, and the FY 1980 program is for 208 weapons at $60 million. The Marine Corps request is for 60 weapons at $19 million in FY 1979 and 32 weapons at $11 million in FY 1980. Any further delays in beginning production will increase program costs.

The Army has decided not to procure the XM-204 105mm towed howitzer in FY 1979. Studies have indicated there is very little growth potential in the 105mm towed howitzer configuration, particularly in terms of modern ammunition. The Army is currently studying options for eventual replacement of the 105mm howitzer with one of larger caliber.

(e) Artillery Ammunition

Ammunition procurement in FY 1979 will continue building up inventories of improved conventional munitions (ICMs), rocket-assisted projectiles (RAPs), propelling charges for the new long-range weapons, and scatterable mines. A total of $546 million is requested for FY 1979 funding of these items for 155mm and 8-inch artillery. This amount includes the following items:

USMC		Army		
$ Millions	Quantity	$ Millions	Quantity	Type Round
.3	1,000	10.6	61,000	155mm smoke
9.3	19,000	144.4	340,000	155mm improved conventional munitions
		26.0	60,000	155mm rocket-assisted projectile
		117.5	40,000	155mm scatterable mines
		115.7	129,000	8-inch improved conventional munitions
		4.9	6,000	8-inch rocket assisted projectile
1.0	8,000	25.5	185,000	155mm propelling charge
		30.1	185,000	8-inch propelling charge

Improved conventional munitions (ICM) are shells containing numerous submunitions. These rounds are much more effective against personnel than conventional high explosive rounds and have a significant anti-armor capability. The rocket-assisted projectiles provide increased range. Artillery projectiles containing scatterable mines are used to emplace minefields rapidly in front of advancing enemy armor; their primary purpose is to slow an attack so that direct-fire anti-armor weapons have greater engagement opportunity.

(f) COPPERHEAD

The COPPERHEAD 155mm guided projectile is continuing in Engineering Development. Low-rate initial production is to commence in FY 1979 with a request of $56 million for 3,000 rounds. During the last year the Army and Navy guided projectile programs were combined into a joint program with the Army exercising overall executive direction, in order to maximize commonality in both development and production.

The Ground Laser Locator Designator (GLLD) will be the primary precision designator for COPPERHEAD, the USMC MULE, and initially for the Navy's guided projectiles. The FY 1979 request is for 130 systems costing $27 million.

The PERSHING and LANCE nuclear warhead programs and programs concerning nuclear projectiles for artillery are discussed in the Theater Nuclear Forces Chapter of this Report.

(g) Surveillance, Target Acquisition and Fire Control

Effective surveillance, target acquisition, and fire control systems are as important to success with field artillery as effective weapons and ammunition. Efforts to improve U.S. capability in this area include: development and acquisition of improved counter-battery and counter-mortar radars, moving target/stationary target radars, remotely-piloted airborne vehicles, the TACFIRE automated fire direction and control system, and a battery-level computer for fire direction. Other surveillance systems, such as Remotely Monitored Battlefield Sensors System (REMBASS), night vision systems, and emitter locator systems, will contribute to target acquisition and battlefield surveillance.

The AN/TPQ-37 radar is a phased-array system that can locate hostile firing batteries with great accuracy. It will be linked to the TACFIRE control system to provide timely and accurate counter-battery fire. The AN/TPQ-36 counter-mortar radar is similar but optimized for locating mortars in the forward area. The existing AN/MPQ-4A weapon-locating radar is extremely limited in range and depends heavily on highly skilled operators. RDT&E funding of $11 million is requested for the two radars, as well as $50 million for procurement of 31 AN/TPQ-36s and $40 million to procure 11 AN/TPQ-37s.

The Standoff Target Acquisition System (SOTAS) is a helicopter-borne moving target radar system that can locate moving targets with sufficient accuracy for artillery fire. In addition, remotely piloted vehicles (RPVs) are being developed by the Army that will have an ability to acquire targets, adjust artillery fire, and ultimately to designate targets for COPPERHEAD or other laser-guided weapons. When developed, these systems will add important new capabilities for artillery attacks on targets beyond visual range. Funding requests for R&D include $38 million for SOTAS and $22 million for RPVs.

The TACFIRE system provides for computer-assisted fire allocation and technical fire direction of artillery. Development is completed and final testing is underway. The FY 1979 program includes funds to procure 42 TACFIRE sets at $83 million. Initial procurement of the Battery Computer System is funded at $3.8 million for 33 sets in FY 1979.

5. Chemical Warfare and NBC Defense

The objectives of the U.S. chemical warfare (CW) program are to deter the use of chemical weapons by other nations and to provide an option to retaliate in kind should deterrence fail. The United States, as a signatory to the Geneva Protocol, has renounced the first use of lethal chemical weapons or incapacitants. However, the United States and many of the other signatories have retained the right to retaliate with chemical weapons against a chemical attack.

The Soviets continue to maintain a significant chemical warfare capability. The evidence is that they regard chemical capabilities as an integral part of their offensive warfighting capability. For example, they conduct extensive training exercises and stress operating proficiency in a CW protective posture. Other Warsaw Pact nations are similarly trained and equipped. It is likely that the Soviets would consider using a combination of chemical and conventional weapons, as well as a combination of chemical, nuclear and conventional weapons -- and they have the capability to do either -- if they believed a significant tactical advantage could be gained.

The United States is discussing international CW agreements with the USSR. Little progress has been made thus far, owing to major differences in views on the scope of an agreement and on verification. Without an adequate agreement eliminating the threat of chemical warfare, we must ensure that there is no real or perceived Soviet military advantage in using chemicals, and that they see instead only significant political and military disadvantages. To achieve this capability we are placing primary emphasis on improving protective capabilities which include detection, warning, medical defense, protective and decontamination equipment ($60 million in FY 1979) and on training our forces to operate in a toxic environment. In addition, we are maintaining our chemical munitions stockpile, funded at $17 million in the FY 1979 request. Continuing research and development of improved chemical agents and munitions is funded at $5 million in the FY 1979 budget request.

Chemical Warfare Training

6. Battlefield Electronic Warfare

The primary purpose of battlefield electronic warfare is to destroy or neutralize the enemy's tactical command, control, and communications (C^3) links. This goal can be achieved by jamming, deceiving, exploiting, or physically destroying the enemy's communication links. The United States and the Soviet Union are probably equally vulnerable to battlefield electronic warfare. The proposition is often made that the United States is relatively more vulnerable; however, the Soviets have made large investments in C^3 assets -- a complex of fixed and mobile command posts at each level of command tied together in a highly centralized fashion by a sophisticated communications network. This communications system presents a difficult but valuable target.

In keeping with their emphasis on C^3, the Soviets have a substantial battlefield electronic warfare capability including intercept receivers, direction finders, and jammers. By comparison, the U.S. battlefield electronic warfare capability is, at present, scant. The FY 1979 and succeeding year programs which will partially alleviate this shortcoming are discussed in Section C of Chapter IV.

To counter Soviet electronic warfare, greater emphasis is being placed on electronic discipline, countering of jammers, camouflage mobility, and redundancy.

TABLE IIA-1

Acquisition Costs of Major Land Forces Modernization and Improvement Programs 1/

(Dollars in Millions)

	FY 1977 Actual Funding	FY 1978 Planned Funding	FY 1979 Prop'd Funding	FY 1980 Prop'd for Authorization
Close Combat				
Continued Modification & Procurement of M-60 Series Tanks (Including USMC)	570.4	564.4	502.0	439.9
Development & Procurement of New Main Battle Tank (XM-1)	126.6	282.8	497.0	813.8
Procurement of Armored Personnel Carriers (M-113A1)	84.5	72.3	74.8	32.7
Modification of M-113 into Improved Tow Vehicle (ITV)	14.2	51.5	74.7	70.1
Development of a Mechanized Fighting Vehicle (IFV/CFV or substitute)	33.9	31.9	30.3	20.9
Continued Procurement of TOW & DRAGON Antitank Missiles (including Marine Corps)	172.0	174.0	50.6	-
Helicopters				
Development of Advanced Scout Helicopter (ASH)	-	-	3.0	41.4
Acquisition of COBRA TOW Attack Helicopters (AH-1S) (Army)	124.1	130.1	140.7	31.3

1/ The figures in this table include the cost of RDT&E, procurement of the system and initial spares, and directly related military construction.

Acquisition Costs of Major Land Forces Modernization and Improvement Programs

(Dollars in Millions)

	FY 1977 Actual Funding	FY 1978 Planned Funding	FY 1979 Prop'd Funding	FY 1980 Prop'd for Authorization
Helicopters (con't)				
Modification of AH-1G GUNSHIPS to AH-1S COBRA-TOW Attack Helicopter	2.7	41.8	184.8	261.8
Development of Advanced Attack Helicopter (AAH)	130.8	165.0	177.4	172.8
Development & Procurement of HELLFIRE Helicopter Launched Antitank Missile	19.2	50.5	65.1	79.3
Acquisition of UH-60A BLACK HAWK Utility Helicopter (formerly UTTAS)	140.6	235.8	376.9	426.1
Air Defense				
Acquisition of IMPROVED HAWK surface-to-air Missile Systems (Including USMC)	88.8	98.7	72.3	60.5
Continued Development of PATRIOT (SAM-D) surface-to-air Missile System	180.0	216.4	295.7	550.2
Procurement & Modification of CHAPARRAL/VULCAN Air Defense System	64.2	31.7	38.9	18.3
Development & Procurement of the US ROLAND Missile System	85.0	131.1	225.4	220.1

Acquisition Costs of Major Land Forces Modernization and Improvement Programs

(Dollars in Millions)

	FY 1977 Actual Funding	FY 1978 Planned Funding	FY 1979 Prop'd Funding	FY 1980 Prop'd for Authorization
Air Defense (con't)				
Development of Division Air Defense Gun System (DIVADS)	2.2	17.0	75.7	23.1
Acquisition of the STINGER Missile System (Including USMC)	-	38.1	123.1	96.2
Fire Support				
Acquisition & Modification of the PERSHING IA Missile & Development of PERSHING II	36.3	48.3	88.2	126.8
Acquisition & Modification of LANCE Missile System	81.5	89.9	78.2	4.0
Development of a General Support Rocket System	6.8	46.4	70.8	74.2
Acquisition of New Cannon Artillery (Howitzers) (Including USMC)	17.4	-	51.4	70.8
Acquisition of Artillery Ammunition (projectiles & propellants)	296.0	488.5	545.8	1,022.5 2/
Acquisition of Artillery-related Command & Control & Target Acquisition Systems	128.3	159.2	194.9	249.7 2/

2/ Not subject to line item authorization.

Acquisition Costs of Major Land Forces Modernization and Improvement Programs

(Dollars in Millions)

	FY 1977 Actual Funding	FY 1978 Planned Funding	FY 1979 Prop'd Funding	FY 1980 Prop'd for Authorization
Chemical & Biological Warfare				
Acquisition of decontamination, warning, & protective equipment	32.6	17.2	31.4	31.1 2/

2/ Not subject to line item authorization.

CHAPTER II (Continued)

NAVAL FORCES

I. PROGRAM BASIS

A. Missions and Force Composition

The size and balance of the U.S. naval forces are determined by analysis of the Navy's requirements to carry out its missions in a variety of conditions. A balanced naval force is capable of maintaining control of necessary sea lanes and conducting land and air operations as may be essential to the prosecution of a naval campaign. A worldwide war at sea with the Soviet Union, concurrent with a NATO war, has for many years been the scenario most heavily emphasized. It has provided the context in which almost all of our force sizing, force mix, and ship and aircraft design decisions have been made. Without minimizing the validity of this scenario as one possibility, we are also beginning this year to explore more systematically the regional balance *vis-a-vis* the Soviets, the force structure implications of our forward deployment posture, contingencies arising from peacetime crises, and scenarios involving a U.S. military response in various areas of the world outside of Europe. We expect this effort to yield useful insights concerning both force structure and weapon system design.

Since readiness, sustainability, and modernization of naval forces compete for funds, we are continuing to elaborate our policies and improve our management tools in these areas. Special emphasis has been placed on standardization of hardware and procedures with our NATO allies as we seek to work closely with them on meaningful and rapid improvements to mutual defense.

B. Fiscal Years 1979-83 Objectives

1. Improving Anti-Submarine Warfare (ASW) Forces

The Soviet submarine force (including its cruise-missile capability) today remains the principal naval threat to U.S. interests. The Soviets can disperse or concentrate elements of this force worldwide against our submarines, carriers, convoys, amphibious forces, or any other unit at sea. NATO's ASW forces must be capable enough in the aggregate to counter the threat and numerous enough to protect vital areas and sea lines of communication.

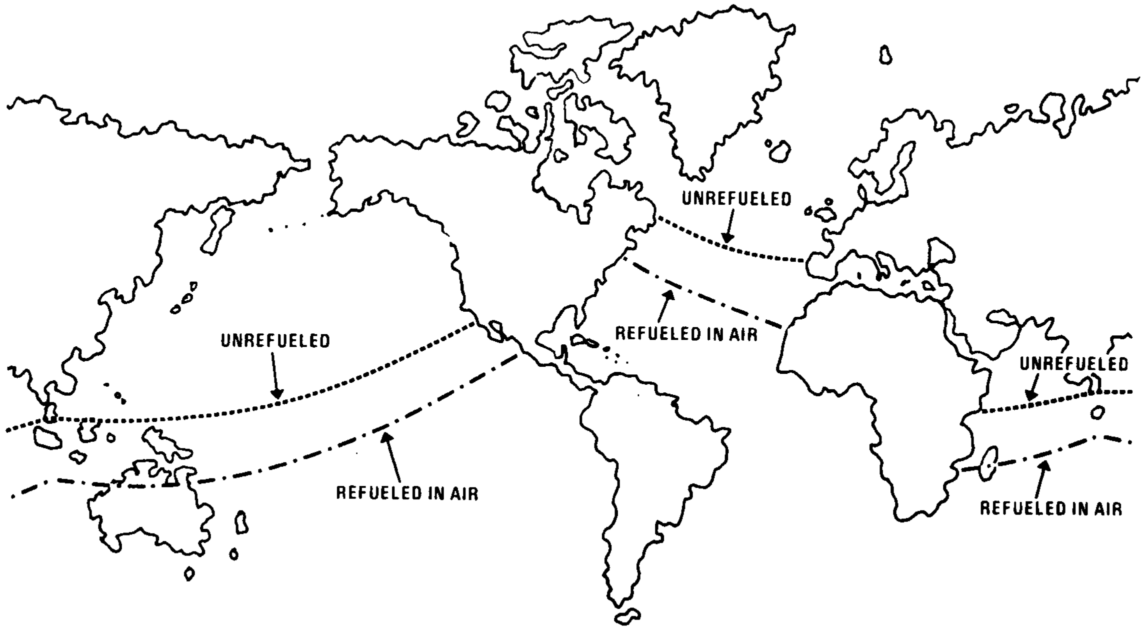
2. Improving Anti-Air Warfare (AAW) Effectiveness

There is increasing evidence that the Soviet bomber and cruise missile force may be overtaking their submarine force as a threat to our fleet and to our forces necessary for the resupply of Europe. They can concentrate aircraft, coordinate attacks with air, surface, and submarine launched missiles and use new technology to find our fleet units, jam our defenses, and screen their approach. Chart IIB-1 illustrates that portion of the world's oceans that could be reached at high altitude by the Soviet BACKFIRE bomber. The U.S. Fleet's defense-in-depth includes sea and land-based fighter aircraft, long-range area defense missiles, point defense missiles and guns, and electronic warfare measures to detect, identify, deceive and jam enemy systems. The high cost and rapidly changing technology of anti-air warfare demand that we carefully choose our most effective development plan, keeping in mind the emergence of Soviet sea-based tactical air power as exemplified by YAK-36 aircraft deployment on the KIEV class light aircraft carriers. We must concentrate on systems with capabilities for quick reaction, high engagement rates, high kill probabilities, continuous availability, and relative immunity to degradation by enemy countermeasures or natural phenomena.

Chart IIB-1

SOVIET BACKFIRE OPERATING RADIUS

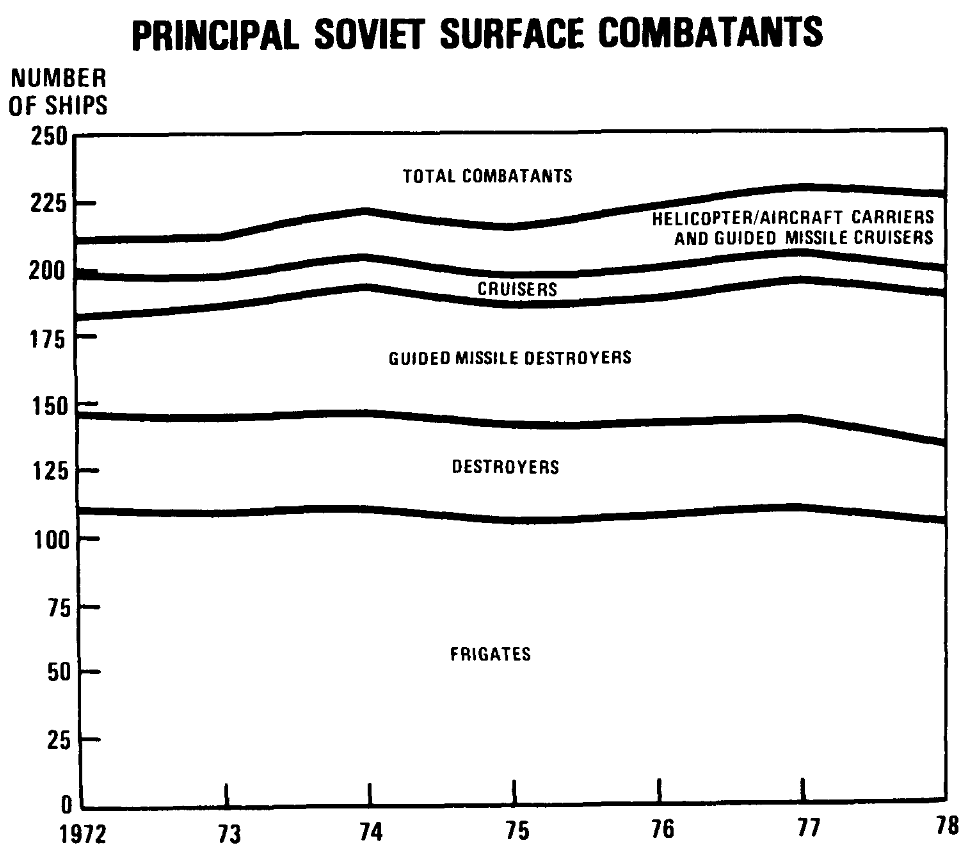
(ANTI-SHIPPING MISSION PROFILE)



3. Improving Anti-Surface Warfare (ASUW) Effectiveness

The Soviet surface fleet presently consists of about 233 principal surface combatants (frigate size and larger). This force is expected to decrease in the next ten years but will improve qualitatively as aircraft carriers and guided missile ships grow to constitute a greater percentage of the total. Our primary effort to counter this threat is the development of the anti-ship cruise missiles HARPOON and TOMAHAWK together with an over-the-horizon targeting system needed to make them effective at long range. Improvements in naval gunnery with the eventual introduction of the eight inch major caliber lightweight gun (MCLWG), improved conventional projectiles, and improved guided projectiles will complement the anti-ship missiles. Improved tactical aircraft, as well as tactical aircraft sensors (e.g., infrared systems) and weapons also make a major contribution to our anti-ship capabilities.

CHART IIB-2



4. Improving Fleet Readiness

The naval historian Samuel Eliot Morison wrote, "It is a natural trait to prepare for war only when war comes." The United States in peacetime has seldom been prepared for war. Yet, in an era of deterrence it makes little sense to purchase high performance weapon systems at great cost and not operate them efficiently. Accordingly, our Navy must continue to concentrate on combat readiness: how to define and measure it accurately; how to fund it more logically; and how to ensure effective and permanent improvement in it.

II. PROGRAM DESCRIPTION AND STATUS

A. Current Force Levels

At the end of FY 1978, the U.S. Navy will have 510 active and Naval Reserve Force (NRF) ships in the following categories:

Table IIB-1

END FY 1978 NAVAL SHIP FORCE LEVELS

	Active Fleet	Naval Reserve Force	Total
Ballistic Missile Submarines	41	--	41
Aircraft Carriers	13	--	13
Cruisers	28	--	28
Guided Missile Destroyers	37	--	37
Destroyers	30	28	58
Guided Missile Frigates	7	--	7
Frigates	58	--	58
Attack Submarines	78	--	78
Patrol Combatants	3	--	3
Amphibious Lift Ships	64	3	67
Mine Warfare Ships	3	22	25
Auxiliaries	91	4	95
Totals	453	57	510

The average age of this entire ship force will be 15.5 years at the end of FY 1978. The average age of the active fleet is 13.9 years and the average age of the NRF is 28.6 years. By broad categories, the average age is:

	Average Age
Aircraft Carriers	17.7
Submarines	12.5
Combatants*	14.7
Auxiliaries	21.4

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* Including Amphibious Ships and Mine Warfare Ships.

In addition to ships included in Table IIB-1, there are 93 ships that have been authorized by Congress but will not be delivered prior to the end of FY 1978. These ships are:

Table IIB-2

SHIPS AUTHORIZED BUT NOT DELIVERED PRIOR TO END FY 1978

Ballistic Missile Submarines	7
Aircraft Carriers	1
Cruisers	1
Guided Missile Destroyers	1
Destroyers	15
Guided Missile Frigates	25
Attack Submarines	25
Patrol Combatants	5
Amphibious Lift Ships	2
Auxiliaries	11
Total	93

Another major element of our naval forces, other than naval ships and integral aircraft (which are discussed under tactical air forces in Chapter II) is land-based ASW aircraft squadrons. At the end FY 1978, this force will consist of the following:

Table IIB-3

END FY 1978 LAND-BASED ASW SQUADRONS

	Active	Reserve Component Forces	Total
Land-Based Squadrons	24	13	37

B. Fiscal Years 1979-83 Programs

1. Force Modernization and Improvements

a. Shipbuilding

Table IIB-4

FY 1979 Shipbuilding Program

	FY 1979
TRIDENT (Ballistic Missile Submarine)	1
SSN 688 (Attack Submarine)	1
CV (Aircraft Carrier) (SLEP)*	(LL)**
CVV (V/STOL Carrier)	-
CGN-42 (Nuclear Cruiser)	-
DDG-47 (Guided Missile Destroyer)	-
DDG-2 (Modernization)	(LL)
FFG-7 (Guided Missile Frigate)	8
LX (LSD-41) (Amphibious Ship)	-
MCM (Mine Counter-Measures Ships)	-
AO (Oiler)	-
AD (Destroyer Tender)	1
T-AGOS (Sonar Ship)	3
T-ARC (Cable Ship)	1
T-AK (Cargo Ship Conversion)	-
Total New Ships	15

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* SLEP - Service Life Extension Program.

** LL - Long Lead component funding.

(1) Sea-Based Air Platforms

The FY 1978 DoD Appropriation Authorization Act directed the Navy to study nuclear powered carriers, new design medium aircraft carriers (CVV), the possibility of refitting existing carriers (MIDWAY and other classes), and various types of Vertical/Short Take-Off and Landing (V/STOL) aviation ships including the V/STOL Support Ship (VSS) and a variant of the DD-963 class destroyer with increased helicopter capability. In view of the status of these ongoing studies and the need to evaluate all options fully, the FY 1979 budget does not contain a budget request for any sea-based aircraft platforms. Decisions on procurement of the follow-on aircraft platform will be made after review of the Navy's ongoing Sea-Based Air Platform Cost Benefit and Navy Force Planning studies. These studies are expected to be completed in February or March of 1978.

(2) Vertical/Short Take-Off and Landing (V/STOL) Aircraft

After a thorough review of the Navy's advanced V/STOL aircraft development program, we have decided to budget sufficient funds in FY 1979 and FY 1980 to explore alternative V/STOL aircraft concepts and designs leading to a Milestone I Defense Systems Acquisition Review Council (DSARC) review in early FY 1980. Three particularly noteworthy technological advances -- microminiaturization and large scale integration of avionics circuits, use of composite materials for major structural components, and steady improvements in power-to-weight ratios in propulsion systems -- have made the V/STOL aircraft a potentially attractive weapons system concept for the 1990's and beyond. The combination of increased performance and weight reduction afforded by these technologies increases the possibility of developing an aircraft that will be competitive with Conventional Take-Off and Landing (CTOL) aircraft in mission performance and cost while at the same time providing the expanded basing capability and flexibility of operation that V/STOL performance makes possible. NASA is participating in developing the technology needed for the V/STOL program.

In its present state V/STOL carries significant extra development, procurement, and logistics support costs, as well as technological risks. In addition to assessing the technical feasibility of V/STOL designs, we will therefore examine the cost/effectiveness of equally advanced conventional aircraft in carrying out the Navy's missions compared to the new V/STOL designs.

A shift to V/STOL aircraft would have far reaching implications and substantial risks, as well as the potential for great gains in flexibility of force utilization. We must therefore examine the issue carefully before deciding on whether to begin such a conversion and determine exactly what must be demonstrated before making large resource commitments to it.

b. Surface Combatants

Surface Combatant force levels are expected to increase until the mid-to-late 1980s because of the procurement of the DD-963 and the FFG-7 class warships. However, projected block retirements of older classes in the 1980s and 1990s will require continued new ship construction through the 1980s, otherwise force levels will continue to decline significantly. The DD-931/945 and DDG-31, and 37 classes will be retired during the mid-1980s; the DDG-2, FF-1040/1052 and CG-16/26 classes will reach the end of their expected service life in the 1990s.

(1) Carrier Task Group Combatants

-- AEGIS Anti-Air Capable Ships are designed and built around the AEGIS AAW weapons system. This sophisticated match of target detection, command and control networks and the SM-2 missile is designed to combat the air threat of the 1980s and 1990s when used in conjunction with AAW improvements to current cruisers and destroyers. Two ship types will carry AEGIS and the most capable ASW systems including LAMPS (Light Airborne Multi-Purpose System) helicopters; they are the CGN-42 class cruiser and DDG-47 class destroyer.

-- Nuclear Powered CGN-42 Class Cruiser - We have under consideration a plan to build one CGN-42 nuclear powered AEGIS cruiser for each of the four nuclear powered aircraft carriers (CVN) in order to match the CVN's high speed and endurance. Long lead funding for this program was requested and provided by Congress in FY 1978. The CGN-42 is built on a CGN-38 type cruiser hull, modified to carry the AEGIS weapon system and TOMAHAWK missile.

Depending on the outcome of our studies, authorization under such a plan would be requested to award the contract for the first ship of this class in FY 1980. The remaining three would then be acquired at the rate of one ship every other year.

-- DDG-47 Destroyer - Congressional approval was granted in FY 1978 to start the DDG-47 program. This gas turbine powered AEGIS guided missile destroyer utilizes the DD-963 hull and propulsion plant.

Both the CGN-42 and DDG-47 will carry the same anti-air and anti-submarine warfare suites and will possess equivalent missile magazine capacity. The DDG-47 will cost much less than the CGN-42. As yet, there has been no change in the long range plan to build 16 DDG-47s. However, the DDG-47 procurement plan for the next five years will probably be reduced from what was presented to Congress last year.

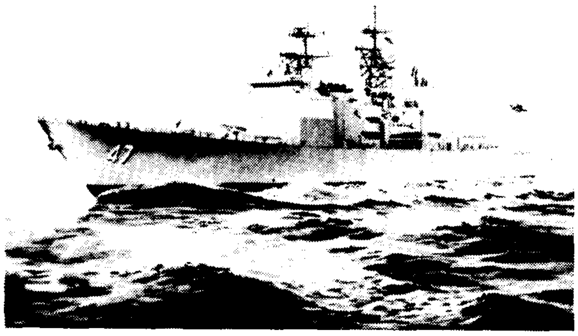


Illustration of DDG-47
DESTROYER

(2) DD-963 "Air Capable" Variants

As authorized by the Congress in FY 1978, a single new SPRUANCE (DD-963) class destroyer of modified design will be constructed. This ship will have an enlarged hangar for handling LAMPS helicopters, but will be similar in most other respects to the 30 earlier DD-963 class ships. The new ship, designated DDH-997, will be placed under contract in late FY 1978 and is scheduled for completion in FY 1982.

Preliminary studies also are being conducted on a DD-963 variant with even further expanded aircraft capabilities. Larger hangars, increased flight deck area and other measures are being considered, including support of future V/STOL aircraft. This ship type has been designated a DDV. However, even if the design is found feasible and cost/effective, the earliest possible contract date for such a ship would be FY 1980.

(3) DDG-2 Guided Missile Destroyer Modernization

The FY 1979 budget includes $151.0 million to fund long lead materials for the DDG-2 class guided missile destroyer modernization program beginning in FY 1980. These ships constitute about a third of the carrier task group surface combatants. The objective of the DDG-2 conversion program is to provide a modernized class of destroyers in the 1990s which are capable of operating in support of carriers and other task groups.

c. Other Surface Combatants

(1) USS OLIVER HAZARD PERRY Class Guided Missile Frigate (FFG-7)

Authorization of $1.5 billion for an additional eight FFG-7s is requested to offset some of the existing numerical deficiencies in surface combatants required for sea lane defense tasks as well as other operations in ocean areas where the threat is less concentrated. The lead ship was awarded in October 1973, launched 25 September 1976 and commissioned on 17 December 1977. Twenty-six FFG-7s including the lead ship have been previously approved by Congress and construction of 18 has commenced in three separate shipyards. We are considering the construction of an additional 41 ships during the next five years.

TABLE IIB-5

FFG-7 Shipbuilding Program

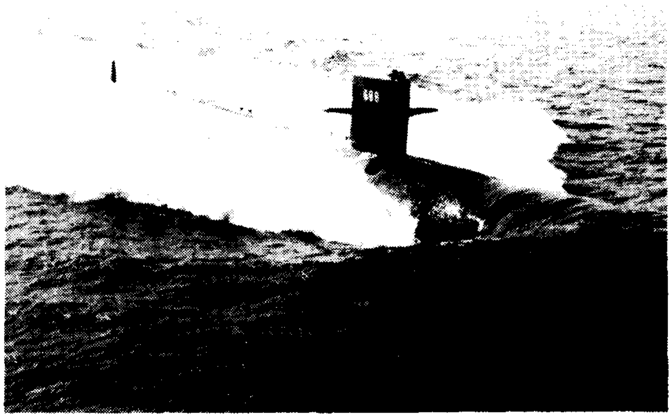
	FY 1979
FY 1978 Budget	11
FY 1979 Budget	8

(2) Patrol Hydrofoil Missile Ship (PHM)

Contracts have been awarded for completion of the second through sixth PHM. I continue to think the program is of very limited value, but will consider what operational experience the six ships may be able to provide for further evaluation.

d. Attack Submarines

Congress has authorized 32 LOS ANGELES class (SSN-688) nuclear attack submarines. The first four have been commissioned; three more are expected to be delivered this fiscal year. These new submarines have demonstrated at sea that they are the most combat capable attack submarines in the world. They are expected to retain this lead in capability during their service lives through incorporation of future combat systems improvements as necessary.

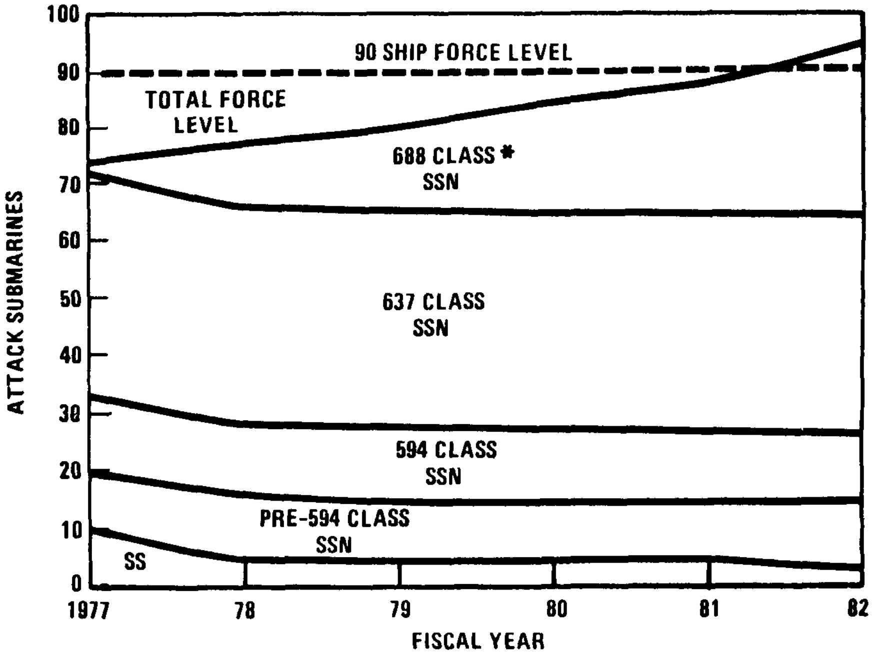


USS LOS ANGELES

The current submarine building program will allow the Navy to reach its attack submarine force level goal of 90 in about 1982. If a building rate of two SSNs a year is continued and the older submarines in the force are retired as planned, there is the potential for a force level decline in the early 1990s. An accelerated submarine building program or retention of older SSNs would be required to maintain the 90 SSN force level. We have under consideration a five-year building plan that would start this buildup in FY 1982.

Chart IIB-3

US ATTACK SUBMARINE FORCE LEVELS



* ASSUMES CONSTANT BUILDING RATE OF 2 PER YEAR

Meanwhile a major improvement program to upgrade the combat systems of the SSN 594 and SSN 637 submarine classes is continuing. These 51 ships are receiving the BQQ-5 sonar suites and Mark 117 digital fire control systems designed for the SSN 688 class.

There remains a shipbuilding claim backlog of about $2.7 billion, principally from three shipyards, Ingalls, Newport News and Electric Boat. These claims involve both surface ships and submarines. The Navy is continuing, as one of its highest priority efforts, to evaluate and resolve these claims and the fundamental causes that underlie such problems.

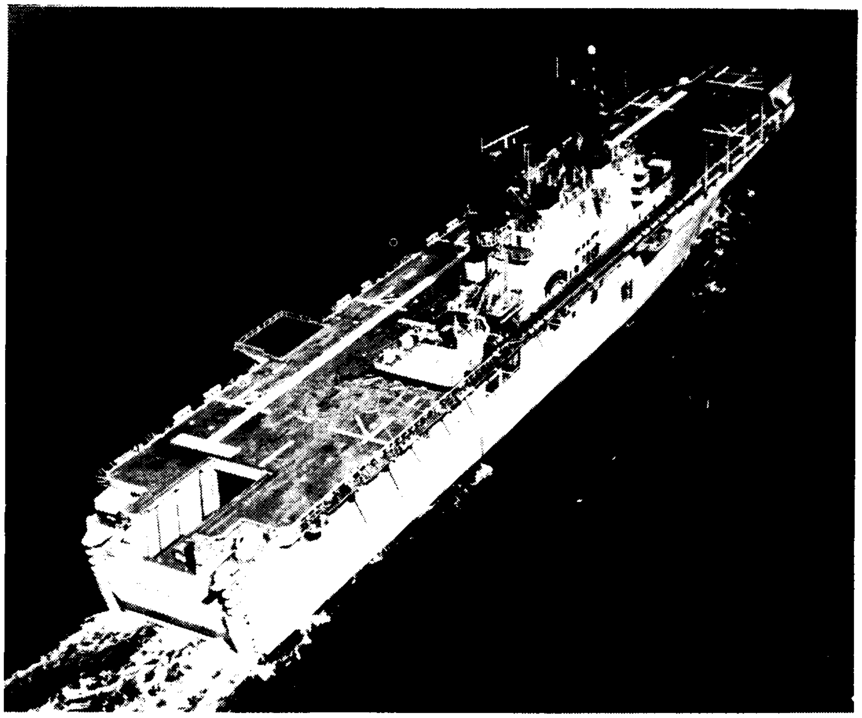
With regard to the submarine program, Electric Boat Division of General Dynamics has for some time encountered serious production problems. A new management team has trimmed its work force of several thousand non-production white-collar workers. The team is now in the process of formulating and initiating a new master plan aimed to improve productivity dramatically and convert the SSN 688 class construction project which has thus far incurred systematic losses to the contractor into a financially acceptable program. This aim can be achieved only if the claims and underlying problems are resolved. The master plan envisions a major restructuring of the shipyards' material control system and a reassessment of production schedules. The results of this schedule reassessment, which are expected in February, may influence future procurement planning for the submarine construction program.

e. Amphibious Assault Ships

Amphibious assault ships provide the capability to embark, transport, and land U.S. Marine forces. This amphibious force is a key element of U.S. naval power projection capabilities.

The current program objective for amphibious ships is the capability to lift the Assault Echelon (AE) of 1-1/3 Marine Amphibious Forces (MAF). A MAF consists of a Marine division, air wing, and supporting logistics forces.

This amphibious ship force will provide the capability to conduct a MAF-size assault while maintaining a smaller Marine force to respond to a concurrent minor contingency. In peacetime, these amphibious ships will provide the capability to keep up to four Marine Amphibious Units (MAU -- a battalion/squadron-size ground/air team) deployed at sea in forward areas.



USS TARAWA (LHA-1)

The U.S. amphibious ship force at end FY 1978 will be 64 active ships and three Naval Reserve Force (NRF) ships. The end FY 1978 force will include three newly constructed Amphibious Assault Ships (LHAs). Two additional LHAs are under construction and will be delivered in FY 1979 and FY 1980.

We have under consideration two ships of a new class, the LSD-41 (Landing Ship Dock). If we go ahead with this class, the lead ship would be programmed for FY 1981 and a follow-on ship in FY 1983. The preliminary scheduling of construction for these ships reflects in part the expected retirement of LSD-28 class ships during the 1980s. Last year's five-year shipbuilding program proposed a more rapid procurement of LSD-41s than we now consider advisable. That program would have included funds for the lead-ship in FY 1979. The delay in the LSD-41 procurement program is intended to ensure that this ship will be designed efficiently to embark and support advanced landing craft, particularly the Landing Craft, Air Cushion (LCAC), that are currently being developed.

The LCAC program is the highest priority program in the amphibious ship force. At present, the surface portion of the ship-to-shore movement in an amphibious assault is conducted by landing craft and amphibious tractors that use World War II technology. These landing craft and amphibious vehicles are limited to speeds of about eight knots and to favorable beach and tide conditions. In expected threat environments, the surface assault force could be highly vulnerable in these vehicles. The LCAC is an air cushion vehicle (ACV) that will have a full-load displacement of about 150 tons and a speed of 50 knots with a 60-ton payload. Because it is air cushioned it will be a true amphibian capable of delivering troops and cargo inland from the shore line. In addition to the advantages of high speed, the LCAC will be able to assault about four times the number of the world's beaches that can be assaulted with conventional craft. Two LCAC prototypes have been constructed. After test and evaluation, the LCAC procurement program is tentatively planned to start in FY 1982.

f. Mine Countermeasures (MCM) Ships and Helicopters

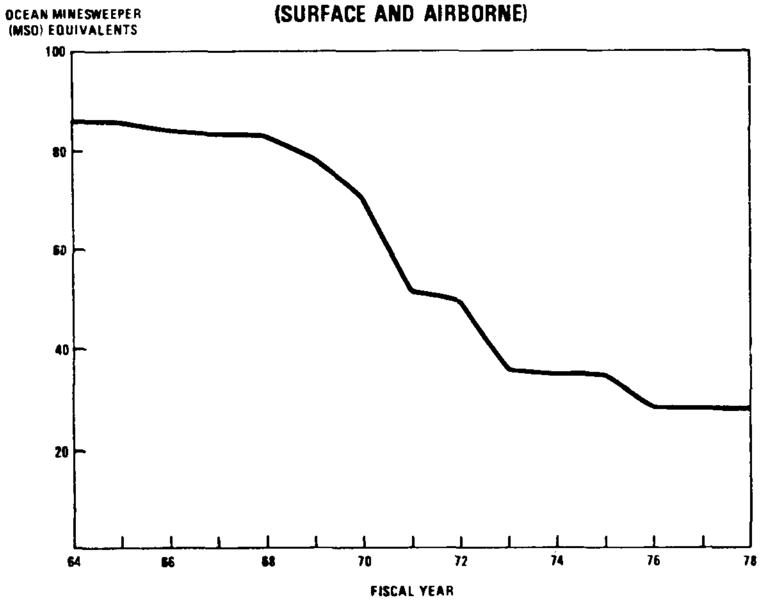
The USSR mine threat has recently changed in two important respects: (1) improvements in Soviet bottom influence mines have greatly increased the vulnerability of MCM surface ships and (2) the Soviets have developed the capability to mine deep-water shipping lanes and choke points that were previously unmineable. The increased shallow-water threat to MCM ships has led the Navy to assign MCM shallow-water missions to helicopters and primary responsibility for deep water missions to MCM surface ships.

At end FY 1978, the U.S. MCM force will consist of 21 RH-53D helicopters and 25 Ocean Minesweepers (MSO), with three MSOs in the active fleet and 22 MSOs in the Naval Reserve Force. The surface and helicopter MCM force at the end of FY 1978 represents only about one-third of the capability of the FY 1968 Force (Chart IIB-4). All of the MSOs were constructed in the early and mid-1950s and hence are reaching the end of their service lives.

Chart IIB-4

DECLINE IN US MINE COUNTERMEASURES (MCM) CAPABILITY

(SURFACE AND AIRBORNE)



Within the MCM force, the highest priority has been given to countering the Soviet deep-water mine threat. This will be done with a new class of ships, designated the MCM Ship. This ship will employ advanced minehunting and minesweeping equipment that is in the final stages of development. While the total number of MCM Ships to be procured is uncertain, we should probably provide a start to this program with the lead ship programmed for FY 1980 and two ships in both FY 1982 and FY 1983.

This preliminary MCM Ship plan is a stretched out version of the 19-ship program proposed in last year's five-year shipbuilding program. Several factors led to a decision to delay the program, including: (1) uncertainty in MCM Ship design and costs; (2) need for discussions with NATO allies on MCM responsibilities; and (3) desire to ensure the availability of advanced equipment for installation aboard the MCM Ships.

g. Support Ships

The Navy continues to face a serious support ship aging problem, despite successful initiation of several new construction programs in the past few years. More than 80 support ships in the fleet are an average of 25 years old. Several of the large tenders and many minor fleet support vessels date from World War II.

The FY 1978 request programmed 12 support ships for FY 1979 and a total of 44 support ships for FY 1978 through FY 1982. I believe we can substantially reduce this plan. Five support ships are requested for FY 1979 and a total of 18 are under consideration for FY 1979 through FY 1983. One destroyer tender (AD) is requested in FY 1979, together with three Towed Array Surveillance Ships (T-AGOS) and one Cable Layer (T-ARC). Currently, four fleet oilers (AO) would seem a reasonable objective for FY 1980 through FY 1983, compared to the ten AOs previously planned for FY 1979 through FY 1982.

2. Weapons Systems Modernization and Improvement

a. Land-Based Air for Sea Control

We have decided to restructure the Navy's ASW patrol plane development program. Now designated Advanced Maritime Patrol Aircraft, this program will begin concept formulation and mission analysis of a multi-mission land-based sea control aircraft. Review of the previous VPX program indicated that near-term efforts should be focused on expanded sea control missions -- ASW, anti-air warfare and anti-surface warfare -- in order to explore more fully potential alternatives for improving our sea control capabilities against projected threats after 1990.

We are currently examining the cost and effectiveness of alternative methods for providing anti-air defense of sea lanes. These studies will provide a better understanding of ways to counter Soviet long-range aircraft that could threaten vital sea lanes with air-to-surface missiles.

As part of our program to introduce HARPOON anti-ship missiles into the fleet, we are again proposing to backfit existing P-3 aircraft with this capability. Such a relatively inexpensive modification program makes efficient use of well suited, existing platforms whose worldwide basing support and strategic mobility ensure their availability for maritime missions.

b. Anti-Submarine Warfare (ASW)

(1) Aircraft

(a) CV Airwing Assets

Although all carrier airwing aircraft are capable of aiding in some phase of ASW, and the EA-6B and E-2C aircraft have significant electronic ASW capabilities, the S-3A and SH-3 aircraft are primarily tasked to the ASW mission. The speed, range, endurance and multisensor capabilities of the S-3A are complemented by the SH-3's multiple sensors including variable-depth active sonar for close-in detection. We are proceeding with an S-3A readiness improvement program to increase system operational reliability. The modification of SH-3's to the H variant will be complete in 1981 and significantly upgrade ASW capability.

(b) P-3

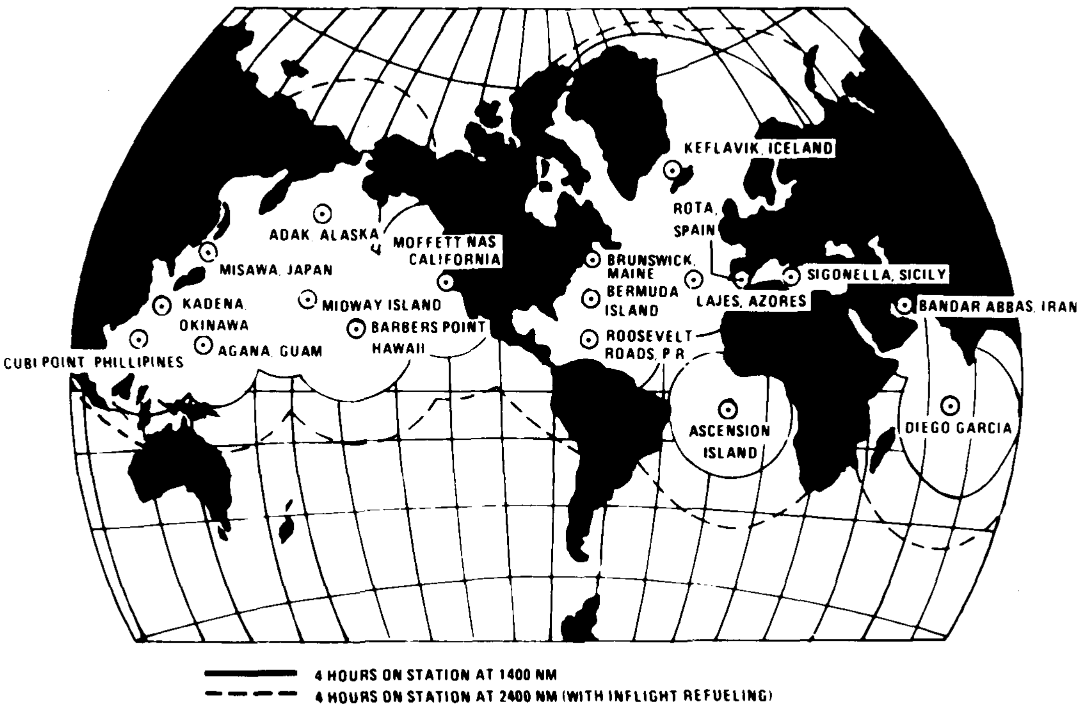
Analyses and fleet data indicate that the Navy's land-based P-3 aircraft play a major role in countering the Soviet submarine threat.

P-3

These aircraft are well suited for vectored intercept missions in conjunction with our undersea surveillance systems, particularly in the early stages of a conflict when the submarine threat to shipping could be severe. The procurement rate of P-3C aircraft is proceeding at the rate of 12 per year. We are initiating in FY 1979 a program to backfit existing P-3Cs with improved sonobuoy processing equipment. ASW operations over the years with P-3s and recent crises (related to the MAYAGUEZ and Angola) have pointed to the need for extended range and on-station loiter time in our maritime patrol aircraft. Accordingly, we have started a program to provide new production P-3C aircraft with an in-flight refueling capability which will increase their combat radius at low cost (Chart IIB-5). The Navy is also considering a refueling backfit into existing P-3s. Since P-3 basing throughout the world puts most vital sea areas within unrefueled P-3 range, we view this primarily as an emergency refueling capability without the need for more tankers.

Chart IIB-5

OPERATING RADIUS OF P-3 AIRCRAFT USING CURRENT BASES



(c) Light Airborne Multipurpose System (LAMPS) MK III

The Navy is reviewing the LAMPS MK III ASW helicopter development program before awarding contracts for the full-scale development of the airframe and engine. The estimated costs to complete development of LAMPS will be substantially higher than previously estimated. At a Defense Department Acquisition (DSARC) review scheduled for early this year affordability problems and cost growth in the program will be thoroughly reviewed.

LAMPS MK III will be used to extend the surface combatant ASW, radar, and electronic intercept horizon and increase weapons coverage against surface and submarine targets. The range and endurance envisioned for LAMPS MK III will enable ASW redetection and torpedo attack at tactically significant ranges based on data initially provided by ship-board active and passive sonar systems, particularly passive towed array sonars. In addition, the LAMPS MK III will be capable of providing over-the-horizon targeting for ship-launched HARPOON anti-ship missiles.

(2) Acoustics

(a) Surface Warship Towed Array Sonar

The SQR-18 Tactical Towed Array Sonar (TACTAS) is a long-range passive acoustic sensor for surface combatants which will provide significant gains in the detection and localization of enemy submarines. Procurement of 14 TACTAS systems has already been funded. In order to get this important capability in the fleet as soon as possible we are requesting 21 additional systems for backfit on existing FF-1052 class frigates.

An advanced towed array sonar, the SQR-19, will be installed in the DD-963, FFG-7, DDG-47, DDH-997, and CGN-42 classes. The FY 1979 request includes $25 million in development and test funding for the SQR-19.

(b) SQS-53

The SQS-53 Sonar Improvement Program will replace the existing analog controller and display hardware of the surface ship long-range hull-mounted sonar with standard Navy digital hardware such as the UYQ-21 and UYK-20. These improvements are necessary in order to integrate the hull mounted sonar with the SQR-19 and LAMPS MK III, and will provide increased reliability and maintainability, as well as improved detection and tracking capabilities.

(c) Surveillance Towed Array Sensor System (SURTASS)

The Surveillance Towed Array Sensor System (SURTASS) has encountered schedule slippage and slight R&D cost growth since last year. However, we still plan to begin procurement of SURTASS ships starting in FY 1979. Technical and operational evaluation of the system is currently scheduled to start in early 1978. SURTASS ships will provide a mobile long-range undersea ASW passive surveillance capability.

(d) Sonobuoys (air-dropped expendable ASW sensors)

Our multi-billion dollar investment in air ASW platforms would be useless in a protracted ASW campaign without adequate supplies of sonobuoys. For the past several years we have been programming substantial increases in sonobuoy procurement. The FY 1979 budget provides $111 million toward achievement of our procurement objectives.

c. <u>Anti-Air Warfare (AAW)</u>

(1) Aircraft

The aircraft carrier continues to provide the first line of defense for anti-air warfare. Operation of additional F-14/PHOENIX and E-2C airborne radar surveillance and control systems from all carriers will upgrade the fleet air defense capabilities. Programs for carriers and associated aircraft are presented in the Tactical Air section of this report.

(2) Area AAW

Improvements to area anti-air warfare, in addition to those expected from the procurement of the AEGIS equipped ships in the 1980s, will be gained from an upgrading of the STANDARD missile. Three upgraded versions of the STANDARD missile family are under development; they include improvements in guidance and propulsion to deal with the projected threat throughout a greater portion of the flight trajectory. Plans are to commence procurement in FY 1982-83 following successful test and evaluation. Development of a long-range missile will be begun in order to engage aircraft carrying anti-ship missiles.

The current budget supports expansion of R&D on the vertical launch of missiles. Adaptation of existing and planned missiles to a vertical launch capability will enable our forces to react faster to approaching threats.

(3) Local AAW

The current submission continues support of the PHALANX high rate-of-fire Close-in Weapons System (CIWS), the basic point defense surface missile system, five and eight-inch infrared guided projectiles, and the NATO SEA SPARROW missile system. Under conceptual development is the Shipboard Intermediate Range Combat System (SIRCS) planned as a total combat system to coordinate all intermediate range defenses to reinforce the defense in depth concept of anti-air warfare.

(4) Sensors

The FY 1979 request supports sensor improvements that will contribute to AAW and anti-ship missile defense. These include the introduction of the SPS-49 radar and improvements to the SPS-48, SPS-52, SPS-40 and the Target Acquisition System Radar for use with the Improved Point Defense Missile System in the DD-963 and other classes.

d. Weapons

(1) TOMAHAWK Cruise Missile

Procurement of the land attack version of TOMAHAWK is planned to begin in FY 1980. If there is a positive decision on a nuclear role for these missiles, tentative plans are to build a total of 1,082 TOMAHAWKS. The Navy proposes that some of these would be nuclear-armed land attack missiles carried on submarines and surface ships. Delivery of these missiles could start in FY 1981, as an addition to the Navy's tactical nuclear power projection capability. The anti-ship conventional warhead missiles will begin production in-phase with an over-the-horizon targeting system adequate to support TOMAHAWK targeting against ships. We are also continuing investigation of an accurate conventional land attack version for surface combatants and submarines.

(2) HARPOON Cruise Missile

HARPOON is beginning to be deployed in the Fleet. The programmed purchase of this 100 km range air-surface-subsurface launched anti-ship cruise missile has been reduced by 648 missiles to a total of 2,107 to account for the procurement of the anti-ship version of TOMAHAWK.

(3) SUBROC - Depth Bomb

The SUBROC submarine-launched, rocket-propelled nuclear-tipped ASW depth bomb has been in service since the mid-1960s. The primary ASW weapon of the SSNs is the MK-48 torpedo. SUBROCs are growing a bit long in the tooth, however. They will reach the end of their originally planned service life in 1980.

The FY 1979 budget funds a service life extension program to retain the SUBROC inventory. The program regrains rocket motors and provides for spare part support and reliability of the guidance systems.

(4) Major Caliber Lightweight Gun (MCLWG)

Procurement of MCLWGs (8-inch) is planned to begin in FY 1980 with two guns. FY 1979 procurement of the MCLWG has been delayed to permit further development of critical supporting elements, particularly advanced ammunition. The MCLWG will provide capability in three mission areas: naval gunfire support for amphibious operations, shore strike, and anti-ship warfare. Eventually, the weapon system will be capable of contributing to anti-air warfare when infrared 8-inch guided projectiles are available.

(5) Guided Projectiles

The Army has the lead in the joint Army-Navy Guided Projectile program. The Navy has recently been authorized to enter into engineering development for two Semi-Active Laser (SAL) Guided Projectiles, a 5-inch and an 8-inch round. Pilot production of SAL 5-inch and 8-inch rounds is planned for FY 1980 with full-scale production to begin in FY 1982. Eventually, there will be three additional Navy guided projectiles: a SAL 8-inch extended range round, and infrared 5-inch and 8-inch rounds for AAW.

e. Mine Warfare

In a war at sea with the Soviet Union, mines would complement other sea control forces. By establishing mine fields at geographic choke points and near Soviet naval bases, we would exact attrition against submarines and surface ships, inhibit Soviet operations, and compel them to take extensive countermeasures.

As the mining of Haiphong harbor demonstrated, naval mines can play a vital role in a conflict. The capability to interdict an enemy with a weapon that will cause no harm unless challenged is one that we wish to retain and improve.

Four mine programs support this capability. In production is CAPTOR, a sophisticated mine able to detect and launch a torpedo at any transiting submerged submarine. In development are:

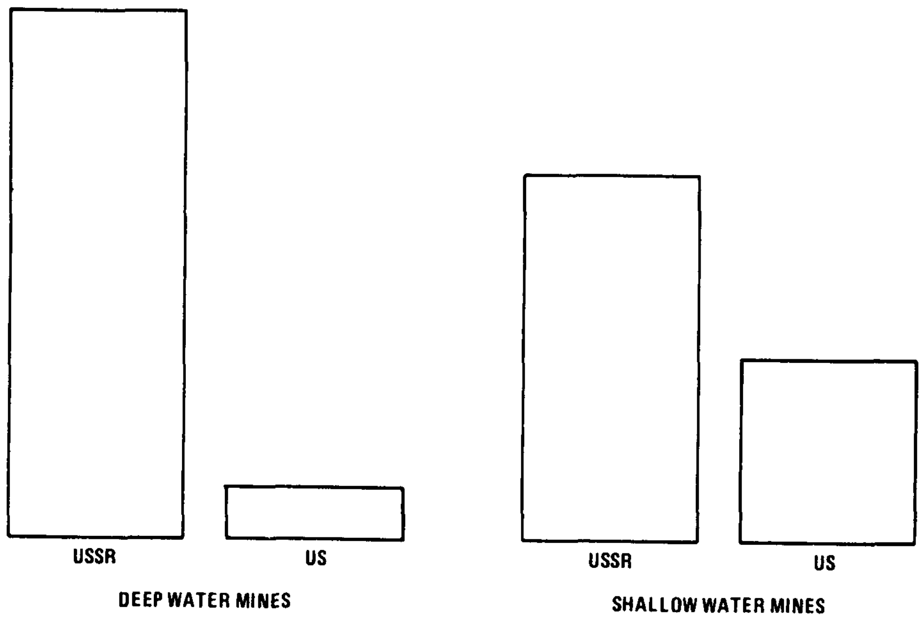
-- QUICKSTRIKE, a backfit program to convert existing M-80 series bombs to mines.

-- An Intermediate Water Depth (IWD) mine formerly referred to as PRAM, a rocket-propelled mine.

-- A submarine-launched mobile mine which will permit covert mining and mining of waters that only a submarine can reach.

Chart IIB-6

US/USSR MINE STOCKPILE
(1 JANUARY 1977)



3. Combat Readiness

The issue of maintaining combat readiness is a vital one for land and air as well as naval forces. The problems confronting the Army, Navy and Air Force are analogous but not identical; thus each Service is tailoring its own programs to meet the goal of improved combat readiness.

Readiness has been given priority consideration in the preparation of this year's Navy budget. Resources allocated to readiness increased by $2 billion over the program for last year.

a. Readiness Measurement and Reporting

Combat readiness should be measured with sufficient accuracy to allow the operational commander to know the status of the units under his command and to allow the resource manager to determine his readiness problems, evaluate their relative seriousness, and apply resources to correct them. The Navy's current readiness reporting system meets the operational commander's need but does not fully meet the needs of the resource manager.

The Navy is working on the solutions to this difficult and complex problem. Two levels of readiness measurement are used to provide accurate, real-time information regarding the world-wide operation and status of naval forces. Unit Readiness, as reported in the NAVFORSTAT system, measures the degree to which an individual ship or aircraft squadron is prepared to accomplish its assigned missions. Unit readiness measurement functions both as a building block on which further levels of composite readiness are aggregated and as a key to identifying deficiencies requiring corrective action by Navy managers. Composite readiness, as reported daily by the Fleet Commanders-in-Chief, identifies those ships considered Command Operationally Ready/Command Not Operationally Ready (COR/CNOR) to accomplish their basic mission as required by the general war plans. While this information is generally derived from NAVFORSTAT reports, the composite report includes an assessment and the added judgment of the Fleet Commanders-in-Chief as to the level of fleet readiness. This assessment takes into consideration such inputs as readiness evaluations which are graded and simulate actual combat conditions.

The basic NAVFORSTAT reporting system is under review with the goal of including other measures of capability in the report (e.g., "time required to deploy" for ships, and "percent of required combat sorties" for aircraft). Independent examining teams such as the Board of Inspection and Survey and Engineering Propulsion Examining Boards are being used as readiness observers to apply objective standards to the fleet. Various methods of analyzing maintenance and support funding are being studied to determine their usefulness in providing readiness input data. The work completed to date has served to reinforce our original impression that it will take a concentrated effort to solve this problem and that it is important to solve it correctly. The Navy is to be commended for its efforts to this end.

b. Personnel Readiness

The Navy continues to suffer along with all other services from a persistent shortage of critically skilled non-commissioned officers at the middle grade level. This problem is made worse by the delivery to the fleet of increasingly sophisticated ships, aircraft and equipment. The problem feeds on itself. Skilled petty officers, already in short supply, have to spend longer hours maintaining their equipment. They do not have the time to train their subordinates, or to be with their families. The demand for their talent at sea has resulted in a critical shortage of their skills ashore at intermediate maintenance facilities. These pressures in turn intensify retention problems.

The Navy is trying to improve first-term retention through improved personnel management, improved placement of quality personnel in leadership positions, and, indirectly, through improved sea pay legislation.

A separate problem which nevertheless affects the petty officer shortage is an all-time high in the desertion rate in the Navy. The current number of desertions is still very small, 31.7 per 1,000 enlisted men annually, but the trend and comparisons with the other Services are disturbing. The Navy has a high priority program underway to identify the causes of this problem and determine both short-term and long-term solutions.

c. Training Readiness

The contribution of training to the readiness of the Navy is one of the most difficult to measure. It is now measured with some realism only during combat exercises. Some of the surrogates for training readiness traditionally used are ship steaming days and aircraft flying hours.

For FY 1979 the steaming days per quarter programmed and desired are:

Table IIB-6

Fleet	Programmed	Desired
2	31	39
*6	42	50
3	27	32
*7	45	54
Total Average	36.2	43.6

----

* Forward Deployed Fleets

These programmed levels are only 85 percent of the desired level, but are significantly improved over pre-FY 1978 levels.

Aircraft Flying Hours are one way to estimate the training component of an aircraft squadron's readiness. This year's budget provides the following hours, expressed in terms of percent of full readiness to support the aircraft's primary combat mission, otherwise known as "primary mission readiness" (%PMR):

	%PMR
Actual flying hours	86
Simulator time	2
Total Programmed	88

This 88 percent represents an adequate level of readiness to support peacetime Fleet needs. Obviously 100 percent is desired.

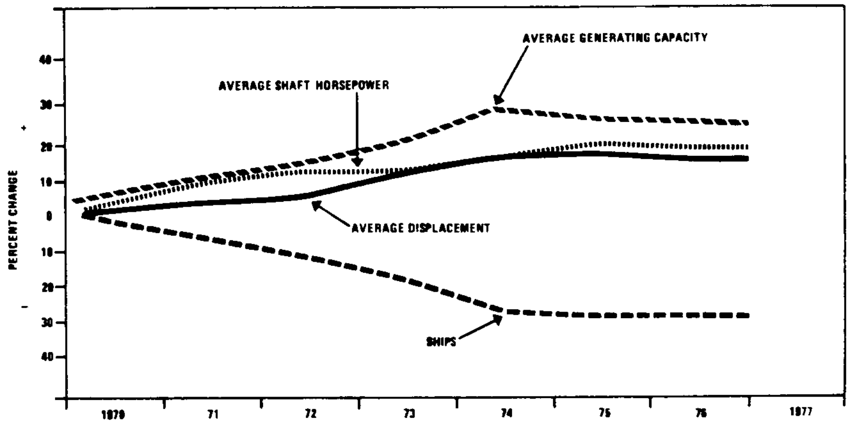
The budget also continues last year's initiatives to expand officer and enlisted steam propulsion training and formal schooling to deal with other existing and emerging systems.

d. Material Readiness

Until quite recently the material condition of our ships, aircraft and equipment has limited our combat readiness. The Vietnam war drew attention and resources from maintenance while the cost and time requirements of maintenance have increased dramatically. Chart IIB-7 shows that while the size of the fleet has become much smaller in this decade, the ships themselves have become larger, more powerful, and much more complex. For example, as a result of decommissioning older ships and new construction, the percentage of nuclear powered and guided missile ships in the Navy has doubled in the past eight years (Chart IIB-8). The increasing complexity of equipment demands greater repair skills and stricter maintenance procedures. The result has been an accumulating backlog of deferred maintenance at all three maintenance levels (depot, intermediate, and organizational). This backlog has been particularly severe for surface ships. It has been aggravated by a lack of skilled maintenance petty officers (as indicated in the Personnel Readiness paragraph) and by longer lead times and higher cost for repair parts.

Chart IIB-7

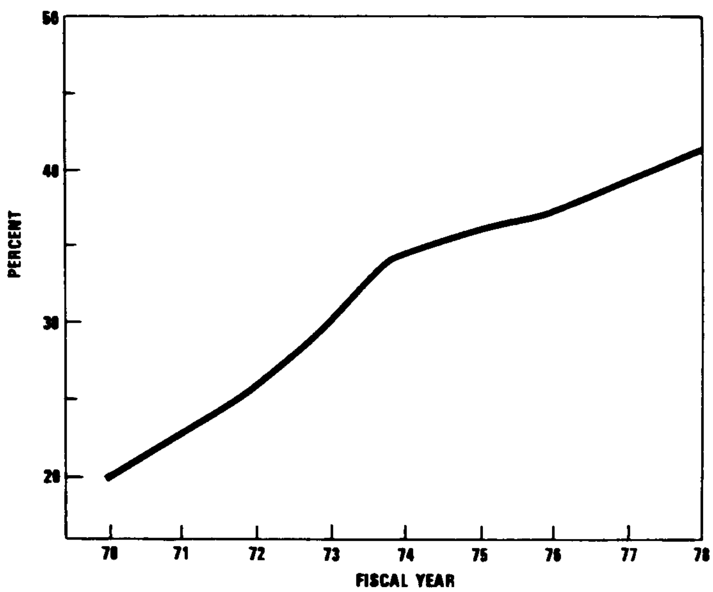
MEASURES OF AVERAGE US SHIP SIZE AND COMPLEXITY



The Navy has been working for the past few years to address these problems with a concerted plan to arrest the declining material condition of the fleet. They have succeeded in arresting the adverse trends. The following paragraphs describe the major material readiness improvement efforts.

Chart IIB-8

PERCENT OF NUCLEAR AND GUIDED MISSILE SHIPS IN US ACTIVE FLEET

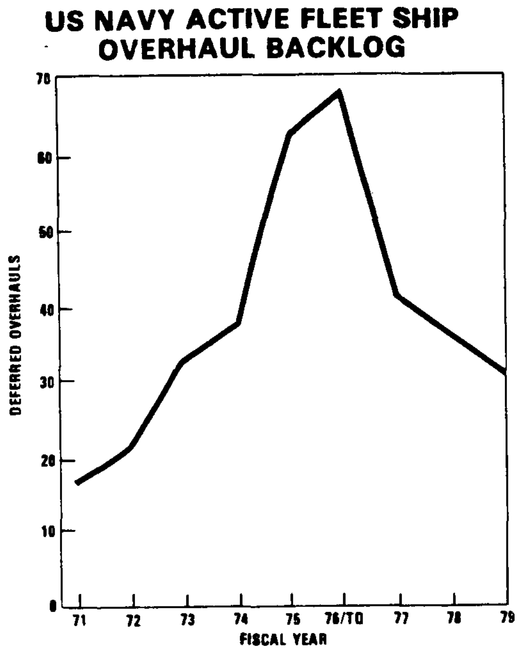


Improvement of organizational maintenance at the shipboard level has been achieved by the Chief of Naval Operations policy of filling at-sea billet deficiencies first and by dramatically increasing operation and maintenance (O&M) funding at this level. In FY 1977 this funding was almost doubled. This year's budget increases it by approximately ten percent over FY 1978. The dollar increase has paid dividends. Individual units have the funding to buy needed repair parts, maintenance equipment and consumables. Initial (and limited) inspection results have indicated improved organizational readiness. The percent of preventive maintenance accomplished by the fleet has doubled in the past four years.

Improvement of intermediate maintenance activities (IMAs) at repair bases and tenders has been accomplished by a concerted upgrade program, including training of personnel in repair of complex hardware, more and better test equipment, and increased contract support of IMAs. Funding of repair parts and material has been increased, upkeep schedule discipline tightened at the fleet level, and planning improved. The quality assurance program used by submarine IMAs has been established for surface ship repair as well.

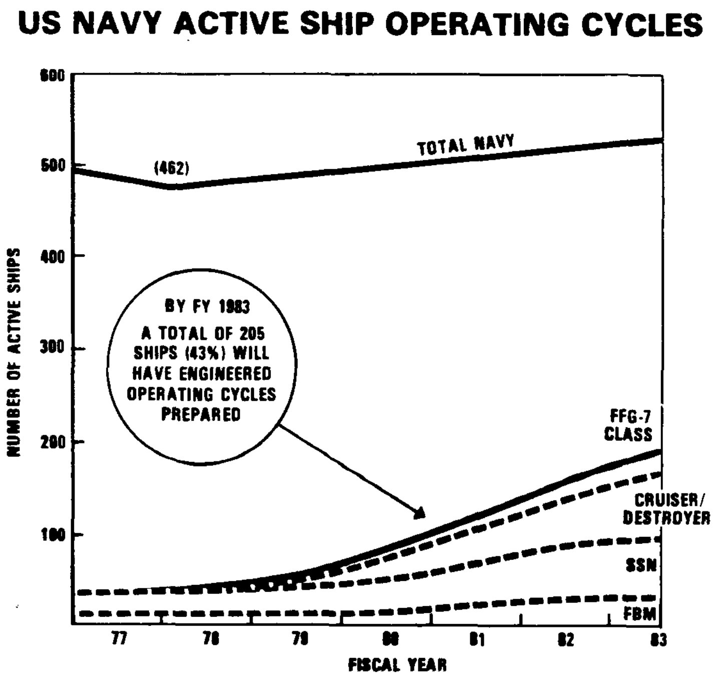
Near-term depot level improvement at shipyards encompasses: rate stabilization budgeting to account for inflation and reduce overhaul cost overruns; strict adherence to overhaul schedules; more complete advance planning for overhauls; a fleet improvement program for 600 and 1200 psi steam plants; and a determined effort to reduce the chronic backlog of overhaul. Chart IIB-9 shows the improvement in this reduction. The backlog will be reduced by about three ships by the end of FY 1979. The 600/1200 psi improvement program has adopted the inspection, training and management procedures of the nuclear propulsion program for conventional propulsion plants. As a result, the ships are in better shape and their crews are better able to operate and maintain their equipment. This program has resulted in other significant fleet improvements. From 1965 to 1972 there were 50 major casualties involving 18 deaths and 32 serious injuries in these propulsion spaces. From 1972 to 1977 there have been only two major casualties, both on ships not yet incorporated into the program.

Chart IIB-9



A program which we think will reduce shipyard workload in the long term is the Ship Engineered Operating Cycle concept. Some surface ship classes will build on the current submarine program of carefully managed IMA repair at strict intervals, allowing ship overhauls to occur at greatly reduced frequency (every five to ten years). Chart IIB-10 illustrates the Navy's plan for implementation of this program during the budget years.

Chart IIB-10



The percent of Navy aircraft not operationally ready increased from 1971 through 1976. The biggest single cause was a lack of repair components and parts at the maintenance facilities. This trend was reversed in 1977 and aircraft support has been greatly improved. Additionally, the number of aircraft not operationally ready for maintenance (NORM) has steadily declined (it has decreased by one-third over the past four years). A combination of increased repair parts funding, better intermediate maintenance management and improved maintenance strategy has caused this improvement. The most important improvement has been a shift toward reliability centered maintenance. This concept uses engineering decision logic and analytical maintenance frequency techniques which allow extended time between airframe and engine rework during the life span of an aircraft.

Recent increased depot maintenance funding has been applied to engine and component (e.g., radar) rework to realize an improvement in readiness.

Table IIB-7

ACQUISITION COSTS OF MAJOR NAVAL FORCES MODERNIZATION AND IMPROVEMENT PROGRAMS 1/
(Dollars in Millions)

	FY 1977 Actual Funding	FY 1978 Planned Funding	FY 1979 Prop'd Funding
Aircraft Carriers			
Acquisition of CVV Carriers	-	-	-
V/STOL Development	46.0	22.0	53.0
Surface Combatants			
Development & Procurement of AEGIS-Armed Destroyers (DDG-47)	14.0	939.0	10.0
Development & Procurement of Nuclear Cruisers (CGN-42)	29.0	210.0	19.0
Acquisition of Guided Missile Frigate (FFG-7)	1,235.0	1,218.1	1,547.7
Modernization of DDG-2 Class Destroyers	-	102.5	155.0
Study & Development of Advanced Naval Vehicles (Includes Surface Effect Ship SES)	48.0	44.0	-
Antiship Weapons			
Acquisition of HARPOON Antiship Missile	150.4	132.5	133.4
Development of TOMAHAWK Antiship Missile	113.5	210.0	152.0
Development & Procurement of LIGHTWEIGHT GUN	41.7	3.0	2.0
Development of Guided Gun Ammunition	26.0	32.0	23.0

1/ This table includes the cost of RDT&E, procurement of the system and initial spares, and directly related military construction.

ACQUISITION COSTS OF MAJOR NAVAL FORCES MODERNIZATION AND IMPROVEMENT PROGRAMS
(Dollars in Millions)

	FY 1977 Actual Funding	FY 1978 Planned Funding	FY 1979 Prop'd Funding
Fleet Air Defense			
Continued Development of AEGIS Ship Air Defense System	111.0	63.0	58.2
Procurement of STANDARD Missiles	102.3	154.5	148.1
Procurement of PHALANX CIWS	19.0	74.9	109.3
Procurement of Electronic Warfare Systems (AN/SLQ-32)	33.4	51.1	57.9
ASW Aircraft			
Continued Procurement of P-3C Patrol Aircraft (including air/air refueling and HARPOON backfits)	239.2	322.7	354.3
Modification of SH-3 Helicopter	30.1	73.0	67.1
Modification & Acquisition of Light Airborne Multi-purpose System (LAMPS)	72.0	106.0	122.0
Acquisition of Sonobouys	76.6	95.3	110.6
Mobile Logistic Support Force Ships			
Procurement of Underway Replenishment Ships	102.7	327.2	7.5
Procurement of Fleet Support Ships	565.0	84.2	646.3
Weapons Systems Modernization			
Modernization of SUBROC Missiles	2.0	-	-

ACQUISITION COSTS OF MAJOR NAVAL FORCES MODERNIZATION AND IMPROVEMENT PROGRAMS
(Dollars in Millions)

	FY 1977 Actual Funding	FY 1978 Planned Funding	FY 1979 Prop'd Funding
Weapons Systems Modernization (con't)			
SQR-18 Towed Array Sonar Backfit Program, SQR-19 Towed Array Sonar Development & Acquisition	138.6	162.8	113.6
Acquisition of MK-46 ASW Torpedoes	8.0	2.0	90.7
Acquisition of MK-48 Torpedoes	138.6	162.8	113.6
Undersea Surveillance Systems			
Development of SOSUS & Improved SOSUS; Development & Procurement of SURTASS	121.6	152.2	200.6
Attack Submarines			
Procurement of SSN-688 Class Nuclear Attack Submarines	1,301.4	311.9	458.8
Amphibious lift			
Procurement of LSD-41 Class	2.0	10.0	7.0
Development of Air Cushioned Landing Craft	14.0	14.0	18.0
Mines & Mine Countermeasures			
Development & Acquisition of Mine Countermeasures Ship (MCM)	1.0	4.0	6.0
Acquisition of CAPTOR ASW Mines	65.9	77.6	17.7
Development of QUICKSTRIKE Mines	5.0	6.0	8.0
Development of PRAM Mines	6.0	8.0	14.0
Development & Procurement of Submarine-Launched Mobile Mine (SLMM)	3.0	1.8	3.0

CHAPTER II (Continued)

TACTICAL AIR FORCES

I. PROGRAM BASIS

A. Missions

The tactical air forces are needed primarily to ensure the control of friendly airspace and to support the control of land areas and the land, sea and air lines of communication essential to the overall defense strategy. Accordingly, U.S. tactical air forces have been structured to perform close air support, counterair and interdiction functions. Reconnaissance, defense suppression, electronic warfare, command and control, refueling and other forces are maintained to support fighter/attack aircraft units and perform reconnaissance for Naval and ground forces. By virtue of their speed, range, and fire-power, tactical air forces provide a major element of flexibility in general purpose force capabilities, with the capacity to counter attacks varying widely in location and intensity. Most tactical aviation forces are capable of worldwide operation although most of the existing and planned forces are oriented toward the European theater.

B. FY 1979-83 Program Objectives

FY 1979-1983 programs sustain many initiatives begun in previous years. As a result, U.S. tactical air forces are now undergoing a general modernization of aircraft and their armament, a process that will continue into the mid-1980s. Special attention in this year's review of the five-year program was given to the feasibility of future program plans in the light of projected resources. Some proven systems have been continued in the near-term in lieu of alternative, more ambitious new developments. On the other hand, R&D efforts planned in the FY 1979-1983 program will provide an adequate number of alternative new approaches to keep a technological lead over the Warsaw Pact nations.

This year's program reflects the major goals of:

-- sustaining major procurement programs to modernize aircraft inventories;

-- enhancing NATO European theater combat capabilities;

-- improving appropriate combat support in the reconnaissance and electronic warfare areas;

-- balancing qualitative improvements with the need for a sufficient overall number of aircraft.

Actions to reach these goals will be implemented in the proposed defense program. Aspects of major programs will be discussed briefly, followed by a more detailed description of planned program actions in FY 1979.

1. Sustaining Major Procurement Programs

Major procurement of the Air Force F-16, F-15, and A-10 and the Navy F-14 is being continued. The more costly F-15 and F-14 are to be complemented by the newer and less expensive, but capable F-16 and F-18 aircraft respectively in the early 1980s.

The high Soviet production rate of tactical aircraft makes the need for the lower-cost U.S. procurement programs particularly pressing. The successful A-10 and F-16 programs provide the opportunity for high production rates, permitting modernization of both active and reserve fighter/attack forces. Procurement of Navy tactical aircraft continues to run well below the rates needed to maintain a modern, efficient air arm at planned force levels. We are relying on successful development of the F-18 series aircraft to maintain long-term force goals. In the meantime, continued refurbishment of older aircraft is being undertaken to prevent a precipitate force level decline.

2. Enhancing NATO European Theater Combat Capabilities

Major attention has been given to NATO European force readiness. This year's review has led to plans for a large number of deployment, procurement, and activity rate improvements for U.S. forces associated with NATO defense. Examples include acceleration and increase of planned A-10 deployments to Europe, procuring additional runway rapid repair kits, chemical defense equipment, and constructing alternate runways and taxiways at U.S. European bases. These efforts to improve the survivability of our European airbases and maintain a high sortie rate capability should help reduce the threat posed by the Soviet capability to mount massive initial air strikes at the beginning of a NATO/Warsaw Pact war. NATO tactical air forces must survive these attacks in strength if they are to be available to complement ground defenses in countering the Warsaw Pact armored spearheads. While many of these European force improvement measures are comparatively inexpensive, their net effect on our NATO defense posture will be substantial. Some of the individual steps being taken are identified in the force deployment discussion and under Air Force readiness and airfield defense headings below.

3. Improving Force Readiness and Sustainability

Readiness improvements have not been confined to forces oriented toward the European theater. Emphasis on realism in training, higher reliability in subsystems under development, and a wide variety of other factors is improving overall tactical air force capability. Training operations centered at Nellis AFB in Nevada and the Navy Fighter Weapons School in Miramar, California, are good examples of the progress being made in the maintenance of peacetime force readiness. Particular attention has been focused on weapons systems which have experienced low operational readiness rates, excessive support costs, or both. For example, the Air Force F-111D, the Navy F-14, and the Marine Corps F-4J have proved burdensome in this regard in past years. Navy Department concentration on F-14 and F-4J problems has improved force readiness this year.

Logistics support programs are an important element of tactical air force readiness. Procurement of air-to-air missiles needed for adequate war reserve stocks has been increased over previous plans and will be underway at the full planned rates in FY 1979. Development of several improved air-to-ground munitions types continues. Specific information on these logistics concerns will be found in Chapter VI of this Report.

4. Providing Appropriate Reconnaissance and Electronic Warfare Support

Increased Warsaw Pact capabilities in ground force mobility, ground-based air defenses, chemical warfare, and electronic warfare threaten to impose serious limitations on the potential effectiveness of NATO tactical air forces. Pact improvements are being partially countered through force modernization and development of a variety of "combat support" elements. These support elements conduct electronic warfare (electronic intelligence, tactical jamming, and other measures); defense suppression (attack or deception of ground-based radars, missiles and other equipment); reconnaissance (locating and identifying enemy forces); and provide other support such as early warning and aerial refueling. Support elements are integrated into the planning of tactical air missions to counter the threat. Thus, the demand for support forces has to be balanced against the need for combat forces themselves. Certain specific combat support programs have been reviewed and revised accordingly.

Air Force tactical reconnaissance forces are to be improved qualitatively while reduced somewhat in numbers. Existing RF-4Cs will be given a limited number of advanced new sensors and additional all-important ground processing centers will be established in-theater.

A new fighter-derivative reconnaissance aircraft, RF-X, is cancelled while studies of future needs for the tactical reconnaissance mission are carried out. We are considering future procurement of a relatively small number of modified U-2 type aircraft, the TR-1, for tactical reconnaissance. The TR-1 would carry a long-range side-looking radar for coverage of ground targets from outside enemy airspace. During the early 1980s, Navy tactical reconnaissance units will be equipped with F-14s modified to carry a reconnaissance pod. Longer-term determination of Navy and Marine Corps reconnaissance aircraft forces has not been made; we are considering development of an F/A-18 reconnaissance derivative for both the Navy and the Marine Corps.

5. Balancing Quantity and Quality

Aerospace technology available for development of the tactical air forces is dynamic, and awesome in its breadth. Somehow the natural interest in exploitation of promising new technology must be balanced by the need to maintain a large operational force that is sufficiently homogeneous to permit efficient logistics support.

The appearance of V/STOL aircraft is a case in point; the opportunities suggested by remotely-piloted vehicles and cruise missiles could be equally attractive to the force planner. It is possible to envision a tactical air force in the 1990s almost entirely different from that existing today. However, these technological opportunities need to be developed into an operational format and rigorously tested before we can commit ourselves to them.

The Navy has aggressively embarked on development of advanced V/STOL aircraft, but it will be some years before we can commit our sea-based aviation forces to a transition away from conventional takeoff and landing (CTOL) aircraft. V/STOL could offer some advantages which are worth the development risks and costs. These include tactical flexibility in basing as well as potential changes in aircraft carrier design. In addition to the technical feasibility of advanced V/STOL aircraft designs, we must also ensure that V/STOL aircraft operating from dispersed bases can be adequately supported by appropriate logistics systems and concepts. Before we can begin a major transition, we must be sure that a force composed of V/STOL aircraft can demonstrate competitiveness on a cost and effectiveness basis with a force of equally advanced CTOL aircraft. Whether a new generation of V/STOL will prove suitable for production will be determined by further evaluation. In the meantime, the F-18 series aircraft will be essential to keep an adequate number of aircraft available for the planned carrier force. The Marine Corps' proposed AV-8B program will continue in a R&D status.

Analogous broad changes in Air Force force structure similarly are still some years away. Conventionally-armed cruise missiles are being examined for the deep strike role, for example. However, significant further developments in terminal accuracy over existing test systems are needed if the cruise missile is to have a capability to attack point targets with non-nuclear warheads. Current developmental work therefore focuses on nuclear-armed cruise missiles directed at fixed targets.

With the above concerns as a background, the following section describes the specific program plans which make up the FY 1979 program.

II. PROGRAM DESCRIPTION AND STATUS

Tactical aircraft programs are addressed here largely along service lines, first the Air Force programs and second, those of the Navy and Marine Corps. This division reflects some differences in threat and operational basing between the forces of these services (although in many cases the aircraft of different services are intended for similar missions) rather than the institutional division of resources.

The FY 1979 Tactical Air Force program includes the major procurement items and many operational and logistics support activities. Balancing these needs is a difficult task, there being no easy method of computing an appropriate level of support without taking into account factors of basing posture, tempo of operations, training levels, and so forth. The reasons underlying our major procurement plans are given here; logistics is covered in detail in Chapter VI of this Report.

A. Air Force Tactical Air Force Structure

Air Force tactical air forces are planned principally for support of deployed U.S. and allied ground forces in Europe and the Western Pacific. Overall planning is done in the context of alliance defense as described in Section III of this Report. The following discussion describes the current posture of Air Force tactical air and the role of threat considerations in planning. It continues with judgments concerning the adequacy of the force.

Overall force structure is based largely on plans for wartime operations, but is influenced to some extent by peacetime operational basing and training considerations. The Air Force fighter/attack force structure at the end of FY 1979 will include 26 active and the equivalent of about ten and one-half reserve wings (an active fighter/attack wing nominally is composed of three squadrons, each with 24 operational aircraft when fully equipped). The 26 active fighter/attack wings will be underequipped by about 200 aircraft in FY 1979; current procurement plans would bring the force to full strength by end-FY 1981. Major additional combat support will include seven active and nine reserve tactical reconnaissance squadrons. Three squadrons of Airborne Warning and Control System (AWACS) aircraft will be operational in the Tactical Air Command at end-FY 1979, with a total of 18 unit equipment aircraft assigned. The Tactical Air Control System (TACS) forces provide forward air controller (FAC) and other command and control support to tactical air and ground forces. At the end of FY 1979, TACS forces will include 11 active and 6 Air National Guard squadrons composed of about 280 UE aircraft. Air Force Special Operations Forces (SOF) are maintained for special missions such as aircrew recovery in hostile areas. The units will consist of seven squadrons (active and reserve) totalling 53 unit equipment aircraft by the end of FY 1979.

Of the 26 active fighter/attack wings, 11 are deployed overseas. Eight are assigned to U.S. Air Forces in Europe (USAFE) and three to the Pacific Air Forces (PACAF). The CONUS-based wings provide augmentation reserves for a rapid force-buildup during crises. During peacetime, the CONUS-based wings are engaged in combat simulation training (RED FLAG - NEVADA), tactical exercises (at unit and joint unit levels) augmenting combat crew training, alert or crisis augmentation of CONUS air defenses and providing a rotation base for permanently assigned overseas tactical forces. Two CONUS squadrons are "dual based" for rapid deployment to Europe and three CONUS squadrons provide crisis augmentation for Alaskan Air Command.

The approximately 10 1/2 reserve tactical fighter wings are structured to provide combat ready forces for wartime deployment. During peacetime, these reserve forces are engaged in tasks similar to the CONUS-based active forces.

Combat support forces are deployed in much the same manner as the fighter/attack forces. The active RF-4C tactical reconnaissance squadrons are deployed as follows:

3 squadrons in Europe
2 squadrons in CONUS "dual-based" for Europe
1 squadron in PACAF
1 squadron in CONUS

In addition, nine Air National Guard tactical reconnaissance squadrons will be based in CONUS in early 1979. The 18 unit equipment AWACS aircraft, based in CONUS, will support rotational deployments to a variety of locations outside CONUS.

Wartime or other crisis employment of this force would depend on the situation at hand. Reasonably detailed planning scenarios have been developed to test the adequacy of planned forces against potential wartime threats. Defense against a major Warsaw Pact attack on NATO is the most important of the basic planning "cases" for structuring the tactical air forces. In such a contingency, with present capabilities additional active and reserve fighter/attack wings and tactical reconnaissance squadrons could be deployed in Europe within a month's time. This posture could provide over 2,000 USAF fighter/attack aircraft in Europe to complement the Allied fighter/attack aircraft that could be made available. Completion of planned U.S. procurement programs will increase the U.S. deployment capability substantially by FY 1983.

The adequacy of this force depends in part upon considerations of enemy strength and intentions. However, we continue to consider U.S. aircrews better trained, more experienced, and more flexible than those of the Warsaw Pact. These factors play a part in our judgment that programmed forces would enable us to blunt initial enemy conventional air strikes and thereby gain sufficient air superiority to carry out significant and effective close air support and battlefield interdiction operations at the outset of hostilities. The newly operational AWACS aircraft would give us particularly valuable warning indicators of Pact tactical aircraft deployments and overall military intentions prior to an actual attack.

Continuing Warsaw Pact improvements in tactical aircraft, weapons, and ground air defense systems makes sustained NATO force improvement necessary if we are to maintain confidence in our current capability. The Soviets are emphasizing ground attack capabilities in the design of their major current production aircraft -- the MIG-23 and 27/FLOGGER, SU-17 series/FITTER C/D, and SU-19/FENCER. New air-to-ground guided weapons are beginning to be provided for these aircraft, improving their capability somewhat against ground targets. The Soviets apparently believe that a successful air campaign must rely on initial massive strike operations to prevent NATO from taking advantage of its potential counterair and ground attack capabilities. Success in such a Pact attack also could limit NATO's nuclear option through destruction of nuclear-capable aircraft and their support.

Assuming that various readiness improvement measures, warning systems, alternate runways, shelters, and other defensive programs are successful, it will be possible for NATO to employ tactical air forces to help protect bases and ground forces from air attack, launch attacks on the major enemy armored spearheads, and attempt to slow the overall enemy effort by subsequent strikes at air bases, resupply lines, and other major support. Inasmuch as the Soviets also see the possibility of some prolonged period of non-nuclear conflict, they are probably developing new aircraft for conventional operations. We continue to consider, however, that F-15 and F-16 aircraft (as well as the Navy's F-18) will be capable of defeating such new aircraft beyond the mid-1980s.

The best operational Soviet Frontal Aviation (tactical) counterair aircraft is the FLOGGER, rated as inferior to the F-15. The F-16 is expected to have similar superiority over the FLOGGER, though the F-16 lacks the longer radar range and AIM-7F radar missile engagement capabilities of the more sophisticated F-15.

While the Soviets continue to produce aircraft less capable than ours, they are doing so in large numbers. It is estimated that the Soviets produced roughly 1,100 fighter/attack aircraft in 1976 and that a similar rate was being sustained in 1977. The NATO nations have been producing about an equal total number of fighter/attack aircraft, about two-thirds being manufactured in the United States. Roughly half of the NATO countries' production goes to non-NATO nations, largely to nations with other ties to the United States (e.g., South Korea, Taiwan, Iran and Israel). It should be remembered that many Soviet aircraft are delivered to other Warsaw Pact countries (these countries don't produce such aircraft themselves) and other nations around the world. However, should current production rates continue into the 1980s, it will be necessary to reconsider our estimates of long-term Soviet tactical aviation force goals and force effectiveness.

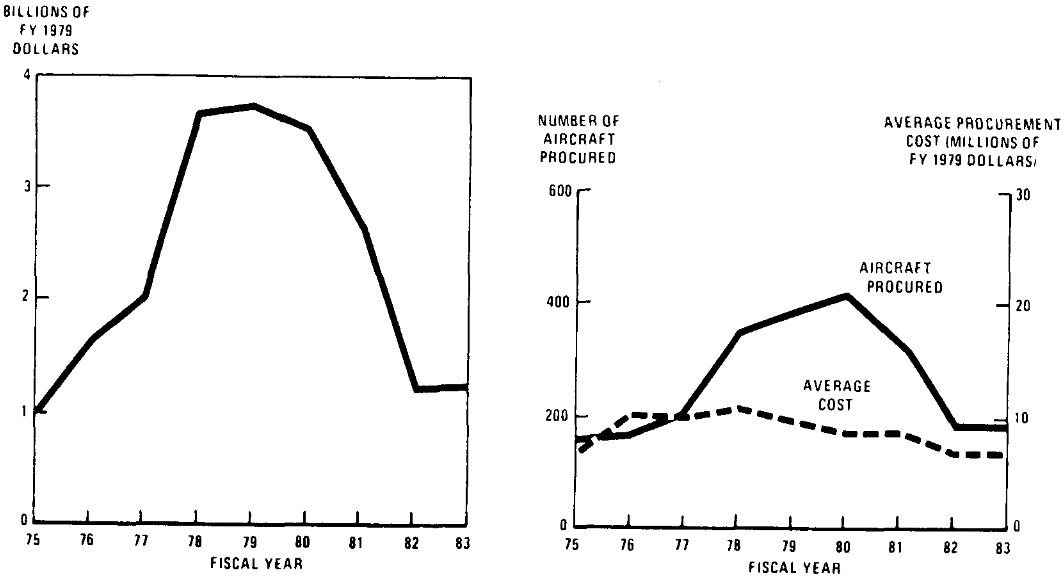
In summary, we see no major risk in U.S. force level goals and procurement philosophy if sufficient overall strength to sustain a major campaign survives a sudden attack. High initial unit readiness, the capability to surge and sustain sortie rates, adequate personnel manning levels, sufficient quantities of reliable ordnance, and improved airbase defense, all will be necessary if we are to achieve success against the threat we face in Europe today.

Chart IIC-1 provides an overview of Air Force procurement costs and acquisition rates through FY 1983. The major programmed procurement of the relatively lower-cost F-16 and A-10 aircraft during the late 1970s and early 1980s permits growth in the overall aircraft inventory toward the present goal of 26 fully-equipped active fighter/attack wings and modernization of reserve units. The attention given to increased commonality and reliability in new aircraft should permit the larger force to be maintained with little increase in maintenance manning and life-cycle costs.

Chart IIC-1

AIR FORCE FIGHTER/ATTACK AIRCRAFT PROGRAMS

PROCUREMENT FUNDING FOR NEW FIGHTER/ATTACK AIRCRAFT



Several significant improvements are being made in the capabilities of our operational forces in FY 1979. USAFE will receive its first operational A-10 anti-armor aircraft. We have decided to increase future planned A-10 deployments in Europe as more aircraft are delivered, to take early advantage of the A-10s essential anti-armor attack capability should a conflict occur. A fourth squadron of F-15 air superiority fighters will be based in Europe in FY 1979, replacing F-4Es. AWACS aircraft available for deployment from CONUS will increase from 12 at end-FY 1978 to 18 by end-FY 1979.

Reserve forces also are being notably strengthened in FY 1979. The last eleven F-100 squadrons will be retired during the year. They will be replaced by F-4s, A-7s and A-10s. Two squadrons of new A-10s will be delivered directly to the Air National Guard by the end of FY 1979.

Considerable reliance is placed on Air National Guard (ANG) and Air Force Reserve (AFR) units in U.S. tactical air force planning. Some fighter/attack squadrons are scheduled to be deployed within three days of mobilization, and reserve units continue to perform well in peacetime training. The Air Force plans to convert completely all ANG and AFR fighter/attack squadrons to contemporary first-line aircraft (F-4s, A-10s, and A-7Ds).

In summary, the Air Force plans a modernized force of integrated active and reserve components composed both of aircraft specialized in particular missions and of aircraft designed for multi-mission employment. This force will also have a mixed composition of aircraft of high and relatively low sophistication and costs. We consider that the programmed force will give us reasonable expectation of success in the event of crisis or war, insofar as our overall assumptions about the nature of possible future conflicts are valid. The following section discusses the proposed major acquisition programs which are necessary to execute the force structure plans outlined above.

B. Air Force FYDP Program and Force Improvement

1. Air Force Modernization

The mix of Air Force fighter/attack aircraft planned for FY 1975-1980 is shown in Chart IIC-2. It is tentatively planned to continue F-16 production into the mid-1980s, permitting complete replacement of F-4 type aircraft in the active force except for the F-4G WILD WEASEL aircraft which will be retained in the active force. Continued procurement of the F-16 also will ensure that at least one fighter aircraft production line is kept open as a hedge against major mobilization demands. On the other hand, present plans are to end F-15 and A-10 production with the FY 1981 procurement as programmed quantities are completed, though this need not be decided for some time.

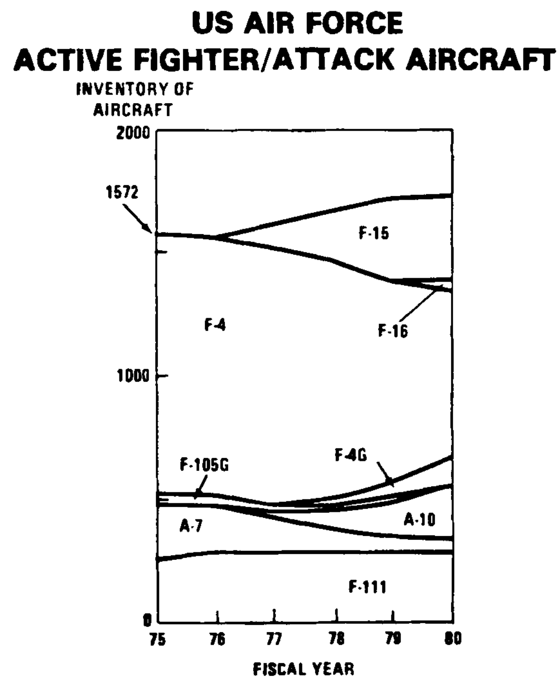
Under current plans the modernized force structure would include six wings of the F-15 primarily for air superiority tasks (some of these aircraft will be assigned CONUS air defense responsibilities in the 1980s); eight wings of F-16s for both counterair and ground attack roles; five wings of A-10s for close air support; four wings of F-111s for deep, all-weather interdiction strikes; and three F-4 wings for multi-mission and defense suppression tasks. Reserve forces would contribute two wing-equivalents of F-16s, about four wing-equivalents of F-4D/Es, about four wing-equivalents of A-7Ds, and two wings of A-10s.

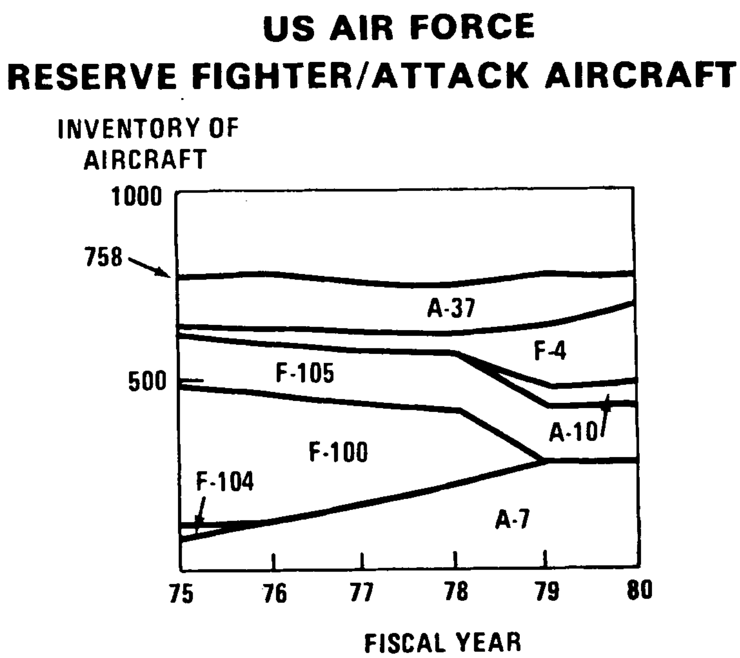
The acquisition costs of major Air Force tactical air modernization and improvement programs are shown in Table IIC-1.

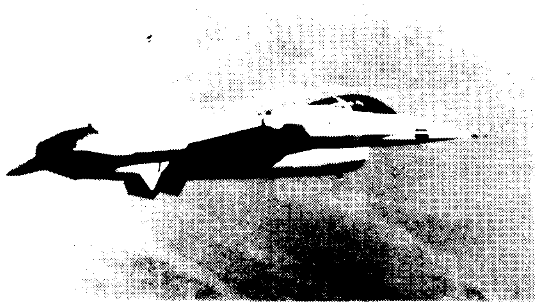
a. F-16

Full-scale development of the F-16 is proceeding according to plan. The F-16 will fulfill the requirement through the 1980s for a low cost, multi-purpose aircraft to complement the more sophisticated F-15 in the air-to-air role and to supplement the F-4, F-111, and A-10 in the air-to-surface role. The first 105 production F-16 aircraft were authorized in FY 1978. We plan to increase gradually the annual production rate to 180 aircraft, to reduce aircraft unit costs. The total production goal for the F-16 is 1,388 aircraft through the mid-1980s. This quantity would equip ten active and two and one-half reserve wings by FY 1987.

Chart IIC-2







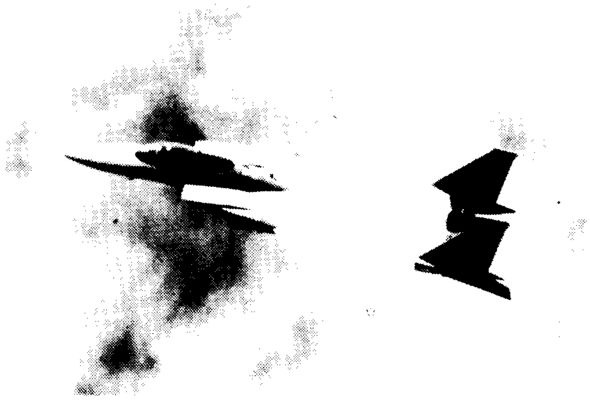
F-16

This program is considered a reasonable anticipation of procurement needed to replace the existing active force F-4s and fully equip the 26 active fighter/attack wings.

The first of eight full-scale development F-16s rolled off the General Dynamics Fort Worth production line in October 1976 and was delivered to the USAF in December 1976. The first production aircraft is scheduled for delivery in August 1978 and 30 aircraft will be assigned to Tactical Air Command training units by end-FY 1979. The first three combat squadrons will become operational in FY 1980.

b. F-15

The Air Force F-15 fighter program is proceeding on schedule. Of the 501 currently authorized, about 254 production aircraft had been delivered as of December 1977. The total planned procurement quantity remains 729 aircraft. This aircraft is primarily intended for the all-weather counterair role, with a range capability that will allow it to operate well into enemy airspace. Its design was optimized for sustained air combat operations against potential future Soviet Frontal Aviation fighters. The F-15 is considered fully capable of fulfilling its intended role. However, program costs for modifications as well as procurement remain a major concern. Procurement quantities will depend on unit cost trends, among other factors.

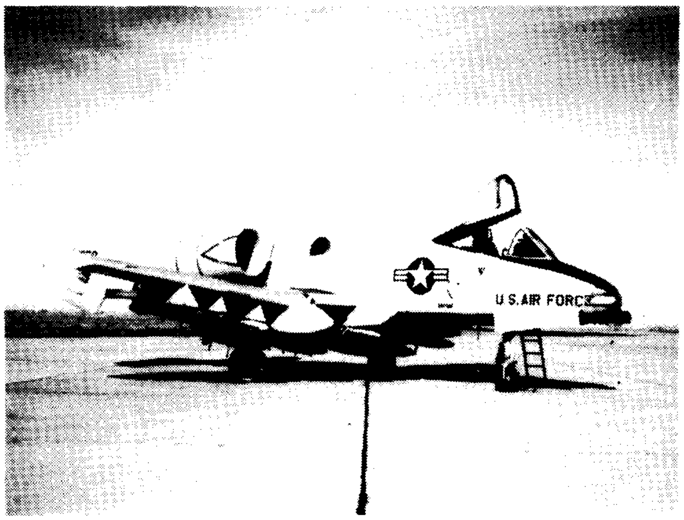


F-15

A total of 14 F-15 squadrons will be operational by end-FY 1979, up from nine at end-FY 1978. At current production rates the last squadron will enter the operational force at the beginning of FY 1982. We have decided to assign some Continental Air Defense responsibilities to F-15s based in CONUS as the F-106 force is retired in the 1980s. This and other air defense interceptor issues are discussed in the Strategic Defense section of this Report.

c. A-10

The A-10 close air support aircraft has completed its last major development milestone. The IOC was achieved in October, 1977. Authorization has been given for 339 aircraft of a planned total of 733. The FY 1979 procurement of 162 aircraft will permit the rate to increase to and stabilize at about 14 per month. Fatigue testing has continued through two life cycles and a service life of 6,000 hours has been verified. Production A-10s have been delivered and are undergoing Follow-On Test and Evaluation (FOT&E) at Davis Monthan AFB.



A-10

We continue to be convinced of the need for the A-10 and believe it provides the combination of lethality and survivability necessary in a close air support aircraft. The A-10 gives ground forces a level of flexible firepower that would be difficult to achieve in any other manner. The A-10 design has been well tested, having successively won major competitions against both an alternative new design aircraft (the A-9) and a proven, existing aircraft (the A-7). Studies indicate that the A-10 force will account for a large number of the armor kills expected in wartime. Its role is particularly appropriate for our NATO defense posture. For that reason, we have accelerated the planned introduction of the A-10 into USAFE, and increased the number of this aircraft to be stationed in Europe. Two full A-10 wings will be operational by end-FY 1979.

d. E-3A (AWACS)

The E-3A Airborne Warning and Control System (AWACS) was developed to overcome the limitations of ground-based radar systems and to provide improved force command and control in support of both tactical and theater-level operations. The planned force also will contribute to strategic force surveillance and early warning. The E-3A provides a long-range look-down radar, with substantial jamming resistance, which has the advantage of air deployment for tactical flexibility and survivability. The AWACS system, particularly when integrated with the hardened elements of NATO's ground-based tactical command and control system and with surface-to-air missile defenses, will significantly improve overall allied air capability. Peacetime operation of AWACS in a surveillance role in the NATO area will increase our confidence in being able to detect and respond to a sudden Warsaw Pact attack. AWACS will also provide similar support to U.S. forces in other theaters of operations. Wartime employment will provide both attack warning and control of intercept and attack missions. Deployment of AWACS in CONUS and phase-in of the Joint Surveillance System (JSS) also permit us to phase-out the expensive ground-based SAGE radar system and aging EC-121 aircraft which are being retained for necessary surveillance duties.

Thus far, three AWACS RDT&E and 19 production aircraft have been fully funded. The currently planned force, consisting of 34 aircraft, would support 29 UE aircraft by the end of FY 1984. Although the program has experienced delays in the production of the radar system, these production difficulties are being resolved and confidence in systems performance continues to be high. There is concern that program costs will rise over past estimates, but it is too soon to anticipate the net result of Air Force cost reviews and management actions. Initial AWACS operational capability is scheduled for the third quarter of FY 1978 when six aircraft will be in the operational inventory.

e. Tactical Reconnaissance Forces

As a result of the recent Air Force/Army Reconnaissance Force Study, the TR-1 aircraft is being considered for the performance of the standoff/wide area surveillance mission. This aircraft, a derivative of the U-2, is considered to be capable of providing continuous standoff surveillance of the battle area. In FY 1979 we are taking action to reopen the U-2 production line.

f. F-4G WILD WEASEL

The Air Force currently relies on two squadrons of F-105Gs and two squadrons of modified F-4Cs for the "WILD WEASEL" (defense suppression) role. This force has a limited attack capability, and is equipped with electronics that do not cover the entire frequency spectrum. Accordingly, a program was initiated in 1970 to modify 116 existing F-4E fighters as dedicated F-4G WILD WEASEL aircraft at a unit cost of about $3 million. Problems encountered during development and operational test and evaluation have been corrected. The initial F-4G squadron will become operational at the end of FY 1978 and a total of two squadrons with 48 unit equipment aircraft will be operational at end-FY 1979. The last of the planned F-4Gs are planned to enter the force in the early 1980s.

g. EF-111A

The RDT&E phase of the program to convert existing F-111A fighter/bombers to electronic warfare support aircraft is continuing. The modified EF-111A aircraft are intended to employ flexible, high power, multipurpose jammers to support tactical strike and F-4G WILD WEASEL aircraft. If the two prototype conversions prove successful, meet test objectives, and are judged cost/effective, a 40 additional aircraft will be converted to this configuration. The F-111s under consideration are presently used as combat crew training aircraft and would require modification to achieve full combat capability.

h. Air Force Aircraft Modifications

The Air Force tactical aircraft inventory is being improved by modification of existing aircraft as well as by procurement of new aircraft. Many of the planned modifications are intended to delay the obsolescence of these aircraft by providing new weapons and/or avionics to enhance their combat effectiveness. In some cases, modifications are necessary to correct problems that have developed during operational use.

F-4D and F-4E aircraft are being modified to carry a self-contained laser designator pod called PAVE SPIKE. Selected F-4E and F-111F aircraft will be fitted for the more sophisticated PAVE TACK pod for target acquisition and designation. PAVE TACK includes a wide field-of-view, high resolution Forward-Looking Infrared (FLIR) sensor and a laser range finder/designator. PAVE TACK is used to enable the aircraft to deliver laser and imaging infrared (IIR) guided bombs or missiles (such as MAVERICK) at night or in other limited visibility conditions.

i. Airfield Defense

The survivability of our European air bases is receiving increased emphasis. The program to construct shelters in Europe has been accelerated, in part in recognition of NATO's willingness to share the costs of the program. To date, 779 aircraft shelters have been built or funded; they will protect most of our in-place, dual-based and rapid reactor aircraft assigned to Europe. More shelters will be programmed by FY 1983, covering additional in-place, dual-based, and rapid-reactor aircraft, as well as SACEUR's strategic reserve aircraft -- those planned to be in theater shortly after mobilization. All shelters to be funded in FY 1979 are eligible for eventual cost recoupment from NATO infrastructure funds. We repeat our strong support for the shelter con-- struction program as a low-cost method of limiting the costly wartime attrition of aircraft and their crews.

Our NATO allies are proceeding with their shelter programs; a large percentage of the NATO tactical combat aircraft can now be sheltered. At present, most of the Soviet in-place tactical combat aircraft are sheltered and many of the East European countries' aircraft are so protected. The number of shelters in East Germany, Poland and Czechoslovakia increased slightly in the last two years, and most of the increase was for sheltering the aircraft of the East European countries.

We are also planning to construct alternate takeoff and landing surfaces at main bases, harden essential support facilities, and provide personnel protection from chemical weapons attack. The alternate runway concept is essential if we are to have a greater probability of being able to launch our aircraft following an enemy attack. Likewise, protection of key support activities and personnel is required for continued operations. We consider these programs necessary adjuncts to the shelter program, for if the maintenance activities, POL, munitions, and personnel do not survive an attack, aircraft cannot launch and recover.

j. Air-Launched Ordnance

We are continuing major procurement of several missile programs initiated in previous years. The AIM-7F SPARROW and AIM-9L SIDEWINDER air-to-air missiles will provide the standard missile armament for the counterair mission, with procurement of 1,600 SPARROWs and 2,500 SIDEWINDERs included in the FY 1979 program. An additional 500 SHRIKE antiradiation missiles are being procured for defense suppression tasks.

An initial quantity of 100 AGM-65C Laser MAVERICK air-to-ground missiles will be procured in FY 1978, with 1,800 more requested in FY 1980. Initial Operational Test and Evaluation (IOT&E) of the Laser

MAVERICK is underway and will be completed by late 1978; development work is also underway on the AGM-65D Imaging Infrared MAVERICK. Results of these tests will help determine future production plans.

2. Air Force Readiness

Readiness can be defined as some current measure of capability to carry out assigned missions. The relatively short time period in which a major crisis could develop, demonstrated most recently during the 1973 Middle East War, puts considerable emphasis on maintenance of high readiness. Assessment of readiness is a difficult task owing to the subjective nature of some major elements of any readiness definition. However, the Military Services have developed reporting systems that incorporate both judgmental factors and available quantitative measures of current operational availability. These estimates provide the best source of readiness information on a recurring basis.

Although the on-going modernization program of Air Force tactical fighter units is improving force capability, the readiness of individual units could be reduced as they transition to new aircraft. The Air Force seeks to avoid this temporary loss of capability through a new approach designated "Ready Team". This program will provide personnel whose skills affect sortie generation rates to be trained in a new weapon system before it enters an operational unit. Manpower for this concept is programmed beginning in FY 1978 and the program will be sustained throughout the modernization period. The resulting higher unit readiness will enable earlier deployments to be made in the event of a crisis.

C. Navy and Marine Corps Tactical Air Force Structure

Navy Department tactical air forces include both Navy and Marine Corps units. These forces have separate, special responsibilities for maritime operations, including sea lane defense and support of amphibious operations, as well as for the conduct of inland strike operations similar in nature to Air Force missions. What is unique about Naval tactical air is exploitation of the flexibility and mobility provided by the aircraft carrier and other shipboard basing. In addition, some Marine Corps aircraft have the capability to operate from unimproved landing areas ashore. The Marine Corps also employs a transportable, quickly-assembled airfield as part of its amphibious capability.

To accomplish their general objectives, Naval aviation forces must be capable of maritime air superiority, anti-submarine warfare (ASW), anti-ship strikes, close air support, and interdiction operations. ASW force plans and some aspects of fleet air defense that contribute to maritime air superiority plans already have been addressed in the Naval forces section of this Report. The following general discussion of force structure issues first addresses Navy and then Marine Corps programs.

1. Navy Tactical Air Force Structure

We plan to maintain 12 active Navy carrier air wings and 13 carriers in FY 1979. The 13th carrier will be operated in a special status. The ship, USS CORAL SEA, is not equipped to handle our most sophisticated aircraft (in particular, the F-14A, S-3A, and E-2C) and it will not have a corresponding active air wing or supporting combatant and support ships as will the other 12 aircraft carriers. However, operation of the ship will permit the conduct of student pilot training and improve the readiness of naval reserve air wings, while also retaining the capability to deploy with either Marine Corps or mobilized Naval Reserve air units.

The aircraft carrier and its air wing continue to be major components of the U.S. sea control force as well as the major elements of forward deployed naval forces maintained for deterrence. Aircraft carrier task forces contribute significantly to the capability to meet a major Warsaw Pact attack on NATO, principally by helping to keep major sea lanes open for sustained resupply and by providing support for amphibious assaults. These mobile forces, together with Marine amphibious forces and selected high mobility units of the other Services, also provide the capability to take major offensive initiatives during the course of a NATO/Warsaw Pact war or a lesser conflict. Carrier-based tactical aircraft provide most of our capability to concentrate tactical airpower in areas of the world where we do not have or under some circumstances are denied the use of land bases. It should be recalled, as an example, that carrier air forces were employed in contingency operations as recently as 1976, during the evacuation of U.S. citizens from Lebanon and the recovery of the hijacked U.S. merchant ship MAYAGUEZ.

Carrier task force ships and aircraft are now designed to be capable of independent operations in high threat areas. The demanding requirements of flight operations at sea on carriers require both greater structural strength and the need to maximize aircraft capabilities. Also, carrier operations that are conducted in a confined area, necessitate special provisions, easy access, and a method of folding the wings of the aircraft. Consequently Navy carrier aircraft are generally more expensive than corresponding Air Force aircraft.

We consider a reduction of carrier and carrier air wing levels below the planned level of twelve to be inadvisable. Because of routine major overhaul and maintenance, two carriers are usually unavailable for any response to a crisis that must be made within days or weeks. Further, the need to conduct more substantial service life extensions on the large carriers (the SLEP concept), will increase this nonavailability factor, requiring some overhauls of two years' duration rather than just one. Thus, the deployable force in time of crisis would be roughly ten ships, remembering that the 13th carrier of the total force could be provided with an air wing from Marine or Naval Reserve units in a short period of time. These 10 or 11 ships and their aircraft would be faced with a wide variety of demands for their use in wartime. Specific deployments would depend upon the situation at hand. But this deployment capability, with a balanced force of supporting units, should enable us to meet the minimum requirements for both sea control and naval power projection tasks.

Studies of alternate ship types for operating aircraft are underway in response to Congressional and Defense Department tasking. We plan to make a decision on new carrier construction after review of these studies.

Our present plans are to rely on a force of 12 large-deck carriers for the more demanding missions through the 1990s. The current nominal Navy carrier air wing for these ships is structured in such a way that it is capable of carrying out the Navy's sea control and power projection functions. The multi-purpose air wing is constituted as follows:

2 Fighter squadrons
2 Light Attack squadrons
1 Medium Attack squadron (including 4 tanker aircraft)
1 Anti-submarine Warfare squadron (fixed-wing)
1 Helicopter Anti-submarine Warfare squadron
1 Electronic Warfare squadron
1 Airborne Early Warning squadron
1 Reconnaissance squadron

Action is required to reverse the undesirable Navy and Marine tactical aviation trends of increasing average unit cost, inefficient procurement rates and aging naval aircraft. Thus far, corrective measures have not been implemented as fully as planned. In recent years, the Department of the Navy has procured well below the nominal 180 new tactical combat and combat support aircraft per year needed to prevent undesired aging and eventual decline of the force.

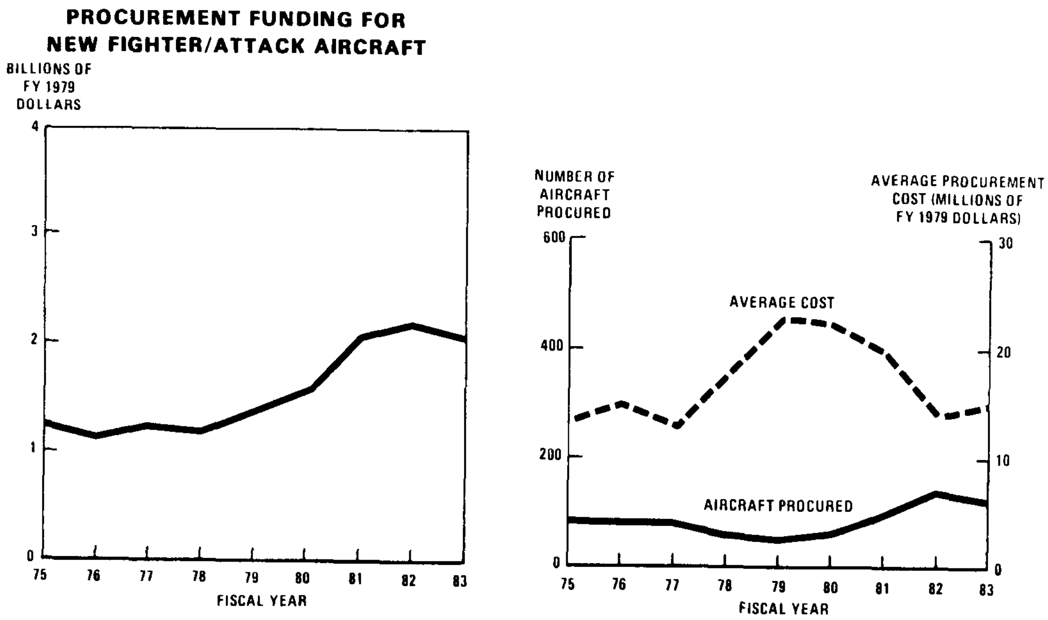
Navy and Marine Corps tactical aircraft needs reflect the desire for both a modernized inventory and also the future size of the Navy's carrier and amphibious lift forces. While the administration is conducting studies of the latter topic, it is highly unlikely that any revisions would change the Department of the Navy's long-term aircraft needs to the point where large scale replacement over the next ten years would no longer be a problem. For this reason it is important to proceed now with a long-range program to modernize not only the Navy's long-range interceptor force -- now more than one-half complete through recent acquisiton of the F-14 -- but also adequate numbers of fighters for the Marine Corps, as well as light attack aircraft for the Navy and Marine Corps. The F-18 has been developed explicitly for this purpose. It promises the increased performance needed to meet future threats at somewhat less long-term cost than would be entailed in trying to adapt older existing aircraft designs.

While the need to start producing F-18s is clear, the precise total eventually to be acquired must await the results of ongoing studies of future carrier and amphibious force size and structure. Similarly, the exact number of F-14s appropriate to the future force will depend in part on these ongoing studies. This factor resulted in the decision to limit F-14 production.

It is true that the near-term development cost of the F-18 requires some deferral of procurement until later years. However, achievement of a sustained higher production rate for naval tactical aircraft depends upon deployment of an aircraft less costly than the F-14. For the F-18 to be a low-cost aircraft, we must emphasize its procurement in quantity. Along these lines, we tentatively plan to increase F/A-18 procurement gradually to 108 units per year by FY 1983 and even higher later in the 1980s. Overall trends in Department of the Navy tactical aircraft procurement are shown in Chart II C-3.

Chart IIC-3

DEPARTMENT OF THE NAVY FIGHTER/ATTACK AIRCRAFT PROGRAMS



The Five-Year Defense Program provides for equipping a total of 18 Navy fighter squadrons with F-14s by FY 1983 and maintaining that operating force into the early 1990s. Procurement of F-14s to offset later attrition will allow us to use F-14s as interim reconnaissance aircraft to replace all active fleet RF-8Gs and RA-5Cs by the early 1980s. F-18s will equip six Navy fighter squadrons, the first of these becoming operational in FY 1984. Trends in the naval aviation force structure through 1980 are shown in Chart II C-4. The impact of the F/A-18 program will be greatest after 1985. Under current plans, virtually all active force A-7s would be replaced by A-18s during the late 1980s.

The Navy's reserve tactical air force structure has been improved in recent years. Fighter units employ the F-4N which until recently was employed in the active fleet. Light attack squadrons have converted to an all A-7A/B force. E-2B airborne early warning aircraft have replaced the last E-1s and EA-6A electronic warfare aircraft are being introduced into the reserves. Long-term plans for the 1980s call for eventual replacement of the reserve fighter/attack aircraft with somewhat newer models, such as the F-4s and A-7E. However, modernization of the reserve force will depend, in part, on the progress we make in the long-term modernization of the active force.

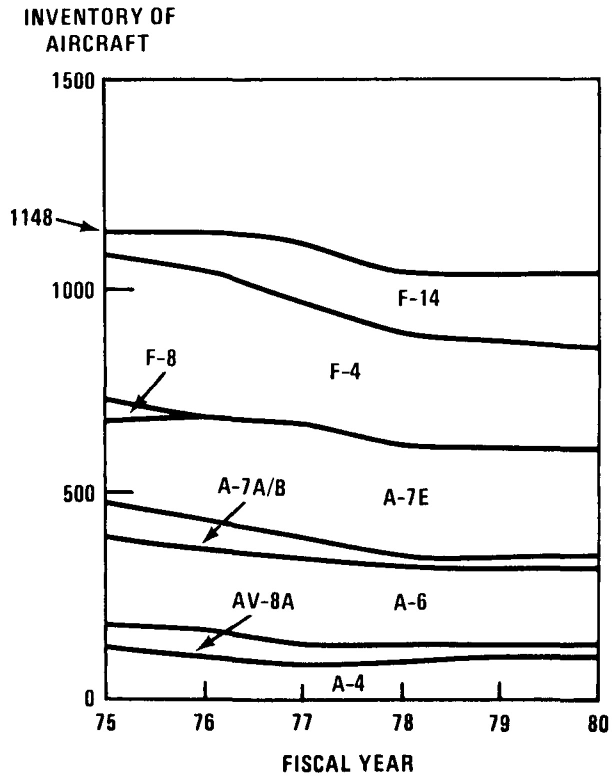
2. Marine Corps Tactical Air Force Structure

The Marine Corps tactical air force is organized into three active and one reserve aircraft wings. They are structured to support Marine ground forces and amphibious operations. Plans for upgrading and modernizing Marine tactical aviation include the introduction of the F-18 for the fighter/attack mission and additional procurement of the A-4M light attack aircraft. There is also a possibility that we will procure some quantity of AV-8Bs.

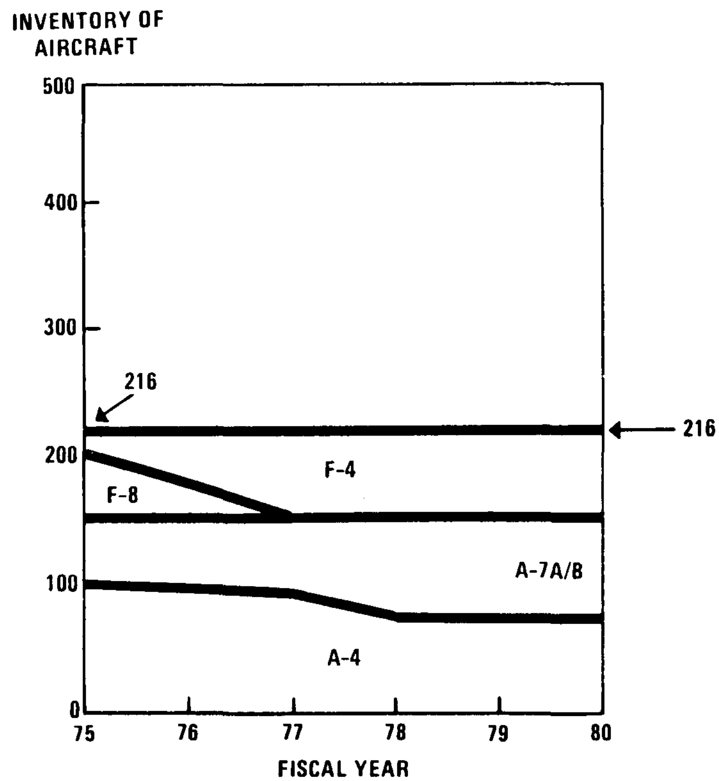
The active Marine tactical aviation forces consist of 12 fighter/attack squadrons, 13 attack squadrons, three aerial refueling squadrons, one multi-sensor reconnaissance squadron, three attack helicopter squadrons, two observation squadrons, and one tactical electronic warfare squadron. In addition, there are 30 tactical air coordination aircraft integrated into the three Air Wings. The flexibility provided by the organization of a Marine Amphibious Force (MAF) enables the commander to draw appropriately sized detachments from all Marine air assets to provide the full range of air elements necessary for a successful amphibious operation. The Reserve Marine Air Wing (4th MAW) would mobilize with two fighter squadrons, five light attack squadrons, one attack helicopter squadron, one observation squadron, and one air refueling element to support the Marine Reserve ground units.

Chart IIC-4

DEPARTMENT OF THE NAVY ACTIVE FIGHTER/ATTACK AIRCRAFT



DEPARTMENT OF THE NAVY RESERVE FIGHTER/ATTACK AIRCRAFT



The Marine tactical air reserve force continues to be improved through modernization. The aging F-4Bs were entirely replaced by refurbished F-4Ns in FY 1977.

3. Navy/Marine Corps Tactical Air Modernization Programs

Table IIC-2 shows the acquisition costs of the major Naval Tactical Air Force modernization and improvement programs. Specific program details are presented below.

a. F-14

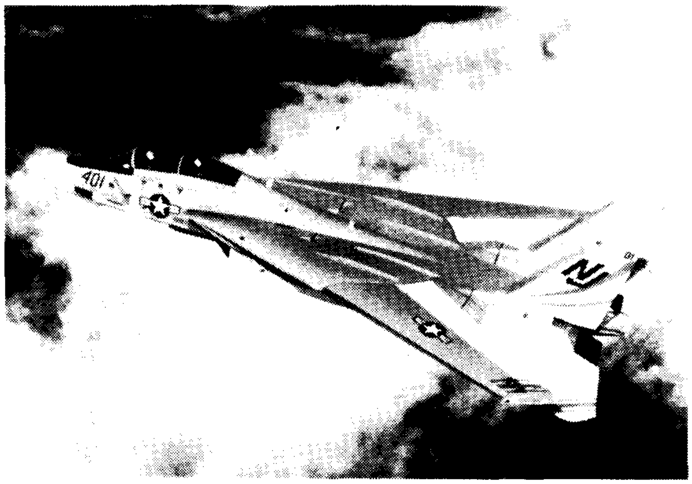
The primary mission of the F-14/PHOENIX weapon system is achievement of maritime air superiority. The F-14 is considered capable of meeting the expected air threat well into the late 1980s. The overall adequacy of fleet air defenses, still a source of considerable concern, has been addressed in the Naval Forces Section.

It is planned to continue the transition of Navy fighter squadrons to F-14s, tentatively reaching 18 squadrons by FY 1983. It has not proved possible to complete the planned F-14 procurement program at the comparatively high production rate proposed last year. Cost growth in the program has caused us to decide upon a stretched F-14 program. The planned total procurement quantity of 521 production aircraft has not been changed. F-14s fitted with reconnaissance pods will provide an interim fleet reconnaissance capability pending a decision on a replacement aircraft for the older RA-5C and RF-8G reconnaissance aircraft.

The Congress to date has now authorized production of 343 F-14s. A total of 14 squadrons will be operational by end-FY 1978. A seventh aircraft carrier will be operating F-14s during FY 1979, the new nuclear-powered DWIGHT D. EISENHOWER (CVN-69).

Interim modifications have already been made to TF-30 engines on all operating aircraft and on those coming off the production line. With these modifications and improved inspection procedures, we are reasonably confident that further losses above those normally expected during peacetime have been prevented. In addition to the above engine improvements, the Navy plans to improve fireproofing of the flight control system; reducing further the effects of in-flight engine failures regardless of cause.

The TF-30 engine now installed in the F-14 is capable of meeting the maritime air superiority mission requirements and a large investment has already been made to improve it. The Navy desires a replacement for the TF-30. However, completion of ongoing analysis of future F-14 airframe/engine/missile configurations is required prior to making any decision on a new engine. A program to reengine all of the Navy's F-14s, would be costly, probably over $3 billion.



F-14

b. F-18

The F-18 is being developed as a low cost complement to the F-14. We plan to replace the F-4s in the Navy and Marine Corps with F-18s. The attack variant, the A-18, is planned as a replacement for the A-7s in the Navy's light attack force and the A-4M and AV-8A in the Marine Corps light attack force. A reconnaissance derivative is also under consideration as a replacement for both the Marine Corps RF-4s and the F-14s that will be providing the Navy's interim reconnaissance capability in the mid-1980s. Failure to proceed with the F-18 program would have far-reaching effects on both force structure and force levels within the Navy. Without F-18 procurement the carrier-based fighter and attack force levels within Naval aviation would experience a significant decline in the late 1980s and 1990s.

All versions of the F-18 will have a common airframe and engine, thereby reducing the amount of maintenance support equipment required aboard ship. The commonality between the attack and fighter versions, specifically the retention of considerable fighter capability by the attack version, will enhance the multi-mission capability of the air wing. Furthermore, the research and development funds already spent or to be spent on the airframe and many of the subsystems of the fighter version of the aircraft will not have to be duplicated in developing a new attack aircraft to replace the A-7.

The first five F-18s are planned for procurement in FY 1979. Production is planned to reach 108 per year by FY 1983, with a higher production rate a possibility. The initial F-18 production goal is 800 aircraft. These deliveries would run through the end of the 1980s. The first F-18 squadrons are planned to become operational in the Marine Corps in FY 1983 with Navy units following in the next year. It is essential that F-18 procurement proceed, despite the stretching of F-14 procurement. Long-term replacement of aging F-4s and the large A-7 force depends upon acquisition of substantial numbers of less costly aircraft.

c. <u>A-6E</u>

Funds are requested for 12 A-6Es in FY 1979. It is tentatively planned to extend A-6 procurement at this rate through FY 1982. Including the 111 aircraft already authorized, this will bring total new A-6E procurement to 159 aircraft. The A-6E provides the Navy's only aircraft fully capable of attacking land or sea targets in adverse weather or at night. New procurement A-6Es will be delivered with the Target Recognition and Attack Multi-Sensor (TRAM) system and HARPOON missile capability. TRAM provides these aircraft with a Forward-Looking Infrared (FLIR) receiver, a laser range finder/designator, and a laser spot tracker. TRAM will enable the A-6E to detect, identify, classify and attack targets which cannot be so resolved by radar or electronic emission detection.

With the transition of the MIDWAY's air wing from A-6As to A-6Es in calendar year 1977, all carrier air wings are planned to deploy with A-6Es. The last 30 A-6As being converted to A-6Es will be delivered during FY 1979. Extension of procurement of A-6Es from FY 1979 into FY 1982 will enable the inventory objective of ten aircraft per carrier air wing and five 12-aircraft Marine Corps squadrons to be maintained until about 1993.

d. <u>AV-8B</u>

The proposed AV-8B is a new aircraft, modified for greater range/payload from the earlier AV-8A V/STOL aircraft presently in use in Spain, the United Kingdom and the U.S. Marine Corps. Aerodynamic deficiencies present in the "A" version which limit STOL performance will be corrected. In addition, certain reliability and maintainability improvements will be made and a new, more accurate visual bombing system will be added.

The FY 1979 program includes development of two prototype YAV-8B aircraft (at a cost of about $40 million) and additional R&D funds for further AV-8B subsystem development. Procurement is deferred pending a determination that the YAV-8B's meet performance goals and a Defense Department assessment that the AV-8B offers significant advantages over conventional aircraft such as the A-18.

e. E-2C

The E-2C is one of the primary support aircraft required by the Navy for accomplishment of all its tasks. The E-2C provides the essential air-to-surface coordination and extended radar horizon needed for successful ASW, AAW, and anti-surface ship operations. The improvements in the overland detection and automatic tracking of the E-2C radar, with its passive detection system, represent an order of magnitude increase in capability over the earlier E-2B model. The planned procurement of the E-2C HAWKEYE is being increased to 86 aircraft in order to provide four aircraft per carrier through about 1990. This force level would permit each carrier to maintain at least one E-2C continuously airborne for an extended period of time. The E-2C is considered essential for proper battle management of the F-14/PHOENIX, in its role of providing maritime air superiority, and also for coordination between air and surface units required for employment of the S-3 or P-3 aircraft in ASW operations. The surveillance capabilities of the E-2C, are also valuable for tracking surface vessels.

f. EA-6B

Six EA-6B electronic warfare aircraft are requested in FY 1979. A total of 77 EA-6Bs has been authorized, and it is planned to procure additional aircraft in FY 1981-82 before ending production. The EA-6B provides sophisticated electronic warfare capabilities for all of the Navy's offensive and defensive tasks. The planned EA-6B force structure includes three UE aircraft for each of 12 carrier air wings and 15 unit equipment aircraft for the Marine Corps. All Navy carrier air wings now operate the EA-6B with the exception of the MIDWAY (CV-41) which has a Marine detachment of the older, less capable EA-6A aircraft assigned. It is tentatively planned to keep this detachment assigned to the MIDWAY until she is retired in the mid-1980s.

g. Air-Launched Ordnance

Several major missile programs begun in previous years are continuing. The AIM-7F SPARROW and AIM-9L SIDEWINDER air-to-air missiles will enhance F-4 and F-14 close-in and medium-range engagement capability. Improvements to the SPARROW, SIDEWINDER, and PHOENIX missiles, are continuing. These improvements will increase the reliability and maintainability of these systems while also enhancing their capability to "look down" into heavy clutter as well as against air-to-surface missiles and electronic countermeasures. The FY 1979 request includes 240 PHOENIX, 450 SPARROW, and 650 SIDEWINDER missiles.

The Navy and Air Force are working jointly on several other guided-weapons projects to improve strike warfare capabilities. The High-Speed Anti-Radiation Missile (HARM) is under development to provide a counter to land and sea-based surface-to-air threats. Other programs include a joint-use tactical data link to improve guidance accuracies and reduce electronic warfare vulnerability while reducing overall costs through joint development and use.

TABLE IIC-1

Acquisition Costs of Major Air Force Tactical Air Modernization and Improvement Programs 1/
(Dollars in Millions)

	FY 1977 Actual Funding	FY 1978 Planned Funding	FY 1979 Prop'd Funding	FY 1980 Prop'd for Authorization
Air Force Systems				
Development and Procurement of the F-16	510.7	1,685.3	1,594.5	1,699.8
Acquisition of the F-15 Air Superiority Fighter	1,495.3	1,666.7	1,415.7	1,332.9
Modification of F-4 and F-111 Aircraft	265.9	205.1	198.3	215.0
Acquisition of the A-10 Close Air Support Aircraft	605.6	831.9	925.7	885.6
Development and Acquisition of E-3A AWACS 2/	559.5	376.1	305.4	361.1
F-4G WILD WEASEL (Defense Suppression) Modifications	93.0	6.3	59.7	2.0
Development and Procurement of EF-111A Electronic Warfare Modifications	44.4	41.2	170.1	264.1
Procurement of AIM-7 SPARROW and AIM-9 SIDEWINDER Air-to-Air Missiles	145.6	216.8	257.9	285.6
Procurement of AGM-65 MAVERICK Air-to-Ground Missiles 3/	19.5	68.0	74.0	171.0

1/ This table includes cost of RDT&E, procurement of the system and initial spares, and directly related military construction.
2/ Does not include costs of directly related military equipment.
3/ Includes R&D funds for Laser and IIR MAVERICK.

TABLE IIC-2

Acquisition Costs of Major Navy Tactical Air Modernization and Improvement Programs 1/
(Dollars in Millions)

	FY 1977 Actual Funding	FY 1978 Planned Funding	FY 1979 Prop'd Funding	FY 1980 Prop'd for Authorization
Navy and Marine Corps Systems				
Procurement of F-14 Fighter Aircraft	712.9	890.8	674.1	706.3
Development and Procurement of the Navy F-18 Fighter/Attack Aircraft	340.6	654.4	864.8	904.2
Procurement of A-6E Attack Aircraft	96.7	184.8	201.3	198.2
Procurement of A-7E Aircraft	224.7	126.5	27.2	-
Development of the Marine Corps V/STOL Attack Aircraft (AV-8B)	33.6	59.8	85.6	105.2
Procurement of E-2C Fleet Early Warning Aircraft	156.6	196.6	208.5	222.4
Procurement of EA-6B Electronic Counter-Measures Aircraft	135.5	141.8	172.5	179.1
Procurement of AIM-7 SPARROW & AIM-9 SIDEWINDER Air-to-Air Missiles and development of WVR/BVR missiles	121.1	124.3	134.3	176.5
Procurement of AIM-54 PHOENIX Air-to-Air Missiles	95.8	94.2	114.0	166.2
Procurement of AGM-65 MAVERICK Air-to-Ground Missiles	-	-	-	48.0
Development and Procurement of AGM-88 HARM Anti-Radiation Missile	30.0	29.7	43.4	85.2

1/ This table includes the cost of RDT&E, procurement of the system and initial spares, and directly related military construction.

CHAPTER II (Continued)

MOBILITY FORCES

I. PROGRAM BASIS

A. Missions

The function of the mobility forces is to permit the United States to respond rapidly and decisively to international events that involve our security interests as well as those of our allies.

The size and mix of our airlift and sealift resources is determined by the military requirements of various international scenarios. By far the most demanding contingency is the reinforcement of NATO in response to a Warsaw Pact mobilization and attack. While the precise size and timing of such a Pact buildup is subject to debate, it is clear that the Soviets and their allies have made substantial improvements in their capability for rapid attack over the past several years. The result of these gains is that the demands placed on our mobility forces are greater than ever.

In addition to the NATO contingency, there are other areas of the world, such as the Middle East, Persian Gulf, and Korea, where it would be vital to the interests of the United States to deploy forces rapidly.

Thus, the key to an effective mobility force posture is flexibility.

Once forces are deployed to a theater of operations, they must be provided with supplies and replacements. In the NATO scenario, sealift is expected to furnish this capability over an extended period, since we plan sufficient forward stockage of supplies to allow time for the sea lines of communication to be established and secured. In other areas where these prepositioned stocks do not exist, airlift resources must be sufficient to deliver the necessary supplies prior to the arrival of the first ship, which typically would take several weeks.

Furthermore, the ability to shift forces and supplies rapidly by air within a combat theater significantly increases the effectiveness of a combat unit. This capability is particularly important in areas where surface transportation is poor. In order to expedite intra-theater movement, tactical airlift forces capable of operating from austere airfields and carrying essential items of equipment are essential.

B. FY 1979-83 Program Objectives

The mobility forces programs have been selected as cost/effective means to improve our capability to support the full spectrum of possible worldwide deployments of U.S. forces. In the development of these programs we have maintained a balance between sealift and airlift forces, realizing that the two are complementary rather than duplicative in their mobility contributions. A third element, prepositioning of equipment for Army units, is considered to be a major option to facilitate the rapid reinforcement of NATO.

The FYDP objectives for the mobility forces are:

(1) Maintaining a NATO reinforcement capability that, in conjunction with our allies, prevents the Pact from attaining decisive conventional superiority for any length of time. Geographic considerations permit the Pact to mobilize and deploy more rapidly than the United States. This factor coupled with the assumptions that the Pact would mobilize first and may attack before completing their deployments are what make the NATO contingency very demanding.

(2) Having sufficient mobility forces to deploy rapidly and sustain combat forces in non-NATO contingencies as dictated by the situation and threat, allowing for some enroute basing and overflight constraints on our airlift forces.

(3) Having the tactical airlift capability to respond to the theater commanders' needs in any scenario in which our combat forces are involved.

(4) Ensuring the timely availability of relatively fast and productive cargo ships for use to support NATO as well as other contingencies. In addition, we must possess adequate naval forces to secure the sea lines of communication, provide protection for these cargo ships, and thus assure the timely delivery of their cargo.

II. PROGRAM DESCRIPTION AND STATUS

A. Current Force Structure and Posture

Our current strategic airlift force is composed of both military and civilian resources. The military portion consists of 234 UE C-141 aircraft and 70 UE C-5 aircraft that are manned by both active and reserve crews. The civilian aircraft are assigned to the Civilian Reserve Air Fleet (CRAF). The current number of civilian aircraft obligated by the carriers in CRAF for long-range missions is 99 passenger aircraft and 128 freighter/convertible aircraft.

The tactical airlift fleet consists of 234 UE C-130 aircraft in the active forces and 368 UE aircraft (256 C-130s, 64 C-123s and 48 C-7s) in the Reserves and National Guard.

The sealift resources for dry cargo under full mobilization come from several different sources. The Military Sealift Command (MSC) can furnish 27 ships (six government-owned and 21 long-term chartered). The U.S. Flag fleet has approximately 291 ships of which 124 are in the Sealift Readiness Program (to be available in contingencies where there is less than full mobilization). The National Defense Reserve Fleet has 145 ships. Eight of these ships are in the Ready Reserve Fleet and can be made available in five to ten days. The remainder are maintained in moth-balled status and would take 21 to 45 days to become available. In addition to U.S. ships, our NATO allies have identified nearly 200 vessels which would form the nucleus of their contribution to the NATO reinforcement effort. Negotiations are being conducted with our allies to earmark additional dry cargo ships for this purpose.

The Prepositioned Overseas Materiel Configured to Unit Sets (POMCUS) is considered a critical element of U.S. capability to reinforce NATO ground forces. By prepositioning sets of equipment in Europe we are able to field large armored/mechanized units rapidly with a minimal amount of strategic airlift resources, primarily utilizing CRAF passenger aircraft to deploy the troops. A division that would take our total strategic airlift force more than a week to deploy to Europe can be transported in a few days, using a small portion of our overburdened airlift force, if the equipment is prepositioned.

POMCUS, however, is not without its weaknesses; the stored equipment is vulnerable to enemy air attack and there are problems associated with equipment breakout and moveout from the relatively congested storage sites. In the past we have experienced difficulties in managing and maintaining our prepositioned stocks. Recent studies indicate that a substantial Pact air effort would be required to attack a large-scale prepositioned reinforcement. The studies also show that the rapid distribution of equipment to reinforcing units is feasible if the program is well managed and maintenance on the stored equipment is adequately performed.

Currently, we have prepositioned equipment in Europe for elements of three divisional bases plus some support units. Equipment shortages incurred through shipments made during and following the 1973 Arab-Israeli conflict and the equipping of two additional forward-based brigades in response to the Nunn Amendment are to be overcome by mid-FY 1978. As a result of this reconstitution (with updated equipment) and improved logistics facilities and management practices, the POMCUS system is more ready than at any previous time.

B. FY 1979-1983 Programs

1. Strategic Mobility Programs

With the ever-increasing costs associated with the development and procurement of new lift resources for our long-range deployment requirements, we are concentrating our efforts on:

(1) maintaining and improving the productivity of our current military assets;

(2) making more and better use of existing civilian lift assets; and

(3) improving our stocks of prepositioned equipment in Europe.

a. C-5 Wing Modification

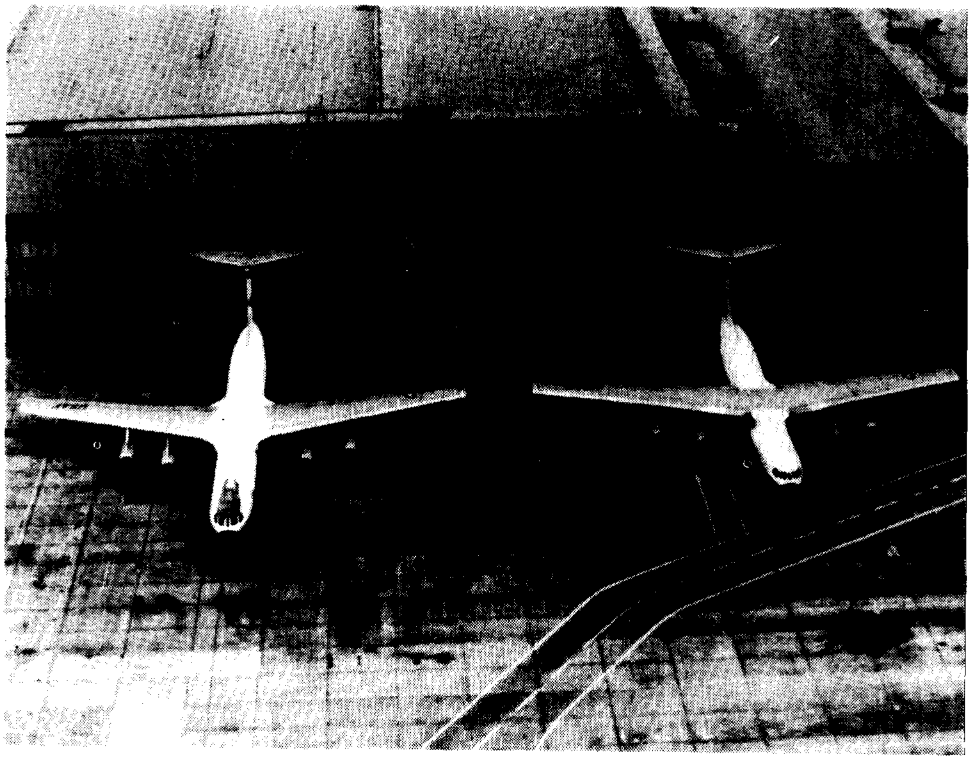
One of our highest priority programs is the C-5 wing modification. The C-5 force represents about half of our military strategic airlift capability. The C-5 is the only aircraft, military or civilian, that can airlift outsize unit equipment such as tanks and self-propelled howitzers. This outsize category represents about 50 to 60 percent of the weight associated with the combat elements of an armored or mechanized division.

M-60 TANK BEING LOADED ABOARD A C-5A

We are continuing to take measures to prevent further damage to the aircraft prior to modification, and in the meantime are re-evaluating the expected life through better and more extensive inspections and testing. We anticipate beginning production of the wing kit in January 1980 and initiating kit installation in February 1982. The last of the 77 aircraft will complete modification in July 1987. This program, which has a total cost of $1.3 billion, is the most cost/effective way of maintaining this vital capability.

b. C-141 Stretch and Aerial Refueling Modification

Stretching the C-141 is a program that increases the capability of an organic resource by as much as 30 percent. This is possible because the type of cargo that would be carried on the C-141 during a deployment uses up all the aircraft's floor space before we reach the maximum weight capacity. Lengthening the fuselage by 280 inches adds more floor space. The combined increase in capability approximates another 90 C-141s without incurring any of the additional operating and manning costs that would be associated with more aircraft. The modification also includes adding aerial refueling capability to the C-141, considerably increasing the range and flexibility of these aircraft. Modification of a prototype aircraft was completed in January 1977, eight weeks ahead of schedule and $2.5 million below cost. Testing of the prototype has been successful. The first production aircraft will be delivered in FY 1978 and the last modification will be completed in FY 1982.



PROTOTYPE C-141 "STRETCH" (LEFT) BESIDE AN UNMODIFIED MODEL

c. Advanced Tanker Cargo Aircraft (ATCA)

A program that enhances our capability to deploy combat forces and tactical fighter squadrons over long distances without enroute stops is the Advanced Tanker Cargo Aircraft (ATCA). The ATCA is a wide-bodied aircraft that can be used to refuel airlift or fighter aircraft, carry bulk or oversize cargo, or do a combination of both. Aerial refueling of our airlift forces can increase the payload and decrease our dependence on foreign bases. In some cases these bases may not exist or may be denied. In other cases it may be more productive not to stop, thus avoiding unnecessary delays in the deployment of combat forces. The ATCA can also be used to escort a flight of fighter aircraft long distances and carry the cargo and personnel to support these fighters at the same time.

The Air Force recently conducted an integrated assessment measuring the costs and benefits of the two ATCA candidates -- the Boeing 747 and the McDonnell Douglas DC-10. As a result of this assessment, the DC-10 was selected for the ATCA because it provides the most capability for each dollar invested. With the selection of the DC-10 the program will include approximately 20 aircraft. Initial funding begins with the FY 1979 budget and expected delivery of the first aircraft in FY 1981.

ARTIST'S CONCEPTION OF AN ATCA

d. CRAF Modification Program

U.S. air carriers own over 300 wide-bodied aircraft, many of which have the potential to deploy military cargo over long distances during a national emergency. Because the majority of these are passenger aircraft, we are pursuing a modification program to make a portion of them capable of carrying cargo. These aircraft would normally continue to carry passengers in peacetime, but would be converted to cargo aircraft in time of war or mobilization. The modification consists primarily of installing a cargo door, strengthening the floor, and providing a cargo handling system. A similar modification has already been made on Boeing 747 aircraft for civilian use. The Congress has funded $7.5 million in the FY 1978 budget to accomplish a pilot modification and provide the carrier with a lump sum compensation for the differential operating costs associated with the additional aircraft weight. For FY 1979 we are requesting funds for eight modifications. The cost of each modification depends on the type of modification and owner of the particular aircraft. This is only a start for a program that might involve up to 110 civilian aircraft. Because we would incur only a small fraction of the operating costs during peacetime (paid on a one-time lump sum basis along with the modification costs), this program provides a very cost/effective way of increasing our wartime cargo deployment capability.

e. Sealift

Sealift continues to provide the bulk of our mobility capability measured in tons of unit equipment delivered and even more so tons of resupply, ammunition, and POL. Therefore, we must insure that our sealift resources are readily available and include the most productive ships in the inventory.

First, we are investigating improving the commitment of ships from our NATO allies. Along with the Military Sealift Working Group of NATO's Planning Board for Ocean Shipping (PBOS), the Maritime Administration -- the U.S. Representative to PBOS -- has identified militarily useful allied vessels. Negotiations are underway to earmark more and better ships than are currently committed, and to make a large number of these ships available when the alliance begins to mobilize. The earmarked fleet will be considerably larger than would be needed to meet military requirements in order to insure that an adequate number of ships are rapidly available in United States ports. Other ships selected later would depend on the cargo to be moved. An improved monitoring system to track these NATO Pool ships is also under consideration.

Second, we plan to add three ships to the Ready Reserve Force in FY 1979 at a cost of $8.7 million. These are ships of the National Defense

Reserve Fleet which are upgraded to a high state of readiness for emergency or wartime use and are readily available.

f. Additional Prepositioning of Army Units and Equipment

In order to prevent the Warsaw Pact from quickly achieving decisive superiority over the NATO forces, we must deploy our forces faster than our combined airlift/sealift resources are capable of doing. Ships, owing to their slow sailing speeds, cannot deploy forces early enough to prevent Pact superiority. Our currently programmed airlift forces are already committed to deploy vital combat forces; to move more heavy combat units would require considerably more transport aircraft. The solution we have reached, wishing to avoid the forward stationing of more combat forces in Europe, is to increase the number of heavy divisions with equipment prepositioned in Europe. In order to place divisions with prepositioned equipment on-line, the only lift resources required would be passenger aircraft to deliver the troops to their equipment and a few cargo aircraft to move equipment that would not be prepositioned. The equipment left in the CONUS by units matching up with prepositioned equipment would be redistributed among later-deploying units. The costs associated with prepositioning are primarily transportation costs for moving equipment to Germany, construction costs for facilities to store the equipment, and maintenance costs for maintaining the inventory and equipment in a high state of readiness.

Current defense planning guidance directs the Army to provide additional prepositioned divisional equipment through the reallocation of on-hand resources and position it in Europe. Funds have been budgeted in FY 1979 to cover the initial phase of site construction, equipment transportation, and the associated operation and support costs. Efforts are underway to obtain maximum host nation and NATO support for this program. Funding for FY 1979 in support of POMCUS includes about $84 million, providing for operating and maintenance plus construction costs for additional POMCUS divisional equipment.

2. Tactical Airlift and Other Supporting Airlift Forces

Getting the forces to the theater is one part of a major problem. Once deployed they must be supported within the theater. The fixed-wing and large capacity helicopter forces identified for this intra-theater mission are classified as tactical airlift. These forces supply a flexible means for the rapid movement of vital supplies, spare parts, munitions, personnel, and in some cases combat units in response to the evolving and fluid battle situation.

a. Modernization of the Air Force Tactical Airlift Fleet

There is a need to modernize our tactical airlift force in the mid-1980s, owing to the age of our current fleet of C-130, C-7, and C-123 aircraft. The development of an Advanced Medium STOL Transport (AMST) aircraft was one of the alternatives to accomplish this modernization. We have decided to cancel the further development of the AMST and seek a more economical program. A major study will be performed to evaluate alternative programs to meet our tactical airlift requirements. Funds for this program will be incorporated in the FY 1980 budget submission.

b. Army CH-47 Helicopter Logistical Support Force

We are continuing a development program which will modernize the Army's CH-47 "A, B, and C" model helicopters to a standard "D" configuration. This program allows us to maximize the benefit from our prior investment in these helicopters while at the same time maintaining the United States Army medium-lift logistical support capability. We are requesting $17 million in FY 1979 for further development to complete testing and $39 million to begin modifying the helicopters. In addition, we are procuring 16 new CH-47s. The FY 1979 cost for these aircraft is $78.4 million. The modernization plus the additional buy will maintain a viable force to support Army logistic demands.

c. Navy Air Logistics Support Aircraft

(1) Navy Carrier On-Board Delivery (COD) Aircraft

The Navy has a unique requirement to support its deployed ships with personnel, cargo, and mail. This mission is accomplished by COD aircraft that land on aircraft carriers. Due to the aging and the limited capability of the C-1 aircraft, it has become necessary to investigate new aircraft to fulfill this mission. A comprehensive review of several candidate aircraft is underway, and is expected to be completed during the FY 1980 budget cycle.

(2) CH-53E Helicopter

The CH-53E is capable of meeting the growing Marine Corps requirement for moving heavy equipment and fulfilling the Navy's vertical on-board delivery (VOD) mission for ships at sea. The planned number of CH-53Es scheduled for procurement has been reduced from 70 to 49. About two-thirds of these helicopters will be used to fulfill Marine Corps requirements. A detailed evaluation will be conducted to ensure that the Navy's VOD requirements can be met with the revised helicopter force in combination with the COD program.

(3) Navy Airlift Modernization

In addition to the carrier on-board delivery/vertical on-board delivery (COD/VOD) mission, the Navy has a unique requirement to support Naval forces on land, in port, and to interface with COD/VOD aircraft for delivery at sea. We are not programming funds for replacements to the Navy/Marine Corps C-117 and C-118 transport aircraft. The mission presently performed by these aircraft will be accomplished by the Military Airlift Command and commercial aircraft.

3. Readiness

a. Readiness Exercises and Tests

During the past six months we have executed "no-notice" deployment readiness exercises to test selected Army and Marine Corps combat units and airlift forces that could be called upon in a crisis situation. Several deployment options have been defined for implementation, depending on the size of the unit and the destination. Through this process we evaluate and demonstrate our capability to deploy forces with very little notification or preparation.

During the REFORGER exercise this past year we tested several ways to improve the reinforcement process. Sealift resources were employed more extensively. Host nation support was used to assist in the off-loading and overland transport process. A limited surge test was run on a small portion of the airlift force. All these procedures were incorporated to give a more realistic flavor to the movement process, provide valuable training to our combat forces and demonstrate resolve to both our allies and the Warsaw Pact countries.

The Navy and Marine Corps are scheduling training operations to test and evaluate the utilization of Military Sealift Command (MSC) and commercial shipping for transportation of Assault Follow-On Echelon (AFOE) equipment.

b. NATO Initiatives

Reinforcement of NATO is a concern vital to all the NATO alliance members. Because of this we are looking at the problem of reinforcement and possible solutions that entail the participation of our allies. A NATO task force has been organized to develop programs associated primarily with the organization and management of mobility resources and reception facilities. Some of the mobility-related initiatives are being addressed by the task force to improve the deployment capabilities of our forces:

(1) commitment of NATO civilian ships and aircraft in time of crisis,

(2) arrangement for joint military/civilian planning, coordinating and monitoring of the reinforcement,

(3) modification of allied wide-bodied civil passenger aircraft for carrying cargo,

(4) availability and use of military airlift forces,

(5) increased use of containerization and flatracks,

(6) improvement of government-owned sealift fleets,

(7) offloading ships without sophisticated ports and facilities, and

(8) coordination of civil and military resources at reception airfields.

TABLE IID-1

Acquisition Costs of Major Mobility Forces Modernization and Improved Programs 1/
(Dollars in Millions)

	FY 1977 Actual Funding	FY 1978 Planned Funding	FY 1979 Prop'd Funding	FY 1980 Prop'd for Authorization
Strategic Mobility				
Engineering & Development of C-5 Wing Modification	18.0	38.1	37.0	105.1
C-141 "Stretch" & Aerial Refueling Modifications	-	89.5	65.6	67.0
Modification of Civilian Wide-bodied Passenger Aircraft to a Convertible (Cargo-Passenger) Configuration	-	7.5	68.5	127.2
Development & Procurement of a new Advanced Tanker/Cargo Aircraft (ATCA)	28.8	-	156.8	256.4
Prepositioning 2/				
Construction of New Prepositioned Equipment Sites	-	-	57.0	80.0
Tactical/Logistical Helicopter Airlift				
Engineering & Development of Advanced Medium STOL Transport (AMST)	29.0	10.0	-	-
Engineering & Test of Army CH-47 Helicopter Modernization	26.0	32.0	19.5	48.6
Acquisition of Navy/Marine Corps CH-53E Helicopter	110.4	18.5	183.2	175.9

1/ This table includes the cost of RDT&E, procurement, and installation of the system, initial spares, and directly related military construction in prepositioned equipment sites.

2/ Some of these costs are eligible for NATO infrasturcture funding and could be reimbursable.

CHAPTER II (Continued)

NATO-RELATED ACTIONS AND PROGRAMS

I. INTRODUCTION

This section is intended to highlight our major NATO-related initiatives. These and other programs that improve our NATO capabilities are described in greater detail throughout this report.

II. CURRENT NATO PROGRAMS

In the immediate future, our emphasis will be on improving our forward defense and firepower capabilities during the initial phase of a war in Europe, in order to prevent the Warsaw Pact from achieving a quick Blitzkrieg victory. We also must ensure that the Alliance can fight for at least as long as the Pact, be able to respond to threats on NATO's flanks and protect the sea lines of communication from the United States to Europe. As an immediate objective, we plan to procure adequate war reserve munitions, equipment, and secondary items to support U.S. forces in NATO by the end of the FYDP period.

A. Forward Defense

We are concerned that the peacetime locations of NATO's forces in Central Europe are not optimum for the conduct of a forward defense. This concern stems both from the distance of some forces from their defensive positions and from the relative weakness of NATO's forces in Northern Germany (where the Warsaw Pact is very strong) compared to those in the South.

The seriousness of the East-West malpositioning of NATO forces is a function of how much warning NATO can expect to have. Given the minimum warning time that we expect, it appears that response times can be improved more economically through improved readiness, additional transportation, better availability of ammunition, and selected repositioning than through permanent, large scale repositioning. The Supreme Allied Commander in Europe (SACEUR) estimates it would cost at least $30 million per battalion to restation entire units farther to the East. Measures to improve readiness have been discussed in the Land Forces section. Other steps we are taking to improve our capabilities for forward defense include:

-- moving defensive positions forward where terrain permits,

-- strengthening covering forces,

-- uploading ammunition on selected combat vehicles,

-- construction of forward ammunition storage sites,

-- improving mining capabilities, and

-- advancing the date for initial deployment of A-10s to Europe and increasing the number to be deployed there in peacetime.

The possibility of repositioning selected Allied units is under study as part of the NATO Long Term Defense Programs.

The problem of the North-South maldeployment of forces is a more difficult one. A U.S. brigade (Brigade 75) will redeploy from its current location in training areas in southern Germany to the Garlstedt area in Northern Army Group (NORTHAG) by the end of 1978.

B. Firepower

We have made major increases to our firepower in NATO over the last several years and intend to do more. We have converted some support billets into combat manpower, thereby adding two combat brigades and two artillery battalions to our forces in Europe. We have made a significant increase in the density and capability of our anti-tank weapons with the deployment of TOW, DRAGON, and COBRA/TOW. We plan to deploy three additional artillery battalion equivalents by the end of FY 1979. In addition, equipment modernization, improved munitions, and new target acquisition and electronic warfare systems will increase the lethality of each firepower delivery unit.

In anticipation that a war in Europe would use vast quantities of munitions and equipment quickly, we have significantly increased our war reserve materiel stockpile objectives. Our plans for construction and leasing of storage facilities will enable us to store additional munitions in Europe.

Air Force firepower has also increased. Last year, we replaced a wing of F-4s with F-111s and deployed the first wing of F-15s, increasing our European-based forces by 78 aircraft and significantly increasing our all-weather capability. In FY 1979, an additional squadron of F-15s and the first wing of A-10s will be deployed. The A-10 wing will operate under a new concept, utilizing a Main Operating Base (MOB) for maintenance and support, and forward operating locations (FOL) for daily operations. Our plans to equip the Air Force's 26 wings fully and to modernize its reserves will also increase NATO's firepower.

C. Readiness

To be ready for combat, forces in Europe must be fully equipped, adequately manned and trained, and provided with sufficient stocks to sustain combat until additional supplies can arrive. Forces in Europe have first priority for equipment. The authorized manning level for selected units in Europe will be increased in FY 1979. SACEUR has instituted a program of operational readiness testing which is helping to assess the responsiveness of NATO's forces at various states of alert. Our programs to upload ammunition, construct forward storage sites, and preposition adequate supplies have already been mentioned.

The readiness of Air Force units has improved with recent increases in aircrew to aircraft ratios. The combat effectiveness of these forces has also been enhanced since the deployment of the F-5E "Aggressor training" squadron. Continued progress in identifying and obtaining host nation agreement for the use of collocated operating bases is reducing the long-standing problem of base overloading for our augmentation forces. A program is in progress to provide these bases with the minimum essential facilities to support additional United States forces. We plan to increase prepositioned secondary items to support a surge of tactical air sorties. In order to ensure uninterrupted wartime operations, we plan to procure and preposition seven additional rapid runway repair kits and heavy construction equipment, as well as constructing alternative runways at a number of European bases.

D. Air Defense

The major criterion for adequacy of air defenses is their capability to limit damage to ground assets from air attack. It has long been recognized that a complementary mix of air defenses which include ground and airborne systems integrated through appropriate command, control, and communications equipment and procedures is needed to execute this mission.

Missiles for our current surface-to-air missile (SAM) units are still being procured. We have programmed additional IMPROVED HAWK missiles to enlarge the stocks of U.S. HAWK batteries in Europe. We have also programmed additional IMPROVED CHAPARRAL missiles and have provided more REDEYE missiles which were redistributed from CONUS stocks. We are increasing manning of HAWK and NIKE HERCULES units and are improving air defense maintenance. STINGER will begin to replace REDEYE and PATRIOT deployment has been accelerated.

Last year we began deployment of the F-15, the most advanced air superiority aircraft available, to Europe. Deployment of the new F-16 aircraft will also greatly improve our air-to-air capability in Europe. 348 F-16s will be entering the inventories of Belgium, Denmark, the Netherlands and Norway. The rotation of AWACS to Europe will greatly enhance our defensive capabilities by providing unique, all-altitude, detection capability and by providing a means whereby our limited tactical air resources can be employed with maximum effectiveness. NATO is considering the procurement of the AWACS to provide protection to the forces in the Central Region and on the flanks.

E. Command, Control, and Communications

NATO's command structure has always been cumbersome. It is our long-term objective, wherever possible, to collocate US/Allied headquarters and wartime/peacetime headquarters. In addition, we want to preclude the need to change our entire way of operating when we mobilize. Several recent and ongoing actions will help us in this respect: the establishment of Allied Air Force Central Europe (AAFCE) with AFCENT, the building of wartime headquarters for both AFCENT and AAFCE and the plan to collocate Central Army Group (CENTAG) with USAREUR and 4th Allied Tactical Air Force (4th ATAF).

F. Reinforcement

Our goal of ensuring that NATO can build its capabilities in a crisis at a rate which will not present the Pact with any clearly advantageous time for attack has led to a major emphasis on more rapid reinforcement.

We have accelerated plans for reconstitution of existing sets of prepositioned unit equipment (POMCUS). At present, most of these stocks are at authorized levels. By the summer of 1978 they will be ready to support the rapid deployment of the three heavy divisions which have forward-deployed brigades. In addition we have programmed for additional POMCUS divisions during the FYDP period. These programs will enable the U.S. to significantly increase its ground combat forces in Europe within days rather than weeks.

The Air Force is also taking steps to improve its capabilities to reinforce Europe by increasing the readiness of CONUS-based units for deployment, negotiating agreements with our Allies for use of their bases, and making the minimum essential preparations at those locations.

The Navy and JCS are working with representatives of the Maritime Administration and Department of Commerce, to achieve greater and earlier availability of non-U.S. NATO ships. Currently, our NATO allies earmark approximately 200 ships for the deployment of military reinforcements from North America, to be available at the outbreak of hostilities. The objective of the current effort is to have fast, highly productive NATO ships available at the beginning of a NATO mobilization. Further, the Navy Sealift Enhancement Plan will improve the U.S. capability to reinforce and resupply Europe, especially during periods of increasing tension when commercial shipping may not be readily available.

G. Rationalization, Standardization, and Interoperability

Interwoven with all the other aspects of NATO defense improvement, and indispensable to their success is greater U.S. and allied willingness to cooperate in the field of research and development and armaments production.

While the Rationalization Task Force of the Long-Term Defense Program is developing procedures to facilitate this cooperation and the other Task Forces are to identify opportunities for cooperation, it is fundamentally up to the nations to make such decisions. This will require greater "give" on all sides -- between U.S. and our Allies, on the part of Congress and Parliaments, and U.S. and Allied industry -- in the interest of the common defense.

It is vital to do so on sheer military grounds. The primary goal of cooperation in armaments is increased military effectiveness. The more that equipment, munitions, and their logistic support are interoperable, or even fully standardized, the more effectively Allied forces can operate together against the common foe. Standardized or interoperable C^3 (Command, Control, and Communications) and interchangeable munitions could have a very high combat payoff.

In addition, to the degree that we can rationalize research and development as well as procurement on an Alliance or multi-lateral basis, there can be a reduction in overlapping programs, increased economies of scale and production, and more effective equipment for the same price. However, these payoffs will take time and will demand far-reaching changes in national practices. The obstacles are enormous and have severely constrained such payoffs in the past.

We have begun to assign increased weight to potential Alliance cooperation in our own R&D and procurement planning. I have directed the Services to examine and report to me on the opportunities they see for more common R&D, greater interoperability and standardization, and buying, licensing or coproducing European as well as U.S. equipment.

Among the areas where progress has been achieved are the following:

-- Fuel standardization: This has been achieved for land forces, is well advanced for naval forces, and is being pursued for aircraft.

-- Ammunition standardization: Our M-48A5 and M-60 tanks use the same ammunition as the German LEOPARD I and the British CHIEFTAIN.

-- Communications: NATO, the United States and the United Kingdom share satellites. The Alliance is moving ahead with interface equipment for near-term interoperability.

-- Organization: NATO established last year an Armaments Standardization and Interoperability Division in the International Military Staff to strengthen control in weapons planning and policy.

-- Specific weapons systems examples:

  (1) United States use of the French/German designed ROLAND surface-to-air missile.

  (2) United States use of Belgian machine guns for armored vehicles.

  (3) United States and FRG agreement to maximize commonality between their new tanks, the XM-1 and LEOPARD II.

  (4) Belgian, Danish, Dutch, Norwegian, and United States procedures to maintain F-16 configuration control.

  (5) United States and United Kingdom agreement to jointly develop the British airfield attack system.

During the next year we will consider joining the UK-FRG-Italy SP-70 howitzer program to refine our requirement for a follow-on self-propelled 155mm artillery weapon. We will also consider European commercial and military trucks to meet our requirements for tactical wheeled vehicles.

The Defense Department has issued a comprehensive directive on NATO Standardization which, among other things, directs DoD components to consider our Allies' systems and subsystems in their development and procurement programs for both major and minor items of equipment. In addition, agreement on military doctrine and requirements as well as production cross-licensing will result in greater standardization and interoperability.

III. THE LONG-TERM DEFENSE PROGRAM (LTDP)

At the May, 1977 meeting the NATO Defense Ministers agreed to U.S. proposals to focus the LDTP on a limited number of high-priority measures in ten critical fields. Its purpose is to develop long-term plans for national and cooperative programming in these areas to insure that actions taken will be complementary and responsive to agreed priorities and phasing.

Initial planning for the Long-Term Defense Program has been placed in the hands of separate NATO Task Forces, which will submit reports to the NATO Defense Ministers in the Spring of 1978 and then to the NATO heads of government at a subsequent meeting in Washington. The ten selected high-priority program areas are: Readiness; Reinforcement; Reserve Mobilization; Maritime; Air Defense; Command, Control, and Communications; Electronic Warfare; Rationalization; Logistics; and Nuclear Planning.

CHAPTER III

SECURITY ASSISTANCE

I. INTRODUCTION

The Secretary of State has statutory responsibility to determine the nature and scope of Security Assistance programs and to provide continuous supervision of the program. The Department of Defense administers the following program elements:

-- The Military Assistance Program (MAP) which comprises grants of combat equipment, materiel and services, except training.

-- Sales through government channels, known as Foreign Military Sales (FMS), permit the purchasing government to use the procurement services of the Defense Department. The purchasing governments pay all costs that may be associated with a particular purchase, including a general administration surcharge to meet U.S. costs of operating the FMS system.

-- Credit provided by the U.S. Government, in the form of either direct loans or guarantees to lending institutions, to assist in financing the purchase of U.S. equipment and services--both directly from U.S. contractors and through U.S. Government channels.

-- The International Military Education and Training Program (IMET), in which foreign students are trained in U.S. military schools and facilities with U.S. military personnel.

Two other components of security assistance are not administered by the Defense Department. One is Security Supporting Assistance (SSA), a form of economic assistance primarily for Egypt, Jordan, Israel, and Syria, administered by the Agency for International Development (AID). The other is the direct export through commercial sources of items controlled by the State Department Office of Munitions Control through the International Traffic in Arms Regulations (ITAR).

The statutory authorization and appropriations for MAP, IMET, and credit financing of FMS are provided in annual foreign assistance legislation. This legislation is separate and distinct from that governing

Department of Defense programs. Foreign Military Sales through government channels and deliveries of defense items through commercial channels are controlled by the State Department and are normally for cash. Those that are financed with credit are reimbursed in full, with interest, except for those sums "forgiven" for Israel. MAP, IMET, and SSA are carried out under the Foreign Assistance Act as grant aid for which the U.S. receives no reimbursement.

The U.S. Security Assistance Program has undergone major changes since its inception in FY 1950. At that time, grant aid accounted for the bulk of U.S. arms transfers. In a massive program to rearm its allies, mainly in NATO Europe, the Congress appropriated the FY 1978 dollar equivalent of more than $15 billion annually in the early 1950s for grants of military assistance. Now, however, grant aid accounts for only a small portion of U.S. security assistance. The grant materiel program (Military Assistance Program) authorized by the Congress for FY 1978 totals about $316 million (including $91.7 million to satisfy obligations under agreements with Greece and Turkey not yet approved by Congress), earmarked for only eight countries. In five of those countries -- Greece, Turkey, Spain, Portugal, and the Philippines -- our programs may be regarded as a form of mutual assistance since our forces enjoy the use of facilities and operating rights in those countries. Of the remaining three countries only one--Jordan, a key country in the Middle East equation--will continue to receive grant materiel assistance. The other two, Thailand and Indonesia, will receive no grant materiel aid after FY 1978.

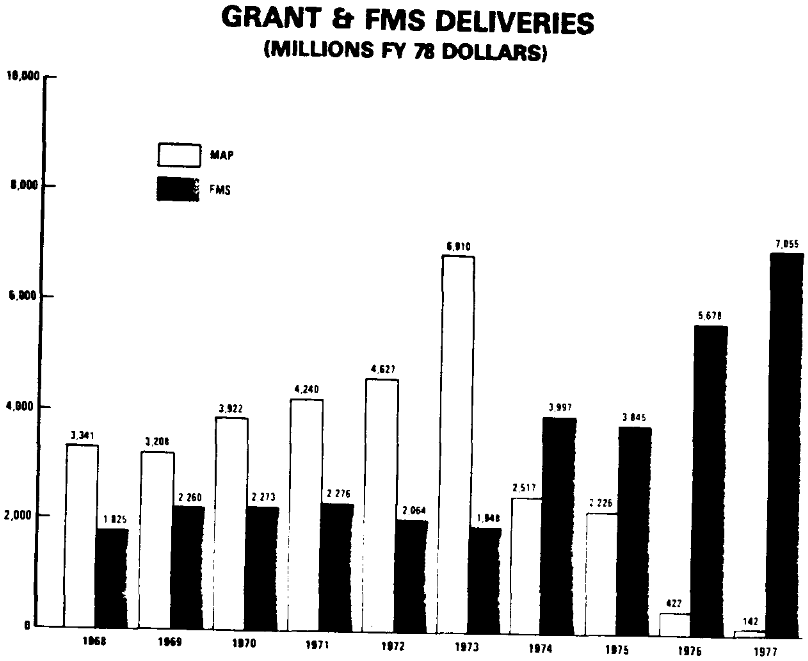
Foreign Military Sales were practically nil 25 years ago when the grant program was at its height. In FY 1964, they exceeded grants for the first time. They rose markedly in the mid-70s--reaching a peak in FY 1976 when sales orders in FMS channels reached $13.2 billion and exports directly by U.S. contractors totalled about $1.4 billion. FMS sales declined to about $11.2 billion in FY 1977.

The upswing in sales is attributable to several factors. First, former major grant recipients, such as Taiwan and Korea, have shifted from grants to sales. Second, we have engaged in a multi-year effort to refurbish Israeli forces in the aftermath of the October 1973 Arab-Israeli War. Third, since 1973, several of the major oil producing states, particularly Iran and Saudi Arabia, undertook extensive programs to modernize and enlarge their defensive forces. Aside from sales to the Middle East and NATO, U.S. arms transfers to others have risen only modestly and, in some cases, have declined.

Training previously was funded as part of the overall grant program. Two years ago, the Congress provided separate legislative authority and funds for the International Military Education and Training Program. Each year since then, the Congress has reduced the Administration's IMET funding requests by 22-23 percent which means that we have been unable to train as many students as programmed. Sharply increased training costs and inflation further complicate this issue. For FY 1978, the Congress appropriated $30 million for the IMET program, which enabled us to train approximately 4,000 personnel in this country and abroad.

The credit financing program has remained at essentially the same level in recent years. For FY 1978, the Congress appropriated $675.9 million in credit funds, which will finance about $2.1 billion on past or new sales to about 33 countries. Israel is slated to receive $1 billion out of this total, of which one-half would be "forgiven."

Chart III-1



<u>Note</u>: Yearly totals often reflect agreements concluded several years in advance of actual deliveries.

II. POLICY OF THE CARTER ADMINISTRATION

One of President Carter's first acts as President was to direct a comprehensive review of U.S. conventional arms transfer policy. On the basis of this review, the President issued a major policy statement regarding conventional arms transfers. The key points of the statement, issued on May 19, 1977, are as follows:

-- The United States will henceforth review arms transfers as an exceptional foreign policy implement, to be used only in instances where it can be clearly demonstrated that the transfer contributes to our national security interests.

-- The U.S. will continue to utilize arms transfers to promote its security and the security of our close friends, but in the future, the burden of persuasion will be on those who favor a particular arms sale, rather than those who oppose it.

-- The restraints set in the new policy will apply to all transfers except those to NATO, Japan, Australia, and New Zealand. The U.S. will remain faithful to its treaty obligations, and will honor its historic responsibilities to assure the security of the state of Israel.

- The dollar volume (in constant FY 1976 dollars) of new comitments under the Foreign Military Sales and Military Assistance Programs for weapons and weapons-related items in FY 1978 will be reduced from the FY 1977 total. Transfers which can clearly be classified as services are not covered, nor are construction, or commercial sales which the U.S. Government monitors through the issuance of export licenses.

-- The United States will not be the first supplier to introduce into a region newly-developed, advanced weapons systems which would create a new or significantly higher combat capability. Also, any commitment for sale or coproduction of such weapons is prohibited until they are operationally deployed with U.S. forces.

- Development or significant modification of advanced weapons systems solely for export will not be permitted.

- Coproduction agreements for significant weapons, equipment, and major components (beyond assembly of subcomponents and the fabrication of high-turnover spare parts) are prohibited.

- An amendment to the International Traffic in Arms Regulations will be issued, requiring policy level authorization by the Department of State for actions by agents of the U.S. or private manufacturers which might promote the sale of arms abroad.

- -- The Secretary of Defense will continue his review of Government procedures, particularly procurement regulations, which may provide incentives for foreign arms sales.

- -- In formulating security assistance programs, the U.S. will continue its efforts to promote and advance respect for human rights in recipient countries. It also will assess the economic impact of arms transfers on lesser-developed countries receiving U.S. economic assistance.

- -- The United States will meet with other arms suppliers, including the Soviet Union, to begin discussions of possible measures for multilateral action. In addition, it will do whatever it can to encourage regional agreements among purchasers to limit arms imports.

Although the Department of State has the primary responsibility for determining whether arms sales shall be made, the Department of Defense does play a role in the initial decision-making process. All requests to purchase major defense equipment are reviewed by the Joint Chiefs of Staff and the Office of the Secretary of Defense. On the basis of this review, the Department of Defense furnishes a military evaluation of a proposed sale to the Department of State for all requests which require Congressional review in accordance with Section 36(b) of the Arms Export Control Act (AECA). This input is used by the Department of State in obtaining a determination within the Executive Branch as to whether a request should be approved and reported to the Congress.

In response to the President's direction in his May 19 policy statement, I have completed and submitted to the President a review of policies and procedures throughout the Executive Branch to identify any incentives to the promotion of foreign sales, and to recommend appropriate remedial actions. I have taken a number of internal actions to revise policies and procedures that might have been interpreted as providing an incentive, and have emphasized to all DoD personnel, including those stationed overseas, that they are to take no actions of any kind which would promote the sale of U.S. defense items to foreign governments. This guidance was further reinforced in recent joint State/Defense instructions which were sent to all U.S. diplomatic posts setting forth, in detail, specific guidelines to govern their relationship with visiting U.S. contractor representatives as well as with their host governments.

III. AREAS FOR FURTHER U.S. INITIATIVE AND EXPLORATION

The U.S. is a leading arms supplier -- by some measures the leading arms supplier in the world. But there is a sizeable group of other major arms suppliers that includes the Soviet Union, France, West Germany, and the United Kingdom. The United States, therefore, is not able to control the international trade in arms solely by its own actions. President Carter recognized this clearly when he noted that "actual reductions in the world-wide traffic in arms will require multilateral cooperation." He promised that the U.S. would meet with the other major suppliers to begin discussion of possible measures for multilateral action. These discussions are underway, but will not yield easy or rapid solutions. Nontheless, they are a hopeful beginning. In addition, even multilateral actions need to take recipient interests and sensitivities carefully into account. The President also recognized this need when he promised that the U.S. would do whatever it could to encourage regional agreements among purchasers to limit arms imports. To work with suppliers and buyers on restraint will be a difficult process requiring sustained efforts by the United States. It will be necessary to convince various recipient nations that it is in their interest to restrain their arms purchases and that their own security will not be injured in the process. Inasmuch as some of the heaviest purchasers of U.S. arms are in potentially volatile regions of the globe, convincing them that restraint is in their interest will be difficult. The United States is committed, however, to this task.

IV. MAJOR SUPPLIERS OF ARMS

Comparisons between U.S. programs and those of other suppliers, are commonly made in terms of the dollar value of sales or other announced transfers. These comparisons should be viewed with a degree of caution. High dollar value sales, although credited to the year in which the order is placed, often involve very long lead times, and may not be delivered until several years later. Comparisons based on dollar values can also be misleading because of currency conversion problems, varying inflation rates, varying credit terms, the difficulty of determining what costs are actually included in the foreign price, and the problem of making a fair assessment of actual costs. Furthermore, while we know with precision the total value and quantities of armaments that the United States has transferred, we are less certain both of the quantities and the total value of arms transferred by others. We know, for example, that major combat equipment accounted for about three-fourths of Soviet sales to lesser developed countries during 1974-1976, whereas actual weapons and ammunition made up less than 40 percent of the U.S. sales during the same period. Similarly, while services played only a minimal role in Soviet sales, they accounted for about 30 percent of U.S. sales. Finally, the Soviets can and do manipulate the prices they charge for arms transfers to suit their foreign policy objectives at the time, whereas the U.S. does not. This means that estimates of the dollar value of Soviet transfers are likely to be artificially low, producing a distorted comparison with U.S. transfers.

TABLE VIII-1

U.S. Foreign Military Sales
(Percent of total dollar sales)

	FY 1974	FY 1975	FY 1976	FY 1977	Cumulative FY 1950-1977
Weapons and Ammunition	50%	51%	27%	39%	40%
Support Equipment	10%	9%	7%	5%	10%
Spare Parts and Modifications	16%	20%	16%	21%	20%
Support Services	24%	21%	50%	35%	30%

When comparisons are made among major arms suppliers on the basis of actual equipment transferred, a rather different picture emerges than that produced by straight dollar value comparisons. On a worldwide basis, the United States is the predominant supplier of subsonic combat aircraft and of major naval surface combatants and submarines (although these are almost all used vessels rather than the new versions provided by other suppliers). The Soviet Union is the leading supplier of tanks, self-propelled guns, artillery, guided missile patrol boats, supersonic combat aircraft and surface-to-air missiles. France has sold a relatively high share of armored personnel carriers and armored cars, minor naval surface combatants, guided missile patrol boats, supersonic combat and other aircraft, and surface-to-air missiles.

A more detailed analysis by recipient regions reveals different trends. In the relatively lightly armed African region, the Soviet Union has continued to be the dominant supplier in almost all categories. In Latin America today, the United States is no longer the major supplier of armaments. Instead, European firms provide approximately 70 percent of the arms sold there. The Soviet Union has dominated the low level of exports to the South Asia region (the Indian subcontinent) with only few exceptions.

The high level of arms transfers to the Near East region from all major suppliers reflects the buildup and replenishment of arms in the aftermath of the October 1973 war. The United States has provided over 90 percent of the air-to-air and air-to-surface missiles. The Soviet

Union has provided the bulk of the artillery, all the guided missile patrol boats, a predominant share of tanks, self-propelled guns, supersonic aircraft and surface-to-air missiles. The French and British have provided more than 50 percent of the minor surface combatant ships.

Thus a picture emerges which is quite different from that normally reflected in public discussion. Dollar figures for U.S. military sales are high but Soviet military equipment transfers are comparably high, and European suppliers also account for a significant portion of world arms transfers. Soviet transfers also are heavily weighted toward hardware, while a large share of U.S. transfers consists of services.

V. PROBLEM AREAS

This Administration is firmly committed to reducing the global level of U.S. arms sales. However, there are certain characteristics of the arms transfer process, as well as several political and economic considerations, that need to be addressed if this goal is to be achieved. For instance, it should be kept in mind that deliveries often occur over a period of several years after a sale is made. Today, there is a backlog of over $39 billion of undelivered orders in the pipeline as a result of sales concluded in past years. These deliveries on past orders are not counted as part of the ceiling on new sales, but they will contribute to the actual flow of arms until they are completed.

The control and eventual reduction of conventional arms transfers will require the cooperation of other major arms suppliers. The U.S. has already initiated discussions to that end, but the process will take time. The situation is complicated by the fact that Western suppliers, notably France and Britain, have strong international economic and political interests; also they perceive a need to export arms for their own foreign policy reasons, to sustain an independent defense production base and for balance-of-payments reasons. The Western Europeans might consent not to increase their sales to fill the gap opened up by U.S. restraint, but powerful economic pressures may cause them to refuse to reduce their own sales. Such pressures could lessen, however, as European production of NATO armaments increases, allowing Europe to attain a more balanced military trade with the United States.

There is a more intricate relationship between the effort to restrain arms sales to the Third World and the effort to promote NATO standardization. One of the chief instruments for improving NATO standardization has been co-production or licensing agreements between the U.S. and the NATO allies. But as the European co-producers have argued, for such agreements to be economically feasible for them, the arrangements must allow sales to selected third countries. A recent example is that of the F-16 agreements among the members of the four-nation NATO consortium that conducted a major international competition to replace their aging F-104s. By the terms of these agreements, only the U.S. firm is permitted third-country sales subject to U.S. government approval, but the consortium members would participate in the benefits of the sales. Iran has already signed sales agreements for 160 F-16s and there are several other countries interested in purchasing the aircraft. In the interests of standardization, the U.S. must be in a position selectively to offer NATO opportunities to benefit from third country sales that we find it in in our national interest to make.

We also have to balance legitimate security needs (our own, and those of countries to which we tranfer arms) against the damage such transfers can do to our human rights policy. In compliance with Section 502(B) of the Foreign Assistance Act of 1961, as amended, and with its own policy directives, the Administration now reviews all arms transfer proposals from a human rights standpoint. U.S. military assistance and arms transfers are often perceived as implying U.S. support for the governments that receive them. Moreover, some types of arms we provide, finance, or license can be used by a recipient government to carry out or undergird repressive practices. Although such abuses are prohibited by U.S. law, our ability to prevent them is limited.

Military assistance can be used to promote human rights by altering the size or functions of our military representation, the level of training grants, and the quantity and types of arms transfers. Some governments will turn to other suppliers if our assistance is reduced. Many, however, desire close relations with the United States and may respond positively to an expression of U.S. intention to reduce or eliminate the military aspect of a relationship.

Finally, there are certain economic costs in reducing overseas arms sales. There may be problems associated with keeping certain production lines open. When overseas markets are reduced, revenues will be lost, and certain Research and Development (R&D) expenses, now recouped from overseas purchases, will fall upon the U.S. taxpayer. As the President noted in his report to Congress, the policy is not expected to have a major effect on overall U.S. trade performance, inasmuch as arms sales constitute less than one percent of current U.S. trade. However, the impact may be felt in certain local areas where the economy depends extensively upon weapons manufacture unless and until investment and the labor force involved turn to the production of other goods and services.

Despite these difficulties, the need for restraint is overriding. An unrestricted international traffic in conventional arms endangers everybody's interests, supplier and recipient alike. The United States will persevere in its search for ways to achieve a balance in restraining arms trade, while meeting our other foreign policy objectives. The Department of Defense is ready to deal with the problems that may be involved.

VI. THE PROGRAMS

These programs are budgeted for by the Department of State but administered by the Department of Defense. The Military Assistance Program (MAP) request for FY 1979 provides grant materiel assistance for Spain, Portugal, the Philippines, and Jordan.

The proposed International Military Education and Training (IMET) Program provides for grant training for 40 countries. The amount proposed includes modest new programs for three countries in Western Africa.

Foreign Military Sales (FMS) financing is proposed to provide credits for use by 28 countries. As in previous years, the request includes funding for Israel; repayment of one-half of this amount will be waived.

A. Near East and South Asia

This region accounts for a large share of the total of U.S. security assistance. The proposed program represents the best U.S. judgment of economic and military requirements for assistance to each of the states.

In the Persian Gulf area Iran and Saudi Arabia continue cash purchases through FMS. Elsewhere in the area, FMS financing is proposed for Morocco and Tunisia.

Department of Defense Program totals for the Near East and South Asia regions are \$45 million MAP, \$8.4 IMET and \$1,180 million FMS financing.

B. Europe

Security Assistance in Europe is focused on Greece, Turkey, Spain and Portugal. For all except Portugal, assistance is programmed in fulfillment of specific treaty and defense cooperation agreements. Assistance to Portugal will enable that country to assume a NATO mission by equipping and mobilizing a partially air-transportable brigade for employment on the Southern flank. Other countries in the region purchase defense articles and services on cash terms through FMS with the Federal Republic of Germany and the United Kingdom being the major customers.

The total security assistance program for Europe is $68.4 million in MAP, $5.4 million in IMET and $417 million in FMS financing.

C. East Asia and Pacific

With the termination of grant materiel programs for Indonesia and Thailand at the end of FY 1978, only the Philippines--where the U.S. enjoys the use of military facilities--is to receive such assistance in FY 1979. FMS financing programs contribute to continuing modernization of defense forces of the Republic of China, Indonesia, Korea, Malaysia, the Philippines and Thailand. In Korea, continuing the FMS financing level will help further to improve Korean defense capabilities and allow the country to assume a greater share of its defense responsibilities as U.S. ground forces are withdrawn. No additional FY 1979 security assistance funds relating to the anticipated withdrawal of U.S. troops have been requested; however, the President has submitted proposed legislation which would authorize the transfer of some U.S. equipment to Korea upon withdrawal of U.S. forces.

The East Asia and Pacific region program totals $18.1 million in MAP, $6.7 million in IMET and $386.5 million in FMS financing.

D. Latin America

Assistance to countries in Latin America is restricted to IMET and FMS financing. These modest programs will assist selected recipient countries to modernize their defense forces. Latin American regional FMS financing has been significantly reduced. The Administration's arms limitation policies and human rights policies have been factors in this reduction. The Administration's requested $140.5 million for the FY 1978 FMS financing program was reduced to $71.5 million by Congressional action.

FY 1979 Program totals for Latin America are $8.3 million IMET and $45.6 million in FMS financing.

E. Africa

Modest security assistance levels for countries in Africa south of the Sahara further the U.S. policy of assisting friendly governments and attempting to ensure a degree of stability in an unstable region. A new FMS financing program for the Sudan is included in FY 1979 to encourage it to play a stabilizing role in the Red Sea/Horn of Africa area. FMS financing will continue to assist programs underway in Cameroon, Kenya, Liberia, and Zaire.

African security assistance programs total \$3.9 million in IMET and \$38.4 million in FMS financing.

CHAPTER IV

COMMAND, CONTROL, COMMUNICATIONS, AND INTELLIGENCE (C^3I)

I. PROGRAM BASIS

The primary purpose of Command, Control, Communications, and Intelligence (C^3I) systems is to assess military and related situations around the world, and manage materiel and manpower in order to achieve national objectives. This task continues to increase in magnitude and complexity because of the complexity and instability of international politics, and the improving technological capability of our potential adversaries.

Our C^3I systems must operate without interruption during the transition from peace to war and in all anticipated environments. The difficulty of achieving these objectives can be inferred from the following:

-- A changing international political climate imposes increasing restrictions on and costs for the use of foreign territories for military purposes. In addition, crises may occur in remote areas where we do not have existing facilities. These factors require us to seek new alternatives, such as space systems and deployable facilities, which relieve us from dependence on foreign territory for C^3 operations and intelligence collection.

-- Our nuclear strategy includes not only assured destruction, but the flexibility to launch controlled counter-attacks against a wide range of targets. Such a strategy is more demanding and expensive in terms of C^3I. Previously our strategic systems and facilities were only required to survive long enough to transmit warning and Single Integrated Operational Plan (SIOP) execution messages -- a matter of minutes. Now they are expected to survive, help restructure our forces and support a variety of responses.

-- The Soviets have continued to improve all aspects of their capability for strategic and tactical warfare. Increases in the number and performance of their nuclear delivery systems, space detection and anti-satellite capability, systems for electronic warfare, ASW capability and anti-aircraft and missile defenses are but a few of the challenges to our C^3I systems.

-- The growth in Soviet capabilities and technical sophistication requires increased and varied programs for intelligence collection and analysis to prevent surprise on the battlefield and to develop and employ our forces and countermeasures effectively.

-- The proliferation of sophisticated, highly capable offensive and defensive systems to third world nations has placed a tremendous burden on our C^3I resources. We can no longer assume that our interests in these areas can be supported by older, less capable systems.

-- The demand for interoperability, including totally coordinated operations among the Services and with our allies, requires the restructuring of C^3I systems to provide the timely exchange of information. It also demands the employment of new technology to enable C^3I systems to survive and function against anticipated threats. Jam-resistant and secure communications equipment and high-speed data processing are the backbone of these improvements.

-- Our own improvements in the responsiveness and speed of both offensive and defensive weapons require attendant improvements in C^3I systems. In large scale operations it is essential that our C^3I systems provide the capability to identify and control our own forces and to identify enemy forces on a continuing basis.

These are some of the reasons why emphasis must be placed on improvements in C^3I systems. The present program emphasizes improvements which will enhance the warfighting capability of our forces in both strategic and tactical operations. Improved interoperability of our own and allied forces is also stressed, with NATO receiving particular emphasis.

To provide strategic warning, we must increase the probability of acquiring and recognizing early indicators of potential nuclear attack against the United States. Whether or not we get advance warning, we must also be able to detect and characterize the magnitude of an attack on the United States or its forces while it is in progess. This detection and classification must be unambiguous, must allow adequate response time and provide sufficient information for decisionmakers to select the appropriate level of response. Soviet Submarine Launched Ballistic Missiles (SLBMs) fired from submarines close to the United States would severely limit our warning time. Therefore, we cannot rely solely on improvements in strategic warning and intelligence systems. We must also strive to improve the survivability and responsiveness of our strategic command and control systems. Specifically, we must ensure the survivability of critical functions -- to assess any attack on the United States and to direct the appropriate response.

At the tactical level, we must provide direct and timely combat information to our commanders. This means improving battlefield surveillance and target acquisition by providing sensor information for fire control or direction of forces. We are planning to field jam-resistant, secure communications to support the flow of sensor and command information and to allow conferences among force commanders. We also plan to have rapidly deployable C^3 facilities to support crisis management in remote areas of the world and to permit the reconstitution of facilities which may be destroyed. We are making significant improvements in ground communications equipment to support tactical forces within the theater. This equipment will be highly mobile, survivable and interoperable. It will also be more secure and will offer greater resistance to jamming. Because command and control is vital to our adversaries as well, we will work on means to disrupt enemy C^3 systems.

We are making parallel efforts to help improve the C^3 systems of our NATO allies. Such efforts are necessary if we are to undertake combined allied operations successfully. To date, our experiences show mixed progress. It will, to put it mildly, not be easy to subordinate our narrower political, military and economic interests to the common purpose. Nevertheless, there is an increasing realization that this must be done. We have already reached preliminary agreements at the Ministerial level to improve interoperability of tactical communications. We have shared satellites and interconnected terrestrial communications systems. We are looking at further consolidation of both communications and command and control facilities. We see increasing acceptance of AWACS within the NATO community. We are beginning to address the integration of U.S. and allied intelligence support.

In summary, we have, to a great extent, recognized and identified our shortcomings and initiated activities to bring about major improvements in our C^3I system capabilities. Specific objectives and programs for U.S. and NATO C^3 improvements are discussed in the remainder of this chapter.

II. PROGRAM PROGRESS AND INITIATIVES

A. National Intelligence

National intelligence is that body of information and practice which supports the National Command Authorities and other senior military and civilian policy-makers. It also is used by force planners and those who develop weapons systems. The national intelligence effort is included in the National Foreign Intelligence Program (NFIP), a program that comprises a significant portion of the intelligence efforts of the Departments of Defense, State, Energy, Treasury, as well as the CIA and the counterintelligence efforts of the FBI.

Within the Defense portion of the NFIP, there are three intelligence programs -- the Consolidated Cryptologic Program, the General Defense Intelligence Program, and Special Activities. There are within the Defense budget programs that are integral to the strategic and general purpose forces and which support tactical commanders in the use of their forces. These "tactical" intelligence systems, as a secondary function, also provide intelligence to national level consumers, as national intelligence systems provide information for tactical commanders.

1. Consolidated Cryptologic Program (CCP)

The CCP comprises many of the efforts of the National Security Agency (NSA) and is composed of projects and resources allocated to Signal Intelligence (SIGINT) activities. The FY 1979 program is designed to improve our capabilities in this area.

2. General Defense Intelligence Program (GDIP)

The GDIP includes funds for the Defense Intelligence Agency (DIA), Service intelligence organizations, and some intelligence activities of the Unified and Specified Commands. Most of the production and dissemination of foreign military, scientific and technical intelligence is provided for in the GDIP. Also included in the GDIP are the indications and warning (I&W) functions of the Defense Department.

Major GDIP initiatives are directed toward improving intelligence collection in support of weapons development. Other collection programs are undertaken to assess compliance with international agreements.

To provide intelligence for national policy, for planning and development of United States weapons systems, and for force planning, we need to improve our production and analytic capabilities. We are giving particular attention to data processing equipment and techniques to support the National Military Command Center for the analysis of intelligence data. Emphasis is being placed on the continuing improvement of Service threat assessment capabilities.

The Worldwide Indications and Warning System is a network of centers tied to the National Military Intelligence Center (NMIC). Its purpose is to provide warning of impending hostilities or other activities affecting national interests. Improvements to the NMIC include upgraded communications and ADP equipment.

3. Special Activities

In addition to the CCP and GDIP, funds are requested for specialized activities which provide essential information to national policymakers and to force commanders.

B. Strategic Command, Control and Communications and Intelligence

1. Tactical Warning

Deterrence is strengthened if an opponent knows we can detect an attack before it arrives on target. This tactical warning must be unambiguous, nearly instantaneous, reliable, and operate without false alarms. To meet these requirements we are improving our missile surveillance satellite system, constructing new ground-based radar systems for SLBM detection (PAVE PAWS), and pursuing the development of a long-range bomber warning system. (Ballistic missile, space surveillance, and bomber warning are discussed in the Strategic Forces chapter of this report.)

2. National Military Command System

Supporting the National Command Authorities in control of the Armed Forces is the National Military Command System (NMCS). The NMCS consists of the National Military Command Center (NMCC), the Alternate National Military Command Center (ANMCC), and the National Emergency Airborne Command Post (NEACP), with their interconnecting telecommunications and ADP support. These facilities receive, evaluate, and display intelligence, warning, and force status information, and direct and control the forces in carrying out national decisions.

The upgrading of command, control and communications capabilities of the NMCS to match corresponding improvements in our worldwide communications and delivery platforms has continued, with particular emphasis on the use of satellites, very low frequency (VLF) radio systems, and improved Emergency Action Message processing equipment.

(a) Command Center Improvements

FY 1979 and FY 1980 efforts will replace the ANMCC facility power generator and upgrade the air conditioning plant. Construction of the expanded NMCC and the new National Military Intelligence Center were completed on 28 March 1977. Phase I of the Improved Emergency Message Automatic Transmission System became operational in November 1977. This system enhances the means to compose, transmit, receive, and acknowledge Emergency Action Messages. Communications to the forces will also be aided by providing access to AFSATCOM to both the NMCC and the ANMCC.

(b) Advanced Airborne Command Post (AABNCP)

It is essential to have alternate means of passing SIOP orders from the NCA to the strategic forces. Owing to their mobility, airborne command posts have significantly greater survivability than do the present, more vulnerable fixed surface and sub-surface command centers. The Advanced Airborne Command Post, the E-4, is being developed to ensure that we can direct the retaliatory forces. The National Emergency Airborne Command Post mission has been operationally supported by three interim E-4A aircraft since 1975 and an advanced C^3 capability is being installed on a fourth E-4 test-bed aircraft. This will be the first E-4B configuration and will feature Ultra High Frequency (UHF), and Super High Frequency (SHF) satellite communications terminals, a high-powered Low/Very Low Frequency (LF/VLF) airborne terminal and improved secure voice and and communications processing capabilities. The E-4B will also enhance connectivity and jamming resistance, ensuring the ability to communicate with our forces. Funding requested in FY 1979 will support the extensive ground and flight testing of the test-bed aircraft. Later plans call for a total fleet of up to six compatible E-4B aircraft to support the NEACP and Commander-In-Chief Strategic Air Command (CINCSAC) airborne command post missions.

(c) TACAMO

TACAMO relays messages from the other elements of the NMCS to SSBNs and thus is a critical communications link with these submarines. The TACAMO system needs improvement to enhance receipt of messages from the NMCS and to provide greater coverage for our newer submarines.

3. Command, Control, and Communications for Strategic Forces

The President needs a responsive, reliable, flexible and survivable command and control system to serve the NCA in all types of military operations. This is provided by the Worldwide Military Command and Control System (WWMCCS), which incorporates a number of unique and independent C^3 systems to assure better connectivity with the strategic forces. Improvements to the WWMCCS programs in FY 1979 include the Advanced Airborne Command Post (AABNCP), TACAMO, AFSATCOM and the Minimum Essential Emergency Communications Network (MEECN).

(a) Minimum Essential Emergency Communications Network (MEECN)

MEECN spans the entire radio frequency spectrum from ELF through SHF in an attempt to provide the connectivity, redundancy and flexibility needed for the command and control of the strategic submarine, bomber, and ballistic missile forces.

MEECN includes:

(1) Air Force Satellite Communications System (AFSATCOM)

AFSATCOM supports worldwide strategic communications needs. Two other systems, the Defense Satellite Communications System (DSCS) and Fleet Satellite Communications System (FLTSATCOM) will also be employed. These systems also support other defense-wide communications needs and will be discussed in subsection D ("Defense-Wide C^3"). It now uses the Satellite Data System and other host satellites. The FLTSATCOM program will also support this requirement. The Strategic Satellite Systems (SSS) will be the follow-on to AFSATCOM for support of SIOP execution requirements. In addition, research and development efforts are to continue as part of the SSS program on survivable satellite technology and system alternatives to provide the means for assured SIOP communications. The AFSATCOM program budget request for FY 1979 is $33.0 million in research and development and $32.4 million for terminal and space segment procurement. In addition, $27.7 million is for aircraft modification to provide terminals for B-52, EC/RC-135 and FB-111 aircraft.

The operational characteristics of the strategic bomber and missile force permit the use of communications systems in the HF, UHF, and SHF frequency spectrum. These include land, airborne, and spaceborne systems such as AABNCP, AFSATCOM, and landline communications.

(2) SEAFARER

In the case of the strategic submarines, the most urgent communications requirement is one-way shore-to-ship transmission. This is now done with VLF and LF shore-based transmitters as well as the airborne TACAMO, with less reliance on HF and satellite communications. However, these systems do not fully take account of the technological improvements in submarine operating capabilities that permit operation at depths of many hundreds of feet. The current communications systems, because of sea water attenuation, are not effective at great depths. This limit forces the submarines to deploy an antenna and operate near the surface, where they are more vulnerable to detection than at greater depths. SEAFARER is an extremely low frequency (ELF) system. While not satisfying all the submarine communications requirements, it is an effective, complementary system to VLF and LF since it can penetrate the ocean to greater depths. This advantage permits a submarine to receive ELF messages while operating at a more advantageous depth and speed. As a result of Congressional encouragement, DoD is considering the use of smaller, less capable ELF system options. Although a smaller system would not completely satisfy the need for a fully capable ELF system, a system with reduced capability could be developed that would support the most critical communications needs of our strategic submarine forces and improve communications to our attack submarines as well. The $40.0 million requested for ELF Communications Systems will be used to continue development of this capability.

C. Tactical Command, Control, Communications, and Intelligence

The programs discussed in this section are primarily directed toward support of forces in the field. These programs include battlefield combat information support systems; tactical command facilities, communication and data systems; electronic warfare and other supporting programs. We are not only improving individual systems and capabilities; we are also taking steps to achieve a better interface between national and tactical systems.

1. Battlefield Support

a. Surveillance and Target Acquisition

In the area of tactical intelligence support for battlefield surveillance and target acquisition, steady progress has been made toward overcoming equipment shortages and replacing older, obsolescent systems. Eight examples are discussed below.

(1) QUICK LOOK

This system, carried on a modified OV-1 light utility aircraft, is designed to locate and identify emitters beyond the Forward Edge of the Battle Area (FEBA). It is the first Army airborne system for this role.

(2) Tactical Communications Emitter Location and Identification System (TACELIS)

The TACELIS is a truck-mounted system to be used in support of Army Corps. It can also supplement divisional collection and airborne collection and direction-finding systems. This year's primary effort will be to complete a prototype system and to conduct developmental and operational tests. Two systems are proposed for production with FY 1979 funds.

(3) Automated Ground Tactical Emitter Location Intercept System (AGTELIS)

This is a truck-mounted system scheduled for assignment to the Army Corps. During FY 1979, full scale development and testing of the system will continue.

(4) Standoff Target Acquisition System (SOTAS)

This system, mounted on a UH-1H helicopter, consists of a long-range, high-resolution moving target indicator (MTI) radar which passes information via data link to a data processing and display ground station. SOTAS is the only system which can independently detect and locate moving targets with sufficient accuracy for artillery engagement. It is a day/night/all-weather system that complements ground-based systems which have line-of-sight limitations. SOTAS is currently in the prototype (two aircraft) stage of development and has been tested in European field training exercises. The system is scheduled for deployment between FY 1981 and FY 1985.

(5) Tactical Electronic Reconnaissance (TEREC)

TEREC, installed in an RF-4C aircraft, is an Electronic Support Measures (ESM) system for locating ground-based non-communications emitters, and providing data on these emitters to ground stations through data link or by tape. TEREC's purpose is to provide ESM information to the theater commander. Three prototype TEREC sensors are currently in the inventory with 18 or more advanced systems planned.

(6) The Precision Location Strike System (PLSS)

The PLSS is being developed to give our Tactical Air Forces a highly accurate, standoff target location and strike capability against a wide range of targets. The system will consist basically of three segments: airborne platforms which carry the emitter location equipment, a ground processing station which processes location and strike data, and strike aircraft carrying guided weapons which utilize distance measuring equipment (DME).

(7) Airborne Low-Visibility Moving Target Acquisition Systems

The Air Force has advanced the technologies of the electronic steerable scanning antenna, the displaced phase-centered array and radar signal processing and applied them toward the development of moving target acquisition systems. This type of system will enhance our capability to target enemy forces.

(8) The UPD-X Side Looking Airborne Radar (SLAR)

The UPD-X program is an amalgamation of three aperture radar efforts designed to produce a system suitable for tactical reconnaissance aircraft. We are requesting $9.5 million for this multiple use surveillance/reconnaissance system in FY 1979.

b. Command, Control and Communications

Tactical C^3 systems must operate in an integrated fashion with sensor and intelligence systems to provide timely warning, responsive control of forces and assessment of operations. Those functions are essential to creating a highly integrated, mobile, and more capable fighting force. We continue to recognize that our individual weapon systems and those of our allies will be insufficient to engage the larger number of similar Soviet systems effectively unless they operate as a cohesive combined arms team.

(1) Tactical Combat Integration

This area includes target surveillance, tactical command and control systems, identification systems, jam-resistant data links, and other programs that integrate our tactical combat strike forces. Of primary concern are the vulnerability of our tactical data links to jamming and intercept, inadequate identification of friendly, enemy and neutral forces, and lack of interoperability among our forces and those of our allies. We are also convinced that in the interest of efficiency and combat effectiveness, we must continue to strive for increased automation and integration of our battlefield command and control systems. The following programs are aimed at alleviating deficiencies in this area.

(a) Airborne Warning and Control Systems (AWACS)

This system will provide airborne early warning (AEW) against enemy aircraft and missile attack including low-flying aircraft over land. It is equipped with modern jam-resistant radar and communications systems. AWACS will be linked to ground-based command centers for airborne surveillance functions and to control offensive and defensive aircraft operations. AWACS is discussed further in the Tactical Air Chapter.

(b) Tactical Command and Control/Battlefield Integration

This area includes our efforts to achieve more effective application of our tactical command and control assets permitting us to exploit target detection, location, and strike capabilities. There are several related efforts underway in this area. The Army's Tactical Operations System is being modernized through the incorporation of improved automatic data processing and display technology to make it more responsive to battlefield needs at the Division and Corps level. Funding requested in FY 1979 is $37 million. Other Army programs are supported by the Battlefield Systems Integration Project for which we are requesting $7 million in FY 1979. The Air Force also has two major efforts underway. One is the continued improvement and automation of its Tactical Air Control System (485L). The other is the USAF command and control project. This is to be the major all-source automated air command and control facility in Europe. Funding of $14 million is requested for these two programs.

(c) Joint Battlefield Exploitation and Target Acquisition (BETA)

Project BETA is a joint Army/Air Force/DARPA project to evaluate sensor information fusion centers, for use at Army Corps/Division and at Air Force Tactical Air Control Centers. These Centers are interoperable and will exchange sensor-derived data in near real-time. The BETA test bed will consist of three mobile fusion centers which will provide targeting information, develop the battlefield intelligence picture and provide for battlefield sensor management. The Army is the lead service on this project. A funding level of $14 million is proposed for this project in FY 1979.

(d) Tactical Information Processing and Interpretation (TIPI) System

The TIPI system will provide a greatly enhanced intelligence processing, interpretation and exploitation system for use by tactically deployed general purpose forces. $2.9 million in FY 1979 funding is proposed for further development of this program.

(e) Tactical Command and Control Systems (C^2) Interoperability

The Joint Tactical Air Control Systems/Tactical Air Defense Systems (TACS/TADS) interoperability development program successfully completed the final joint operational effectiveness demonstration in May 1977. As a result of the interoperability standards developed, the Air Control/Air Defense systems of all the Services will have the capability to "talk" to each other without intervention or translation. The Navy is Executive Agent for this program. Total Service funding in FY 1979 is $3.6 million and is intended to provide for configuration changes following the operational demonstration.

(f) Joint Interoperability of Tactical Command and Control Systems

A program related to TACS/TADS but much broader in scope is the program for Joint Interoperability of Tactical Command and Control Systems (JINTACCS) (formerly the GAMO interoperability program). This was started in FY 1971 by the Joint Chiefs of Staff to achieve interoperability among tactical C^2 systems. The Army is Executive Agent for this effort. In FY 1979 there will be a major increase to provide for establishment of a Joint Interface Test Force. Total proposed FY 1979 funding for JINTACCS is $25 million.

(g) Rapid Reaction Deployable C^3

A capability to deploy command and control assets rapidly anywhere in the world is essential. A program is underway to develop a modular set of deployable facilities to provide for remote operations, communications to national, theater and force commanders, and command center support. The facilities can be tailored for a wide variety of operations, from joint task forces to disaster relief.

(h) Identification Systems (IFF)

Positive and reliable identification of friends, foes, and neutrals (IFF) is a problem that is common to all of our weapon systems, especially those which can engage targets beyond visual range. The United States has been actively participating in the formulation of a NATO-wide program for the development of a future identification system that will overcome the shortcomings of the present MARK XII IFF system, which is an early 1960s design. The NATO activity envisions a jam-resistant system compatible with the present US MARK XII. This proposed system is based on research and development in passive techniques, and will interface with information distribution systems and utilize laser technology. NATO operational commanders have placed greater emphasis on the IFF function in the past year in light of the possibility of self-inflicted losses as demonstrated by the 1973 Middle-East War. The Federal Republic of Germany has conducted a demonstration of an experimental tank-to-tank and air-to-tank identification system based on the use of a laser. This high priority FRG development is worthy of consideration for adoption by United States forces. Total R&D funding proposed for IFF in FY 1979 for all the Services is $17 million.

(2) Electronic Warfare and Counter-Command, Control and Communications (EW and C-C^3)

(a) EW Systems

Principal needs include improved warning/jamming systems for aircraft against advanced surface-to-air missiles (SAMs); support jammers to counter enemy surveillance and fighter-control radars; capability to locate hostile radars accurately; and communications location and jamming systems to counter enemy C^3 and disrupt his air, land, and sea combat operations.

Significant progress was made during FY 1978 in the development program to protect our forces against enemy radar and electro-optically controlled weapons, and to locate, exploit or jam enemy command, control and communications systems. The Warsaw Pact has continued to develop new SAM and anti-air artillery (AAA) systems and to improve older versions of these weapons as well as the surveillance/target acquisition radars that serve as the "eyes" for air offensive and defensive operations. There are three major RDT&E efforts to counter these increased capabilities. The DSARC has approved initiation of the Precision Location Strike System (PLSS) to locate, and destroy from standoff range, the enemy radars that are most difficult to jam. The EF-111A Program is designed to jam the larger number of target acquisition and fighter control radars which it would not be cost/effective to destroy with PLSS. The PLSS (which is discussed in detail under Surveillance and Target Acquisition in this Chapter) will require $82 million to support continued fabrication. The EF-111A will require $8.8 million in FY 1979 to continue automatic equipment development and support a communications jamming study and initiate efforts to counter Soviet radar changes. The third counter-radar effort, the Advanced Self-Protection Jammer (ASPJ) for F-14, F-18, and future internal ECM requirements will require $16 million in FY 1979. Other important FY 1979 funding requirements include $7.2 million to add a jammer and $4.6 million to install and flight test the ALE-40 chaff and flare dispenser in the F-15. The EF-111A and the F-4G WILD WEASEL (defense suppression) aircraft programs are discussed in the Tactical Air Chapter of this Report.

(b) C^3 Countermeasures

We are considering the combined C^3 countermeasures requirements of the Military Departments so as to structure an RDT&E program for support of combined ground/air operations near the forward edge of the battle area (FEBA). We have established a new Air Force program element, Tactical C^3 countermeasures, and are requesting $4 million to initiate development of a new jammer and new techniques. We have requested $2.9 million to complete major development of the Army's Tactical Communications Electronic Warfare System (TACOM EWS) to detect, locate, and jam enemy communications signals.

(3) Positioning and Navigation Systems

The Department of Defense continues to spend about $800 million annually on development, procurement, operation, and support of navigation devices and systems. For FY 1979, our request for R&D funding for these programs is $118 million. The funding is dominated by the NAVSTAR Global Positioning System (GPS) Program and efforts to standardize inertial navigation systems among the Services.

(a) Inertial and Doppler Systems

Industry has significantly improved the accuracy of inertial navigation systems (INS) while significantly reducing the costs of medium accuracy systems. Both the Air Force and the Navy are working on specifications which will provide more standardized units. In the interim, the Air Force is using a common INS for high-performance tactical aircraft. Within NATO, an attempt is being made to develop common standards for NATO INS. Common doppler units are also being used among several classes of aircraft. Our interest is to continue to encourage the greatest common use and interoperability of systems.

(b) Radio Navigation Systems

Today there is a wide variety of radio navigation systems including VOR, TACAN, LORAN, OMEGA, and TRANSIT. These systems duplicate one another and are not sufficient in performance to meet all military requirements. The large number of existing systems has resulted from the hodge-podge fashion in which they have developed. NAVSTAR GPS is a joint multi-Service development program which promises to meet a broad range of military requirements and permit a substantial reduction in existing numbers and types of navigation systems. Validation of the NAVSTAR GPS concept should be completed by early 1979. This will be followed by a decision on deployment of the system. A fully operational system is anticipated by the mid-1980s. There are several other systems that are being developed which have navigation capabilities. These include the JTIDS and the Position Location Reporting System (PLRS). The JTIDS is being developed as a jam-resistant communications, navigation and identification system for use by AWACS, other tactical aircraft and surface forces. It will be discussed under tactical communications below. PLRS is a jam-resistant data and positioning system for use by the Army and Marines. The system has been demonstrated, with full scale development hardware being procured for field testing.

(4) Tactical Communications Systems

Communications equipment used to support tactical forces within a theater is inadequate and rapidly approaching obsolescence. In order to provide the flow of information essential for management and direction of our forces, a number of improved systems are under development.

(a) Joint Tactical Communications Program (TRITAC)

This program will provide common multi-channel communications equipment for all the Services. The equipment will be mobile, secure, survivable, and capable of rapid dissemination of messages and voice communications using automatic switching. Interoperability throughout the theater will be ensured by use of TRI-TAC common equipment which will also provide interfaces between single channel tactical users and other theater systems as well as between United States and allied systems. The individual TRI-TAC development programs are divided among the Services and are well underway with some operational testing scheduled for FY 1979. The RDT&E funding requested in FY 1979 for equipment development is $112 million. These funds will be allocated among all the Services.

(b) Combat Net Radio

Close to the Forward Edge of the Battle Area (FEBA), command and control is exercised primarily through the use of combat net radios. The Army is the lead service to develop a family of jam-resistant, manpack, vehicular, and airborne FM radios in the VHF frequency range for all the Services. The program, called the Single Channel Ground and Airborne Radio Subsystem (SINCGARS-V), is in advanced development. Three countries, the Netherlands, Germany, and the United Kingdom, have expressed an interest in offering their nationally developed radios for competitive evaluation at the end of the advanced development. These efforts will contribute to the NATO Rationalization and Standardization Program. For FY 1979, $12.7 million are requested for this program.

(c) Joint Tactical Information Distribution System (JTIDS)

This is a joint Service development to provide a jam-resistant, secure integrated communications, navigation and identification (ICNI) system to the tactical forces. It was designed to permit real-time distribution of critical combat data to large numbers of force elements. JTIDS will provide AWACS with a link to ground C^2 centers and tactical aircraft. It will provide the Navy with a jam-resistant ICNI system to replace older data and voice equipment. The Army and Marines are investigating the use of JTIDS in the land environment. Application to cruise missile midcourse guidance is also being investigated. JTIDS will become operational on AWACS and other military platforms in the 1980s.

(d) Jam-Resistant Secure Communications and Conferencing

The ability of a commander to respond to a crisis is greatly enhanced by the ability to confer with other involved commanders. A widespread capability for secure conferences (including data and facsimile exchange) among national, theater and force commanders is under development. It will be capable of functioning in the face of jamming and the destruction of peacetime communications networks.

(e) Reserve Forces Modernization

Reserve units have traditionally been equipped with hand-me-down assets of the active forces. With older equipment in the reserves, interoperability, maintenance supportability, reliability and capacity problems occur when integration with active forces is required. With the increasing reliance on early deployment of reserve communication units for NATO and other contingency missions, compatibility with the active forces is essential. The FY 1979 budget will upgrade the reserves equipment to allow integration of reserves and active forces in a tactical environment.

2. Fleet Command Support

a. Surveillance

Efforts continue to improve ocean surveillance in support of tactical commanders afloat.

(1) Ocean Surveillance Information System (OSIS)

The Ocean Surveillance Information System provides all source intelligence to national consumers and Navy commanders on the location and activities of Soviet surface combatants, submarines, and other ships of interest as well as vessels of other nations. With the development of sophisticated sensors and the automation of existing sensor systems, the OSIS must be upgraded to handle greater amounts of data.

(2) Surveillance Towed Array Sensor (SURTASS)

SURTASS will provide a mobile underwater hydroacoustic capability which will augment the fixed Sound Surveillance System (SOSUS) for detection of submarines. Development efforts are continuing and a production contract will be let in FY 1979.

(3) EP-3E

Research for the EP-3E is oriented toward development of a sensor system to detect, process and analyze signals emitted by radars with a low-probability of intercept, and to improve hull-to-emitter correlation techniques. Efforts are being made to extend EP-3 service life to the FY 1990s. Automation is required to enhance system capability in the more complex and dense environment anticipated in the 1980s.

b. Navy Tactical C^3

The Navy must consolidate command and control functions to permit a more comprehensive and timely view of the operational situation, and the more coordinated employment of forces. Modernization and automation of command facilities is essential to respond to the expanded anti-ship weapon threat. Combined with this, more timely use must be made of intelligence and other sensor information to counter potential threats at long distances from high value surface forces such as the carrier task force. To achieve these objectives, a series of programs is underway within the Navy.

(1) Tactical Flag Command Center (TFCC)

The Tactical Flag Command Center will be an integrated shipboard command center providing the tactical flag commander with a situation display to permit him to plan, monitor, and direct operations. It will allow him to make the most effective use of his forces as a conflict develops. This program is in advanced development and demonstration of a development model planned in 1978.

(2) Fleet Command Center (FCC)

The Fleet Command Center (FCC) is the shore-based node of the Navy Command and Control System. The objectives of the FCC are to process and display information for decision by the Fleet CINCs, to provide the National Command Authorities and the Navy Department with operational and resource information on request, and to exchange information between shore-based and at-sea tactical commanders. At present, requirements to interface FCC with TFCC are being redefined.

(3) ASW Center Command and Control System (ASWCCCS)

The ASW Center Command and Control System (ASWCCCS) is a worldwide network to give the ASW force commanders and their area/sector commanders a capability to perform resource control and decision-making. ASWCCCS has completed an operational evaluation and will be initially deployed in FY 1979.

(4) Navy Over-the-Horizon Targeting (OTH)

The objectives of this program are to develop the ability to detect, locate, identify and attack enemy targets beyond the surveillance horizon of the ship. Our vessels should then be able to attack targets while remaining outside the effective range of enemy weapons systems. This program is critical to the effectiveness of the anti-ship cruise missile.

3. National/Tactical Interface

Tactical commanders require direct and timely intelligence support. Historically, national and tactical intelligence systems have been used almost entirely in support of their respective consumers. Such uncoordinated use is inefficient and inadequate.

D. Defense-Wide C^3

A group of systems and programs acts as a national resource to provide worldwide support of the nuclear and general purpose forces. These systems will allow the diversity and flexibility necessary to maintain a tie between operations and decision-making elements during both peace and conflict. These programs include:

1. Communications Satellite Systems

These systems provide worldwide communications with jam resistance and high data rates. The continual increase in requirements for capacity and the growth in scale and expense of operations require a persistent effort to maintain and improve the system and user access. Two programs provide primary capability in this area:

-- The Defense Satellite Communications System (DSCS)

-- The Fleet Satellite Communications System (FLTSATCOM)

(a) The DSCS, a Super High Frequency (SHF) satellite communications system, is key to linking the continental United States with forces located overseas in both peace and war. In addition to large fixed terminals, mobile terminals will be available to support Worldwide Military Command and Control System (WWMCCS) requirements and some tactical Service requirements. Two DSCS satellites were launched successfully in May 1977. The space segment now consists of three DSCS II satellites, located over the Atlantic, Western Pacific, and Indian Oceans. Coverage over the Eastern Pacific is being provided temporarily by the NATO IIIB satellite. The demand for DSCS capacity, area coverage, and reliability has established the need for a six satellite space segment of four active satellites and two in-orbit spares. The present plan is to launch two satellites in 1978. To maintain this system until follow-on DSCS satellites are available, four replacement satellites will be needed, and they are currently under procurement. The DSCS III program is being developed to provide greater satellite life and a major increase in jamming protection and communications capacity over the DSCS II satellites. We are requesting $34.2 million in FY 1979 for DSCS III research, development, and launch vehicle integration.

(b) FLTSATCOM will provide communications for tactical forces. Pending launch of the FLTSATCOM space segment, this capability is now provided by the GAPFILLER satellite program, a leased UHF communications service using MARISAT commercial satellites. This leased service provides minimum UHF requirements for Naval Forces and Army nuclear custodial units. Although these commercial satellites provide a vital service, they do not have sufficient data capacity. The FLTSATCOM spacecraft are being procured to meet these needs. The first will be launched in early 1978. Congress has authorized a total of three satellites in the program. A supplemental request for $58.7 million for completion of two additional satellites has been requested for FY 1978. Most Navy ships are equipped to receive the fleet broadcast and, by the end of FY 1978, most Navy ships will have transceivers for ship-to-shore communications. The FLTSATCOM spacecraft will carry a jam-resistant fleet broadcast transponder and a separate transponder for jam-resistant communications with AFSATCOM terminals. A total of $18.4 million in procurement funds has been requested for FY 1979.

(c) The General Purpose Satellite Communications System (GPSCS) is being developed as a follow-on to FLTSATCOM and Air Force tactical needs after 1985. It will be primarily for mobile users and will need to provide jam-resistant communications to ground, shipboard, and airborne users, designated nuclear-capable forces, and the NCA. DoD is investigating the adequacy of leased satellites and satellite services to meet the needs and to provide a smooth transition from FLTSATCOM to GPSCS service as necessary. A total of $8.1 million is being requested in FY 1979 for research and development of advanced technology components required for a government-owned or leased satellite system.

2. Long Haul Communications

The Defense Communications System (DCS) provides United States military forces throughout the world with long haul, common-user voice, data, and teletype services through networks of United States government-owned and commercially leased facilities. In order to support C^3 requirements in high levels of conflict the DCS must become more flexible and interoperable with systems of our NATO allies. Present telecommunications transmission facilities of the DCS, particularly in Europe, consist of equipment which is obsolete and difficult to maintain. There is also a need to secure the major radio links, improve overall operability, and provide adequate interconnection to the DSCS terminals. Specific programs to meet these needs are discussed below.

(a) Digital European Backbone

The Digital European Backbone (DEB) is a program that will upgrade the majority of the existing European DCS transmission network to all digital operations. The present DCS transmission system, using analog techniques, is very inefficient when required to accommodate a large number of digital circuit requirements, and is costly to operate and maintain. The DEB program will establish a major digital transmission system interconnecting U.S. activities in the United Kingdom, Belgium, Germany and Italy.

The DEB is being installed in four stages. Stages I through III will install the backbone portion of the system while Stage IV will provide digital connections from the backbone to most major U.S. base locations. The FY 1979 procurement request in support of this continuing program is $25.9 million.

(b) AUTOSEVOCOM II

FY 1978 Congressional budgetary cuts were made in both RDT&E and procurement for AUTOSEVOCOM II, a global secure voice network. These were due to Congressional concerns about the potential development of two separate secure voice systems, one for DoD and another for non-DoD users. Actions are underway to resolve the Congressional concern.

(c) AUTODIN II

AUTODIN is the principal DoD switched data communications network. The AUTODIN II system will continue development and achieve an initial operational capability in 1979. The system will provide interactive computer communications support and will also provide for connectivity with the current AUTODIN I system. The initial stage of the AUTODIN II program will provide the Department with the ability to meet the majority of the projected long haul data communications needs in CONUS. Its rapid response capability will allow us to eliminate a number of dedicated computer networks as we transition to this new common user system. Finally, it will provide a means for increased information exchange throughout the Department. The Department of Defense has included $17 million in the FY 1979 budget to support AUTODIN II.

3. COMSEC

The DoD Communications Security (COMSEC) program includes all resources devoted to the protection of U.S. Government telecommunications. Our goal is to secure all U.S. Government communications systems which carry traffic of significant intelligence value. This must be done in the face of two major trends in communications. First, the sheer volume of the communications requiring protection grows steadily in more and more widely dispersed locations. Second, the media required to transmit this expanding information are inherently more susceptible to intercept.

E. NATO C^3I Support

Strong emphasis is being placed on the development of interoperability with our NATO allies. The threat to NATO requires responsiveness and coordination of all allied operations. To achieve these objectives requires:

-- Consolidation of command and control systems,

-- Interoperable communications with jam-resistance and security; and

-- Common doctrine and planning.

Initiatives have already been defined and taken in several areas. Others are in various stages of discussion or definition. They include:

1. Tactical Area Communications

Over the past several years, NATO nations agreed to specifications for a device that will allow a limited degree of interoperability among tactical area communications systems. This is a stop-gap approach. More must be done in the interim period, prior to 1995, when nations are expected to field completely interoperable equipment. A major effort will be made to expedite automatic interoperability of U.S. tactical communications systems with those of NATO military commands and NATO nations.

2. Combat Net Radio

In its report to the NATO Ministers in December 1976, the Ad Hoc Committee on Equipment Interoperability recommended measures to insure interoperability of all new radio equipment. The Ministers agreed that all new combat net radio equipment introduced after 1985 should be designed to common specifications or at least to common standards. The U.S. Army, as the lead service, will continue its program to develop SINCGARS-V (See Section C Tactical C^3I) to replace Army and Marine Corps tactical radios and provide anti-jamming capabilities. In the interests of NATO standardization and interoperability, the Army will give full consideration to candidate radios from NATO countries.

3. SATCOM Sharing

The sharing of United States, United Kingdom and NATO SATCOM assets has proved to be extremely beneficial. The United States and United Kingdom have made use of NATO IIIA in the Atlantic area and NATO IIIB in the East Pacific. The United States has also used the UK SKYNET satellite to provide communications for special users. To continue the shared SATCOM systems, it is imperative that the next generation of United States and NATO SATCOM systems be interoperable. Not only will this provide for contingency operations, but it should also be most economic for both the United States and NATO. Common United States and NATO space segments and completely interoperable ground terminals are DoD objectives.

4. NORTHTAG Support

Communications facilities must be provided for the U.S. Brigades 75/76 that are being stationed in Northern Europe. As part of the rationalization program, the Army and Air Force will make use of existing allied communications, e.g., the UK STARRNET. To avoid building duplicate United States systems, the JCS/DCA will investigate both the continued use, including expansion if necessary, of the UK STARRNET and use of the NATO Integrated Communications System.

5. Consolidation of U.S. and NATO Communications Facilities

Consolidation of the Supreme Allied Commander, Atlantic (SACLANT) and U.S. Communications centers in the Norfolk area will be completed in 1978. Planning and programming for automatic interconnection of the U.S. AUTODIN and NATO TARE record traffic systems, and of the U.S. AUTOVON and NATO IVSN switched voice systems should be completed in 1978. U.S. procurement of more multiplex equipment for the NATO CIP-67 system will provide links for U.S. transmission requirements in the NATO system at lower cost. These and similar projects will provide added reliability and survivability for U.S. and NATO communications. We will press for the adoption of a NATO policy that will permit the automatic interconnection of national and NATO switched communications systems.

6. NATO C^3 Long-Term Defense Program

In May of 1977, President Carter sought, and obtained, an alliance agreement to improve NATO's defense capabilities through a number of short-term and long-term initiatives. One of the areas that the Alliance agreed to include in the intensive effort is C^3. We are providing information and developing programs in C^3 as candidates for inclusion in the long-term planning for Allied C^3 in Europe.

7. Other Improvement Areas

Additional improvements in NATO's command and control and intelligence posture have been initiated during the past year and are in various stages of completion. These improvements will result in upgraded and expanded command, control and information processing capabilities throughout the Allied Command Europe.

Table IV-1

Acquisition Costs of Major Command, Control, Communications and Intelligence (C^3I) Modernization and Improvement Programs 1/
(Dollars in Millions)

	FY 1977 Actual Funding	FY 1978 Planned Funding	FY 1979 Prop'd Funding	FY 1980 Prop'd for Authorization
Command, Control & Communications				
Development and Procurement of the E-4 Advanced Airborne Command Post (AABNCP)	88.7	65.8	33.0	154.8
Development and Procurement of Satellite Communications Systems (DSCS, AFSATCOM, FLTSATCOM, SSS)	373.8	276.0	200.1	328.1
Development of ELF Communication System	14.8	15.0	40.5	31.7
Acquisition and Modification of TACAMO Aircraft	14.1	30.6	60.5	32.8
Improvements to Digital European Backbone (DEB)	15.3	12.1	29.1	26.2

1/ This table includes the cost of RDT&E, procurement of the system and initial spares, and directly related military construction.

CHAPTER V

RESEARCH, DEVELOPMENT AND SYSTEMS PROCUREMENT

I. RESEARCH, DEVELOPMENT, TEST AND EVALUATION (RDT&E)

The FY 1979 Department of Defense budget request for RDT&E of $12.5 billion reflects our growing conviction that we must reverse the erosion of the technological and development lead the United States has had over the Soviet Union. During this past year, the debate has shifted from whether or not our quality lead has eroded, to how bad is the erosion and what corrective actions must be taken.

Table V-1

Consolidated RDT&E Budget

	Fiscal Year (Millions of Current Dollars)	
	1978	1979
Science & Technology Program	$2,284	$2,593
Strategic Development	2,536	2,178
Tactical Development	4,383	5,051
Command, Control, & Communications & Intelligence Development (C^3I)	828	1,095
Defense-Wide Mission Support & Management	1,382	1,551
RDT&E Total	$11,413	$12,468

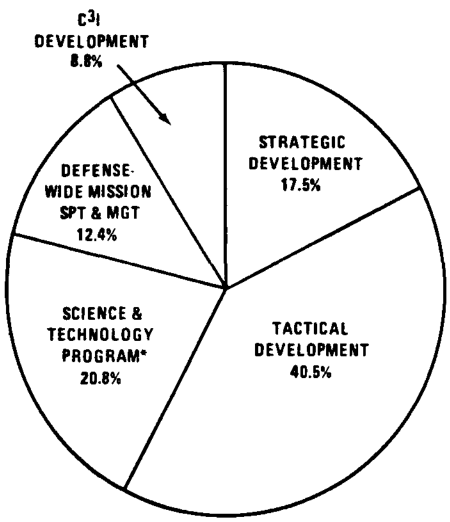
While the overall FY 1979 RDT&E budget request shows three percent real growth over FY 1978, critical mission and technology areas within that request show much higher growth rates. These are the areas where we believe that aggressive action can begin to offset the aforementioned erosion in our relative military R&D position.

Two critical areas are Research and Advanced Technology (Science and Technology) and C^3I related to NATO and tactical warfare programs. The NATO initiatives are critical with respect to the near-term objective of ensuring that the NATO deterrent to a Warsaw Pact attack remains credible.

Throughout the FY 1979 budget preparation cycle, emphasis has been given to identifying deficiencies within these critical missions/technologies and developing program packages which address the total problem.

Chart V-1

DISTRIBUTION OF FY 1979 RDT&E FUNDING BY MISSION AREA



*INCLUDES ADVANCED TECHNOLOGY DEMONSTRATIONS

To further highlight the mission/technology aspects of the FY 1979 budget request, the R&D program is consolidated along the following lines:

A. The Science and Technology Program

The S&T Program, also known as Research and Advanced Technology encompasses many scientific and engineering disciplines. The objective is to advance the state of a broad spectrum of technologies which may be applicable to future military needs and prevent technological surprise. The S&T Program is balanced between near and long-term projects in order to maintain our technological superiority over potential adversaries.

As such, this activity does not relate directly to current systems acquisition programs, but will provide the technology base for systems to be developed in the early 1980s and fielded in the late 1980s and early 1990s.

B. Strategic Development

Research and Development in this mission area is directed toward:

(1) Maintaining our retaliatory capability after a Soviet first strike on our forces.

(2) Assuring the credibility of strategic deterrence through reliable warning.

(3) Retaining the flexibility to respond to particular Soviet attacks, and to changes in Soviet capabilities.

(4) Hedging against unexpected Soviet developments that may threaten the future strategic balance.

C. Tactical Development

Great R&D emphasis is being placed on modernization of our general purpose forces. Top priority is placed on improving our ability to counter a major Warsaw Pact attack in Europe and maintain control of the sea lines of communication to potential combat areas. In order to accomplish this most effectively, we should make better use of the R&D capabilities of our allies. A broad set of cooperative R&D programs are therefore included in the FY 1979 tactical R&D program.

In addition to the need to improve our capabilities relative to the Warsaw Pact, our programs reflect our commitment to deter aggression against United States interests on a worldwide basis.

D. Command, Control, Communications, and Intelligence (C^3I) Development

The FY 1979 Research and Development program for C^3I is directed toward three fundamental objectives. First, ensuring that the United States continues to improve its ability to assess the military capabilities of our potential enemies.

Second, maintain a strategic warning capability which continues to reduce significant uncertainties in estimates of a military situation and provide better intelligence to tactical commanders. Support for the tactical commander includes the development of surveillance and target acquisition systems which provide high quality and timely information for immediate battlefield use.

Third, significantly improve the survivability and interoperability of our global and tactical C^3 systems, not only within the United States force structure, but with our NATO allies as well.

E. Defense-Wide Mission Support and Management

Research and Development within this category is aimed at providing program-wide support over a wide range of functional activities.

Defense-wide mission support includes space, environmental, training device, medical, and life support system development. Major effort is underway to develop a more flexible and effective space deployment capability at reduced cost, as well as to provide an advanced technology base for future space exploration operations.

Technology integration includes a variety of studies and analyses related to such topics as force levels, arms negotiations, export policy and manpower.

Over half the funds expended in Mission Support and Management are devoted to Test and Evaluation Support. This activity ensures that adequate test facilities and personnel are available to evaluate the performance of new weapon systems. This is a critical function in the systems acquisition process and will continue to receive emphasis in FY 1979.

In addition, many international cooperative R&D activities are identified with this category although the management and direction comes from other areas, particularly Tactical Development.

II. SCIENCE AND TECHNOLOGY PROGRAM

A. Objectives

The Science and Technology (S&T) Program is that portion of the Department of Defense's Research, Development, Test and Evaluation program that provides the foundation for maintaining United States technological superiority. Projects in the S&T Program will be the origin of most of our capability in new weapons, military air and surface vehicles, advanced communications and computation devices, improved training, medical and environmental forecasting techniques. The S&T Program provides us with technological options for the solution of future critical military problems.

B. Description

The S&T Program consists of research, exploratory development, and advanced technology demonstrations. In the past several years, the Department of Defense has increased its emphasis on the S&T Program.

Science and Technology projects cover a wide spectrum of science and engineering specialities. The purpose of the S&T Program is to insure that DoD's mission requirements are understood by the science and engineering community and that efforts are focused on resolving science and engineering problems. The resources of DoD laboratories, the academic community and industrial laboratories are all utilized by this program in order to maintain our technological edge.

These projects are oriented heavily toward the physical and engineering sciences but also include significant activity in environmental sciences and human resources. Major subdivisions of the S&T program are Engineering Technology, Electronics and Physical Sciences, Environmental and Life Sciences, Advanced Research Projects, and Nuclear Effects.

1. Engineering Technology

a. Objectives

These S&T Programs develop new ideas, techniques and criteria for the design and development of military helicopters and fixed-wing aircraft; ships and submarines; tanks and combat vehicles; missiles and space vehicles; torpedoes and undersea mines; and, guns, bombs, land mines and mine countermeasures.

b. Representative FY 1979 Programs

(1) Development of dramatically improved technology for advanced fighter aircraft resulting in greater maneuverability and weapons effectiveness.

(2) Demonstration of better structural durability in aircraft engines, resulting in increased performance, reliability, and lower life cycle cost. Lower fuel consumption is also a major target.

(3) Tests of two radically different helicopter concepts which are joint programs among the Military Services and with NASA. Both of these concepts -- the Advancing Blade Concept and the Tilt Rotor Concept -- promise to result in a major improvement in helicopter performance, reliability and flexibility.

(4) Development and application of terminal guidance systems to seek out and destroy targets, day or night, utilizing missiles launched in a "fire and forget" mode. Development of sensor systems able to identify and lock on to targets against a cluttered background, haze, precipitation, and smoke.

(5) Research and development of an Advanced 155mm Self-Propelled Howitzer concept, revolutionary in design, which promises major improvements in operational effectiveness over presently fielded artillery. This weapon will introduce faster recoil cycle time, higher rate-of-fire, automatic ammunition handling, loading and resupply, and automated position location and weapon alignment.

(6) Exploration under field testing conditions of the contributions that new kinds of armored land combat vehicles can make to countering the Soviet threat, and the development of advanced components which will make those vehicle concepts that show the most promise a reality.

(7) Development of high energy lasers for potential military application including the defense of ships, aircraft and valuable ground targets.

2. Electronics and Physical Sciences

a. Objectives

These S&T Programs are concerned with technologies relating to Search, Target Acquisition, Fire Control, Command and Control and Information Processing. In addition to these mission-oriented areas, generic programs in Electronic Sciences and Electronic Warfare are undertaken. The functions to be performed include night vision, undersea acoustics, range determination, identification of objects and position location. Also, there is a modest technology program in charged particle beams.

b. Representative FY 1979 Programs

(1) Testing of multi-wavelength detectors plus novel signal processing techniques to reduce false alarm rates for infrared search and track sets for ships under radar silence.

(2) Development of acoustic detection processing in order to greatly reduce errors in locating submarines.

(3) Development of mini-remotely piloted vehicles (RPVs) to perform battlefield functions without exposing our soldiers to enemy

fire. Safe and accurate landings and preset navigation techniques have been demonstrated.

(4) Development of fiber-optics for communications links in aircraft, ships and ground command posts in order to greatly increase capacity and reduce size and weight.

(5) Investigation and testing of techniques to counter monopulse radars, which are particularly difficult to jam.

3. Environmental and Life Sciences

a. Objectives

These S&T Programs are concerned with the understanding, description, and prediction of the physics of the land, atmosphere, oceans, and space, as well as the reduction of pollution associated with DoD activities. This technology is critical to improved performance of surveillance, communications, navigation, and guided weapons systems. The technology includes weather, terrain and ocean forecasting for tactical support. The Life Sciences programs are concerned with technologies relating to human resource needs of the military. Manpower is the Department's largest single cost ($60 billion in FY 1978). The program is concerned with acquisition of personnel, military health problems, protection, training and general support of the men and women who make up our armed forces.

b. Representative FY 1979 Programs

(1) Understanding the effects of the atmosphere on optical propagation to develop designs for surveillance devices, guided weapons, and laser systems.

(2) Extending and improving weather, ocean and climate forecasting for military planning, deployment and operations.

(3) Improving acoustic submarine detection performance and developing other means of detection.

(4) Investigation and development of training devices and simulators to improve the effectiveness of personnel, reduce costs and conserve energy resources.

(5) Development of medical techniques and procedures to improve the capability of our forces. These include military preventive medicine and combat casualty care.

(6) Testing and development of protective equipment and decontamination procedures for the protection of personnel potentially exposed to chemical warfare.

(7) Development of vaccines and other prophylaxis against endemic combat zone diseases.

(8) Development of toxicology and health effects data to assess chronic hazards, develop standards and criteria for munitions manufacture and electromagnetic effects on military equipment.

4. The Defense Advanced Research Projects Agency (DARPA)

a. Objectives

DARPA's role in the Department of Defense is to explore the "leading edge" of research and development in order to prevent technological surprise by concentrating research in areas of high-risk and payoff. The DARPA technology base program is structured in ten major areas, each of which consists of new and ongoing technical developments.

b. Representative FY 1979 Programs

(1) Space Defense

Development of critical technologies required to demonstrate the feasibility of laser systems for space-related applications. This includes high efficiency infrared chemical lasers; large space optics, pointing and tracking systems.

(2) Space Surveillance

Development of passive and active techniques for target detection and tracking to improve our space surveillance capability. This includes the development of sensor technologies which will greatly increase the sensitivity of present sensors.

(3) Cruise Missile Technologies

Develop vehicle-related technologies to improve homing accuracy, allow greater payload, and improve the survivability of future cruise missiles.

(4) Anti-Submarine Warfare

Develop the technologies to detect and track the relatively weak acoustic signals associated with future Soviet nuclear-powered submarines and explore the possibility of non-acoustic submarine signatures.

(5) Land Combat

Investigate new lightweight armored vehicle concepts and develop a new 75mm rapid-fire anti-tank cannon.

(6) Air Vehicles and Weapons

Explore several innovative concepts such as the X-Wing Aircraft which combines the advantages of the vertical take-off and landing performance of a helicopter with the high subsonic speed of fixed-wing aircraft, and the Forward Swept Wing Aircraft which should increase selected performance factors and decrease the cost of production.

(7) Command, Control and Communications

Develop advanced technologies in computer communications, secure message and information systems, crisis management and human factors in C^3 and utilize a test-bed approach for evaluating these emerging technologies before a decision to use them is made.

(8) Lower Defense Costs

Continue development in the areas of ceramic turbines which offer the potential for a revolutionary breakthrough in cost and performance; quantitative non-destructive testing; integrated circuit design and life extension; and reducing defense procurement costs through improved manufacturing methods.

(9) Nuclear Monitoring Research

Develop sensors and analyses associated with verifying compliance with the Comprehensive Test Ban, Threshold Test Ban and associated Peaceful Nuclear Explosions Treaties.

(10) Technology Initiatives and Seed Efforts

Programs in this category include efforts to: validate that Low Probability of Intercept (LPI) features can be integrated into modern fire control systems without sacrificing target detection; link bio-cybernetics technology to computer-based training and flight simulators; and develop a compound semi-conductor process technology that will make possible integrated circuits that far surpass existing silicon-based circuits.

5. Nuclear Effects

a. Objectives

This S&T Program is concerned with providing nuclear effects information required to design weapons systems, forces and installations, and develop doctrine. Included are security of nuclear forces, high explosive tests, simulations, a nuclear weapons effects data base and underground nuclear tests. The program is administered by the Defense Nuclear Agency.

b. Representative FY 1979 Programs

(1) Reduce our dependence on underground nuclear tests for the assurance of survival of strategic weapon systems and satellites.

(2) Provide technology to harden reentry electronics, other flight vehicle materiel and structures, underground installations, and communications transmission systems.

(3) Conduct a variety of tests, including underground nuclear tests and simulations using high explosives, required by the military services, Defense Agencies and Department of Energy for weapon and C^3 system development.

(4) Improve the survivability, accuracy and effectiveness of theater nuclear forces through technological and operational improvements.

C. Summary

The United States now has a lead in many S&T areas over its potential adversaries. However, the Soviets are heavily emphasizing science and engineering for military uses and have deployed large quantities of good military hardware. Furthermore, the Soviets are aware of their technology deficiency and are working hard to overcome our advantages. We can maintain our lead by enhancing our S&T efforts.

The Department plans to provide for continued real growth in the S&T Program to overcome effects of the "lean" Vietnam war years to insure that we have long-term options for the solution of national security problems. We will continue to use a mix of government laboratories, industry and universities to execute the S&T program. However, we intend to place additional emphasis on the university program in order to take greater advantage of the innovative potential in this sector. In summary, we believe it is prudent to concentrate on having an innovative, productive, and adequately funded S&T program during peace and non-crisis times in order to provide technology options for future anticipated needs.

III. STRATEGIC PROGRAMS

A. Strategic Offense

1. Objectives

To continue development programs for each of the TRIAD elements which insure their viability to support national security objectives, and demonstrate options for force improvements.

2. Deficiencies and Limitations

The deficiencies/limitations in meeting the above objectives are:

(a) Prelaunch vulnerability -- SLBM threat to bombers and cruise missile carriers, ICBM threat to fixed-based ICBM's and potential ASW threats to SLBM's.

(b) Penetrativity -- principally as it concerns air breathing systems, and potentially to missiles in the event of a Soviet ABM breakthrough or breakout.

(c) Targeting flexibility -- limited second strike capability to attack hard targets.

3. Programs

a. ICBM's

The ICBM accuracy program has been completed and will be introduced this year into the MINUTEMAN III force. The development of the MK-12A reentry vehicle is continuing, with an expected Initial Operating Capability (IOC) in early 1980. One approach to the problem of the increasing vulnerability of fixed-based ICBM's is to continue advanced development of MX, with the option of achieving ICBM survivability through a combination of concealment and mobility. A 1986 IOC could be achieved if full-scale development were initiated in FY 1979. Such a decision may be possible during FY 1978. Supplemental FY 1979 funding could then be required.

b. SLBM's

Development of the TRIDENT I missile nears completion. Deployment in POSEIDON SSBN's will commence in late 1979, with TRIDENT submarine deployment beginning in 1981. TRIDENT II funding continues at a level of $15.0 million in support of the concept definition effort initiated in FY 1978. Major efforts continue in FY 1979 for the SLBM Improved Accuracy Program and for other systems improvements. We will also continue efforts in investigation and assessment of possible ASW threats.

c. Air Breathing Systems

(1) Bombers -- The B-1 research and development program will be continued. Aircraft number 4 will complete our need for research, development and testing on this aircraft. Defensive avionics, will be emphasized in its testing. Substantial efforts will be devoted to B-52 cruise missile and avionics modifications.

(2) Cruise Missiles -- Development will be continued with primary emphasis on competitive development for an air-launched cruise missile. Anti-ship and land-attack sea-based cruise missiles and ground-launched cruise missile development will continue. Preliminary testing followed by more intensive investigations will be conducted to determine vulnerabilities which might be exploited by an opponent. Prototype demonstration of a wide-body jet cruise missile carrier is planned.

B. Strategic Defense

1. Objectives

To maintain the technology in defensive systems to reduce the possibility of technological surprise; to provide defensive options to protect strategic forces, satellite systems, and command and control systems; and to provide a surveillance and warning network to detect and characterize hostile actions by aircraft, missiles and spacecraft.

2. Deficiencies and Limitations

We have deficiencies or limitations in meeting these objectives because:

(a) Technological constraints, codified in the ABM treaty, have made it infeasible to defend the CONUS against missiles. The lack of ABM defense has justified in part a reduction in our defenses against aircraft;

(b) Our surveillance and warning networks do not yet provide complete coverage against possible attacks by bombers and SLBMs, or against attacks on our satellites by space systems of potential adversaries;

(c) Our ability to defend against hostile actions in space is in military terms marginal;

(d) We do not now possess an ability to attack hostile space systems.

3. Programs

a. Ballistic Missile Defense (BMD)

We will continue, at a constant real program level of effort, our BMD R&D programs. Although our research and development effort has given us a technological advantage in this area, we are concerned that persistent Soviet efforts may seriously erode this lead.

b. Air Defense

FY 1979 efforts will emphasize continued development of the CONUS Over-the-Horizon Backscatter (OTH-B) Radar, the Joint Surveillance System (JSS) (to replace the expensive SAGE/BUIC system), an economical replacement for the DEW line and the investigation of spaceborne aircraft detection systems.

c. Space Defense

Development efforts include:

(1) improved means for locating, tracking and identifying objects in space;

(2) enhancement of satellite systems survivability; and

(3) anti-satellite (ASAT) systems for attack, if required, of threatening spacecraft.

IV. TACTICAL PROGRAMS

The main objective of our tactical warfare program is to improve our forces which, in conjunction with our allies, maintain the balance in Central Europe and protect the sea lines of communication.

A. Theater Nuclear Forces (TNF)

Included in the FY 1979 program are developments of artillery-fired atomic projectiles, PERSHING II. There is emphasis in FY 1979 on survivability and security of theater nuclear weapon storage facilities, particularly those sites outside CONUS. This effort will not only identify potential threats but also define countermeasures against them.

Although related to tactical warfare, the development of these forces is budgeted under strategic programs.

B. Land Warfare

1. Objectives

In land warfare our efforts have a strong NATO orientation, including programs which enhance weapon interoperability and compatibility with our NATO allies.

Land Warfare includes the mission areas of Battlefield Surveillance, Close Combat, Fire Support, Field Army Air Defense, Amphibious and Special Warfare and Land Mine Warfare; the discussion of the RDT&E program and funding for Battlefield Surveillance is found in the C^3I chapter.

2. Deficiencies and Limitations

The major deficiencies/limitations in meeting the above objectives include our:

(a) Limited capability to destroy heavily defended and armored targets.

(b) Limited capability to respond to a surprise attack with a heavy concentration of firepower.

(c) Limited ability to locate, identify and designate targets at long ranges in order to use precision guided weapons effectively. Such target acquisition systems must operate at night, in poor weather and must provide target data to firing units within a few minutes of detection.

(d) Inadequate counter-battery capability.

(e) Marginal survivability, low mobility and inadequate firepower of current armored vehicles.

(f) Marginal survivability, target acquisition, adverse weather capability, and lack of an effective fire and forget capability of present attack helicopters.

(g) Current low altitude air defense systems are effective only under daylight conditions, medium and high altitude systems are vulnerable to electronic countermeasures. All systems possess insufficient firepower.

(h) Limited ability to dispense area denial munitions rapidly and to clear enemy mines.

3. Programs

a. Armored Targets

Our present precision battlefield weapons include TOW and DRAGON, which have limitations. To correct the deficiencies, we are developing a number of new systems such as:

(1) The HELLFIRE heliborne laser guided missile, a very accurate guided weapon that will defeat present and expected enemy armor.

(2) The COPPERHEAD 155mm guided artillery projectile employing laser guidance to attack tanks and other armored vehicles.

(3) The General Support Rocket System (GSRS) which augments cannon artillery at ranges in excess of 30 km; alternate warheads (land mine and terminally guided sub-munitions) provide capabilities against armor.

b. Target Acquisition

We must have the capability to locate, identify and designate targets at long ranges in order to employ precision guided weapons such as HELLFIRE, COPPERHEAD, and GSRS effectively. Such target acquisition systems must operate in poor weather, at night and must be able to report target locations to firing units within a few minutes of detection. Our present method of using forward observers, scout and reconnaissance units is unsatisfactory. Systems under development to minimize current deficiencies are discussed in the C^3I chapter.

c. Armored Vehicles

The M60 tank and the M113 Armored Personnel Carrier (APC), are approaching obsolescence. Under development are:

(1) The XM-1 tank which will include a special armor superior to present tank materials. It will have a main gun capable of defeating enemy armored vehicles and possess vastly improved mobility.

(2) We have decided not to proceed at this time with procurement of the Infantry Fighting Vehicle (IFV). The concept is currently under review.

(3) The Landing Vehicle Assault (LVA) will provide highly mobile, protected transportation and fire support for surface assault forces during amphibious operations and subsequent operations ashore.

d. Attack Helicopters

The new Advanced Attack Helicopter (AAH) would represent a major improvement over the currently deployed COBRA. It is designed with features to enable it to withstand enemy 23mm weapon fire, perform at night and in bad weather utilizing integral night vision equipment. With its Target Acquisition and Designation System (TADS) package, it would have the ability to locate and designate targets automatically for its HELLFIRE missile.

e. Air Defense

The current NIKE HERCULES, IMPROVED HAWK, and CHAPARRAL missile systems, and the VULCAN gun do not meet foreseen requirements. To correct these deficiencies there is in development a replacement system for each of the currently deployed systems:

(1) PATRIOT with its greatly increased Electronic Counter Counter-Measures (ECCM) and simultaneous engagement capabilities is planned to replace NIKE HERCULES and IMPROVED HAWK.

(2) ROLAND will replace the fair-weather, daylight CHAPARRAL system and provide an adverse weather capability.

(3) The new Division Air Defense Gun System (DIVADS) will replace the fair-weather, daylight, short-range, unarmored VULCAN system with an all-weather, armored air defense gun for use in the forward edge of the battle area (FEBA).

f. Mines

Significant developments to offset our present mine dispersal and mine clearing deficiencies include:

(1) Mine dispersal systems such as the artillery delivered Remote Anti-Armor Mine System (RAAMS) deployable with all 155mm howitzers, and the Ground Emplaced Mine Scattering System (GEMSS).

(2) Minefield clearing system such as the Surface-Launched Unit Fuel Air Explosive (SLUFAE) and an advanced tank-mounted roller.

C. Air Warfare

1. Objectives

To prosecute development programs for systems capable of defending high-value fixed assets, including naval forces, from enemy air strikes; defeating enemy fighter aircraft in contested air space germane to the surface battle; interdicting the battlefield including second echelon forces; providing close air support to friendly forces; and suppressing enemy air defenses to the degree necessary to be effective in the above tasks.

2. Deficiencies and Limitations

Our most pressing deficiencies in this mission area are:

(a) Limited ability to provide effective close air support and to attack Pact forces at night or in the poor visibility and low ceilings common to the European theater.

(b) Limited capability of our aircraft to counter low altitude formations of attacking enemy aircraft, and

(c) Inadequate capability to avoid or suppress enemy air defenses.

(d) Inadequate ability to endure air attacks on our operating bases.

3. Programs

a. Interdiction

To improve our capability to attack Pact airfields and other second echelon targets, we are developing surface-to-surface missile strike alternatives. Efforts underway include:

(1) Modernization of the deployed PERSHING I missile system with a new terminally guided reentry vehicle for improved accuracy; the development of a Conventional Airfield Attack Missile (CAAM) which is designed to attack Pact main operating bases with a conventional warhead; and demonstration of a joint U.S./NATO Battlefield Attack Missile for use against Pact armored forces.

(2) To enhance our ability to exploit low-altitude combat aircraft tactics, we are funding the joint U.S./UK development of the JP-233 Low Altitude Airfield Attack System to develop munitions and associated dispensers for low-level high-speed attacks on a target. In addition, development has begun on a family of direct attack area munitions, dispensers, warheads and guidance systems in the Advanced Attack Weapons program. These weapons will complement the Precision Guided Munitions in the anti-armor role, and could be employed by aircraft flying at minimum altitudes. Other joint U.S./NATO R&D programs are planned which will improve the interdiction capability of NATO forces by providing for NATO-wide cross servicing of aircraft, interchangeability of munitions, including anti-armor gun pods and equipment to enhance night attack capability.

b. Defense Against Low-Flying Aircraft

To improve our capability to counter attacking aircraft and to secure air superiority over the battle area, the FY 1979 budget includes funds for development of the lower cost aircraft, the F-18 and the F-16, of the Hi-Lo mix concept. This concept allows for a given level of procurement funding to field a greater number of aircraft in order to counter the disparity in NATO/Pact aircraft numbers.

(1) The F-16 is a cooperative program with four other NATO allies for development of a low-cost multi-purpose aircraft to complement the more sophisticated F-15 in the air-to-air role, and supplement the F-4, F-111, and A-10 in the air-to-surface role. The F-18 is the Navy's lower-cost complement to the F-14 fighter. It will replace the Navy and Marine Corps F-4s while the attack variant, the A-18, will replace the Navy's A-7s. All variants of the F-18 have a common airframe and engine, enhancing the multi-mission capability of the air wing, and reducing the maintenance and supply equipment required aboard ship.

(2) These aircraft will be joined by the new generation of air-to-air missiles. Our current missiles, the AIM-7F SPARROW and the AIM-54 PHOENIX, suffer from excess weight, cost and complexity. A new radar-guided Beyond Visual Range (BVR) missile is being developed. It will be smaller, lighter and more effective than our current missiles. As an interim substitute for the BVR, the R&D program includes funds to evaluate the UK-developed SKYFLASH air-to-air missile for possible adaptation on our fighters.

(3) To counter enemy aircraft which are beyond the effective gun range of our fighters, we are developing the Within Visual Range (WVR) "dogfighting" missile. This joint Navy/Air Force program combines the results of several technology-related programs and studies.

c. Air Defense Suppression

To improve our capability to suppress enemy air defenses, we are developing both lethal (munitions) and non-lethal (jamming) countermeasures.

(1) Development of the High Speed Anti-Radiation Missile (HARM) and the GBU-15 will enhance the munitions side of the equation. The HARM is a joint Navy/Air Force program to develop a high-speed air-launched missile to destroy enemy defense radars. The GBU-15 is a modular electro-optically or command-guided device which, when combined with airborne-emitter locators, navigation aids, data links and a ground-based central data processing system of the Precision Location Strike System (PLSS), will greatly enhance our air defense suppression capability.

(2) Non-lethal air defense countermeasures are exemplified by programs such as the development of the EF-111A to replace the EB-57. The new system will be able to jam more enemy radars and deny him radar surveillance of our strike aircraft.

D. Sea Control

1. Objectives

Sea Control includes programs which improve our capabilities to maintain control of the seas; protect essential shipping; and enable us to conduct necessary military operations. Sea Control includes the mission areas of Multipurpose Naval Systems, Surface Ocean Surveillance and Targeting, Undersea Surveillance, Anti-Air Warfare, Anti-Surface Warfare, Anti-Submarine Warfare and Naval Mine Warfare.

2. Deficiencies and Limitations

The major Sea Control deficiencies and limitations include:

(a) The capability to detect, track, and destroy Soviet submarine forces once they reach the open sea.

(b) Our capability to detect, track, and destroy long-range anti-ship aircraft.

(c) The capability to keep accurate track of Soviet surface combatants.

(d) Our capability to neutralize naval mines.

(e) The vulnerability of our naval surface forces to nuclear and high-intensity conventional attack owing to their concentration, detectability, low mobility, and defensive system limitations.

(f) The high cost of acquiring, operating, and manning our naval forces.

3. Programs

The major programs included in our FY 1979 R&D budget to alleviate these deficiencies are described below.

a. Surveillance and Targeting

Programs which alleviate shortcomings in this area, both surface and undersea, are discussed in the C^3I chapter of this Report.

b. Submarine Threat

Efforts which enhance our present capability to counter the Soviet submarine threat include:

(1) Continuing acquisition and improvement of our two principal anti-submarine warfare (ASW) vehicles, land-based patrol aircraft and nuclear attack submarines, which not only strengthen our capabilities to respond to surveillance contacts, but also will provide a measure of surveillance-independent ASW capability.

(2) The LAMPS MK III anti-submarine helicopter will give our surface ships the capability to act as effective point defenses against submarines.

(3) Deployment of MK 46 Near-term Improvement Program (NEARTIP) torpedoes will give our air and surface forces an effective anti-submarine weapon while development of more advanced weapons will hedge against future threats.

(4) Development and production of a family of mines (Incapsulated Torpedo (CAPTOR), Propelled Rocket Ascent Mine (PRAM), QUICKSTRIKE) will give us a limited but very cost/effective way to counter submarines in suitable situations.

c. Airborne Anti-Ship Threat

The BACKFIRE and BADGER bombers are the primary airborne anti-ship threat. Carrier-based E-2C and F-14A aircraft, now in procurement, will give protection to carrier task groups against light to moderate raids and exact attrition against heavier raids. Improvements and follow-on programs (including V/STOL aircraft) to these aircraft and their weapon systems are continuing. Additionally, cost/effectiveness studies of long-range land-based aircraft for defense against anti-ship air attack in areas beyond the fighter range of our carriers are being initiated.

d. Tracking Surface Ships

A variety of improvements to command, control, and communications systems will give our operational commanders quicker access to data on Soviet ship movements for more effective decision-making and weapons targeting.

e. Vulnerability of Our Surface Forces

The vulnerability of our surface naval forces to nuclear and high-intensity conventional attack is being corrected by:

(1) Introduction of the AEGIS weapon system, on the new DDG-47 class destroyers and CGN-42 class nuclear cruisers, will greatly strengthen the fleet's ability to defeat saturation missile attacks.

(2) Development of a variety of missile and fire control system improvements, including a vertical launch capability which is expected to increase launcher reliability.

(3) Deployment of self-defense systems, including the Close-In Weapon System (PHALANX), NATO SEA SPARROW, the Anti-Ship Missile Defense (ASMD) missile, and the Shipboard Intermediate Range Combat System (SIRCS) now in development to protect individual high-value ships against light attacks and to help take care of "leakage" through area defenses in saturation attacks.

(4) Improvements in chaff, infrared decoys and electronic warfare equipment as well as correcting deficiencies in data storage and transfer systems, will strengthen our electronic warfare and C^3 posture.

(5) Development of V/STOL aircraft which could lead to a reduction in surface fleet concentration and vulnerability.

f. Neutralization of Mines

Development of a new family of airborne (helicopter-towed) mine hunting and sweeping systems will strengthen our capabilities to neutralize shallow-water mines. The development of new surface ship mine hunting and sweeping systems and the procurement of new mine countermeasures (MCM) ships will improve our deep water MCM capabilities.

g. Costs

We are seeking ways to cut the acquisition and support (operating and maintenance) costs of our weapons systems. A variety of materials, systems, and processes now under development and in procurement promise to bring savings in ship operating costs and manpower. Application of advanced technology in submarine machinery (other than reactors) offers further promise of more capability per dollar in our submarine fleet.

E. Combat Support

1. Objectives

To develop and acquire systems which provide rapid deployment capability of personnel and material, responsive logistics support to operating forces, physical security of sensitive Department of Defense assets, and to deter the use of chemical/biological warfare.

Combat Support includes the mission areas of Airlift/Mobility, Logistics/General Combat Support, Tactical Communications, Tactical Combat Integration, Electronic Warfare and Counter-Command, Control and Communications (EW and CC^3), Navigation, Positioning, Physical Security, Aircraft Survivability and CB Defense/Chemical Warfare. For the purposes of this report, the programs discussed in this section apply only to the mission areas of Aircraft/Mobility, Logistics/General Combat Support, Physical Security, Aircraft Survivability and CB Defense/Chemical Warfare. Descriptions and resources of the remaining Combat Support mission areas are contained in other sections of this report.

2. Deficiencies and Limitations

Major deficiencies in meeting our objectives in this mission area are:

(a) The effects of aging on our tactical and strategic airlift fleets.

(b) The limited capability of our present manpower-intensive physical security systems to resist sabotage and infiltration.

(c) Improved intelligence information has validated the chemical warfare (CW) threat. The vulnerability of United States equipment to CW attack and limitations on modernization of the U.S. CW retaliatory capability have resulted in a reduced deterrent stockpile. Procurement support for chemical warfare protective equipment is now improved. However, adequate quantities of all items will not be available until the early 1980s.

3. <u>FY 1979 Programs</u>

FY 1979 R&D efforts to minimize our deficiencies include:

a. <u>Airlift</u>

To prevent the effects of obsolescence in our airlift fleet, the FY 1979 budget request provides for modernization of the Army's CH-47 medium lift helicopter and the Marine Corps CH-53 heavy logistics helicopters to give them improved reliability, maintainability and extended life. Also, final development is being completed on the Army's BLACK HAWK (formerly UTTAS) utility helicopter which will enter inventory in late 1979. Modernization programs for the C-5A wing will extend the life of that aircraft to 30,000 flight hours.

b. <u>Physical Security</u>

The FY 1979 budget provides for the design of standardized interior and exterior segments which will improve existing systems and integrate military and commercial security devices now in use.

c. <u>Logistics</u>

Numerous other R&D efforts are funded in FY 1979 which improve a great number of smaller, less significant areas of logistics support.

4. <u>CB Defense/Chemical Warfare</u>

Principal developments include: individual and collective protective equipment, improved prophylaxis and therapy, reliable chemical and biological agent detection and warning devices, improved non-corrosive decontamination materials and techniques, simulant materials for improved training and testing, and further development of binary munitions items to modernize the present retaliatory stockpile.

V. INTERNATIONAL COOPERATION

The main thrust that characterizes the FY 1979 RDT&E budget is improving the capability of our conventional forces in Europe. There is a particular focus on strengthening the NATO alliance through rationalization, standardization and interoperability efforts. Many on-going R&D programs, such as the joint F-16 development, involve one or more of our NATO allies.

In addition, the FY 1979 budget request contains $70.4 million which, in addition to augmenting funds for some on-going programs, specifically initiates additional efforts in all Tactical Warfare mission areas. Funds are provided to:

(1) Rationalize a NATO requirement for the Advanced Scout Helicopter;

(2) Fabricate and test the Advanced Anti-Armor Vehicle;

(3) Pursue possible co-production of the Advanced Heavy Anti-Tank Missile System (AHAMS) with the Allies;

(4) Test the Canadian CL-227 rotary wing RPV;

(5) Participate in a study to define the Battlefield Anti-Radiation Missile;

(6) Participate in the Battlefield Attack Missile development;

(7) Cross-service Navy and Air Force aircraft at NATO bases, and

(8) Pursue development of a common package of air-to-ground munitions.

VI. DEFENSE-WIDE MISSION SUPPORT AND MANAGEMENT PROGRAMS

A. Defense-Wide Mission Support

1. Objectives

a. To develop a more flexible, effective space deployment capability at reduced cost, and provide an advanced technology base for future space exploration operations.

b. To provide global military environmental support for use in developing and employing military forces and systems. Major program goals are to upgrade environmental support, particularly navigation and geodetic accuracy for strategic systems, and to provide improved real-time weather and ocean forecasting capability to support tactical decisions.

c. To develop, test and evaluate training devices and simulators to provide cost/effective training, conservation of fuel and maintenance, reduced consumption of ammunition in practice firing and increased safety in training, reduced cost of capital investment in training equipment, and training in the operation of new weapon systems.

d. To develop and improve aircrew life support systems to allow operations under stress and extreme environments, develop safe escape and recovery systems for aircrews, develop and standardize individual combat protective clothing and personal equipment, and to improve or develop field food and subsistence items for DoD personnel.

2. Deficiencies and Limitations

The deficiencies/limitations in meeting the above objectives include:

(a) Lack of timely Space Shuttle orbiter availability, in order to avoid the increased costs of expendable launch vehicles (ELVs) and achieve more flexible, effective DoD space operations. Concern over the high cost of DoD operational space systems and of demonstrating in space new technological options; Space Shuttle survivability and the limited size of the orbiter fleet require additional DoD planning.

(b) The questionable adequacy and survivability of our global capability to observe and forecast phenomena in space, the atmosphere, and the oceans; problems in determining the realism of military systems tests in adverse environments so that limitations are properly known;

(c) The need for improved flight simulator visual and motion systems; electronic technology for indirect fire simulation; performance measurement systems; cost-benefits analysis for training devices and simulators.

(d) Inadequate man/machine interfaces for development of weapon support systems continues to limit capabilities in the field.

3. Programs

a. Supporting Space Developments

The Space Shuttle Utilization Program consists of an Interim Upper Stage (IUS) to take DoD payloads to high orbits, transitioning DoD payloads originally designed for ELVs to the Shuttle, the construction of Shuttle operations support facilities at Vandenberg AFB (VAFB) and other programs to insure secure DoD operations. Activities regarding other space boosters will provide for improved Titan III booster reliability and standardization and improvement of the Titan III (34D) configuration. The Space Test Program provides for space flight developments for major space sensor experiments.

b. Global Military Environmental Support

The NASA SEASAT program will provide data for Defense oceanographic and geodetic needs. Battlefield meteorological sensors are being developed to provide improved battlefield weather services. Additional cartographic and geodetic data will be collected. The DMSP satellite will be used to measure additional weather and ocean parameters. Global forecasting capabilities will be upgraded. Efforts are being made to improve data-base management operations. Systems are being implemented to permit better assessment of artillery fire, radioactive fallout, optical propagation, UHF communications performance, radar performance, aircraft performance, and general weather briefings. Improved data collection and analysis will be used to improve routing of patrol and logistics aircraft.

c. There are programs to develop: Army training devices with infantry, armor/anti-armor, artillery/air defense and combined arms applications; Naval prototype devices for warfare analysis research, maintenance training prototypes, individualized/automated training, submarine prototype training/systems, and weapons delivery simulation; Air Force simulator prototypes for B-52 trainers, electro-optical visual systems, and a fighter/attack aircraft visual simulator system.

d. Major FY 1979 efforts continue development of aircrew protective and escape systems; improve personal armor and infantry combat clothing to include chemical protective materiel; and continue development of improved rations and packaging techniques for all forces.

B. Technical Integration

1. Objectives

a. To make assessments and gain insights into the impact of alternative courses of action in defense policy and program decision-making.

b. To identify existing and future mission needs, define system alternatives in response to mission deficiencies and evaluate alternative systems in terms of economic, operational and technical considerations.

c. To provide for the systematic transfer of scientific and technical information required by individuals and organizations to improve the quality of R&D, reduce unwanted duplication and to permit wider use of DoD developed technology.

2. Programs

Major FY 1979 efforts are: for the Army -- Material Systems Analyses; Navy -- Fleet Tactical Development and Evaluation; Air Force -- Project Air Force; Defense Agencies -- Defense Documentation Center and Technical Support to USDR&E.

C. Test and Evaluation (T&E) Support

1. Objectives

a. To support joint T&E to assess system capabilities using combat tactics under realistic conditions.

b. To determine the extent of critical vulnerabilities of electro-optical and infrared weapons to countermeasures and electromagnetic interference.

c. To provide a Major Range and Test Facility Base (MRTFB) supporting development and operational T&E activities.

d. To develop cost/effective aerial targets and ancillary sub-systems.

2. Deficiencies and Limitations

The absence of a secure geographical area, and the lack of necessary threat systems and instrumentation, limit the degree of realism available for training and particularly operational test and evaluation.

3. Programs

In addition to the Defense supported Joint Operational Test and Evaluation program, major FY 1979 efforts include the appropriate T&E facility and Aerial Target programs under the Army Materiel Development and Readiness Command, the Naval Air Systems Command, and the Air Force Systems Command. Some DoD operational training facilities are being upgraded to support more realistic training and OT&E.

D. Other Management Support

1. Objectives

Composed of a group of miscellaneous support-type activities that support the entire RDT&E program and which cannot be identified with a specific program.

2. Deficiencies and Limitations

This type of program is characterized by a level of effort. At times it is difficult to gain support for funds in this area to remedy the serious backlog of deferred maintenance and replace technologically obsolete high-value laboratory equipment and instrumentation.

3. Programs

Major FY 1979 efforts are for the Army -- Program-wide Activities and Management Headquarters (R&D); Navy -- RDT&E Laboratory and Facilities Management Support and RDT&E Instrumentation and Material Support; Air Force -- Acquisition and Command Support and Management Headquarters Support; Defense Agencies -- Joint Operational Test and Evaluation. (P 306)

VII. SYSTEMS ACQUISITION

A. The Defense Systems Acquisition Strategy

There has clearly been an erosion of the "quality and quantity" balance. In consequence, we believe that the future outcome of the military technological competition between the U.S. and USSR will no longer be determined principally by one competitor's significant technological lead. What will count at least as much is the relative ability of each competitor to translate available -- and roughly comparable -- technology and productive capacity into the most effective military posture. Therefore, the priority task of our defense research, development and systems procurement strategy is to ensure that the U.S. develops its technological and industrial strengths and applies them most effectively to meet our highest priority military needs. We are taking several actions to achieve this goal.

1. Develop a long-range plan which identifies mission area needs in order of priority, relates them to specific outyear periods, and schedules the development and deployment of systems that will meet these needs at the proper time. Concomitantly, this plan will permit us to identify systems whose further development or procurement can be terminated.

2. Strengthen the domestic industrial base and increase its contribution to defense needs by applying all of the competitive forces of our free enterprise system.

3. Exploit more fully the technological and industrial power of the NATO Alliance.

4. Maintain our lead in key manufacturing technologies by protecting them from exploitation through exports or indirect transfers to potential adversaries.

B. Strengthen the Responsiveness of the Industrial Base

Our goal is to make the Defense industrial base a more significant element of deterrence by assuring that both government-owned and private sector components are cost/effective, modern and responsive to peacetime and emergency Defense requirements. Current actions in progress or proposed to achieve this goal include:

1. Strengthen the DoD Manufacturing Technology Program which seeks to improve productivity and apply advanced manufacturing techniques, processes, materials and equipment for timely, reliable and economical production of defense systems and equipment. This program results in a sharing of the cost and risk of application of new manufacturing techniques, and diffuses new technology throughout the U.S. industrial base, thereby expanding its capability and competitive posture.

2. Improve management and use of Government-owned industrial facilities, reduce the fraction of Government-owned plants and equipment used by contractors to support defense production, modernize plants and equipment retained as Government property to obtain end item cost savings, and emphasize incentives to encourage contractors to invest more capital in new production equipment to support defense needs.

3. Revitalize our Industrial Preparedness by redirecting and integrating our defense procurement and investment strategies to achieve a healthy but affordable industrial base capable of responding rapidly to the most critical emergency defense needs and serving as an element of deterrence to potential adversaries.

4. Enhance DoD Materials Policies and Programs to recognize and respond more fully to the dynamics and economics of international supply and demand for metals, minerals, and industrial materials in their basic and upgraded forms to support Defense production. Greater emphasis will be placed on using the existing authority of Title III of

the Defense Production Act in coordination with other Federal Agencies to create or expand critical domestic production capacities. Successful implementation will reduce impacts from materials shortages and will alleviate sole/diminishing manufacturing source situations. The potential also exists for reduced production costs and holdings in War Reserve Materiel. Improvements in DoD industrial priorities policies are also planned to assure more timely availability of resources to meet Defense requirements.

5. Increase the contribution of the industrial sector by exploiting all competitive forces of the marketplace, including small and minority-owned firms. At present, such small or minority-owned business firms are awarded about one-fifth of the dollar value of prime defense contracts. In addition, these companies realize another fifth of the procurement business by undertaking subcontracted work. Efforts in the FY 1979-83 period will include reducing the restrictions of detailed government specifications and standards, increasing industrial input into contract planning and execution, and making maximum use of off-the-shelf hardware and commercial equivalents. (f)(c8)

C. Standardization and Interoperability with NATO Allies

We are now considering more fully than in the past the relationship between United States acquisitions and those of our allies. In certain equipment areas (e.g., ammunition, air-to-air and air-to-ground munitions, communications, and fuels) standardization or at least interoperability among NATO forces has been judged to have extremely high military payoff. In other areas, where development costs are high (e.g., Air Defense systems) or production unit costs are very sensitive to quantitites produced (e.g., anti-tank missiles) significant resource savings may be possible through a cooperative approach with our Allies.

In addition, where foreign systems are cost/effective solutions to our military needs, acquisition by the United States can provide an economic/political climate conducive to greater Allied adoption of United States developed solutions. For this reason, and to maximize the technology base available to us, we are offering firms in NATO nations the opportunity to bid on United States defense programs where this action is reciprocated by their governments.

Within NATO and in bilateral and multilateral forums we are striving to harmonize military requirements, coordinate defense equipment planning, and agree on common families of systems in areas having high standardization/interoperability payoff.

D. Streamline the Acquisition Process

The DoD is aware that the major system acquisition process needs continued improvement to meet changes in requirements and advances in technology. We are looking for ways to respond more quickly to the threat while still being assured that the system program does not entail unwarranted technical, cost, or schedule risk. Among several actions to improve the acquisition process are the following:

1. Implementation of OMB Circular A-109

In addition to delineating clear lines of authority from the Secretary of Defense to the Military Departments and their project managers, DoD is paying particular attention to restructuring the first phase, or "front end", of the acquisition process. This would focus DoD management attention and Congressional visibility on the initiation of a new program. Programs will start when the Secretary of Defense approves a mission element need statement (MENS), which states the requirement in general operational terms rather than in terms of specific system characteristics and performance. Alternate solutions will be identified and evaluated in the program's early phase to avoid premature commitment to a less effective solution. Closer attention will also be paid to a proper acquisition strategy throughout the program, maintaining competition as far as practical throughout development and into production, including contract selection. Production management will be emphasized and a formal assessment of a system's readiness to proceed into production will be made prior to limited production and full-scale production decisions.

2. Four-Step Selecting Process

The Department is currently testing a proposed 4-Step method of contractor source selection, which consists of:

(1) Receiving a technical proposal;

(2) Receiving a cost proposal;

(3) Establishing the competitive range and selecting the winner; and,

(4) Negotiating a contract with the successful contractor.

The process is designed to choose contractors who have the best initial technical proposal and discourage government cost/price auctioning, and to make it more difficult for other contractors to buy into a program utilizing technology that the primary contractor developed.

A decision on whether to adopt the 4-Step process for use within DoD will be made in February 1978.

3. Defense Science Board 1977 Summer Task Force Study of the Acquisition Cycle

Convened for the expressed purpose of identifying elements of the acquisition process which unjustifiably lengthen the acquisition cycle and drive up cost, the Task Force Study suggested several improvements. These include:

(1) Striking a better balance between a low risk program with little concurrency in production and development and a program where overlap is commensurate with the urgency of the threat;

(2) More judicious use of prototyping;

(3) A more flexible testing philosophy; and

(4) Early pilot production and deployment.

Modifications to existing systems rather than developing new systems may become more prevalent as well as making hard decisions not to initiate more programs than can be financially supported within development and production budgets.

4. Defense Acquisition Regulatory System

We have focused the management and business policy functions dealing with acquisition in the Office of the Deputy Under Secretary of Defense for Acquisition Policy. This organizational and functional arrangement is a major departure from past alignments and is the first time that the responsibility to deal with acquisition policy has been combined together under one senior Defense official. We have established the Defense Acquisition Regulatory System to guide managers in the conduct of the Department's business activity and to provide the detailed functional regulations to govern the complete scope of contractual actions.

The Defense Acquisition Regulatory System or DARS will focus on the operating levels and the Government's dealings with industry in the acquisition of goods and services. The policies and procedures issued within the DARS will give special attention to the unique demands of major system acquisitions and to the needs of Defense buying activities conducted throughout the Military Departments and Defense Agencies.

DARS policies and procedures will be published in the Defense Acquisition Regulations and other appropriate Defense policy directives. The Defense Acquisition Regulations will replace the Armed Services Procurement Regulations.

The Defense Acquisition Regulatory Council, identified as DARC, has been established to replace the Armed Services Procurement Regulation Committee. The DARC provides a small group of experts to support the development of acquisition policies and procedures.

The DARS is managed as a system of integrated, coordinated regulations responsive to the needs of the Department of Defense and the provisions of the Federal Procurement Regulatory System as administered by the Office of Federal Procurement Policy.

CHAPTER VI

LOGISTICS

I. OVERVIEW OF DEFENSE LOGISTICS

A. "Logistics"

About $44 billion of the FY 1979 budget request of $126 billion is to pay for a set of functions, activities, services, and certain procurements that we call "logistics". Logistics funds are spread across almost every budget appropriation and include resources:

-- to support peacetime materiel readiness;

-- to provide wartime combat sustainability;

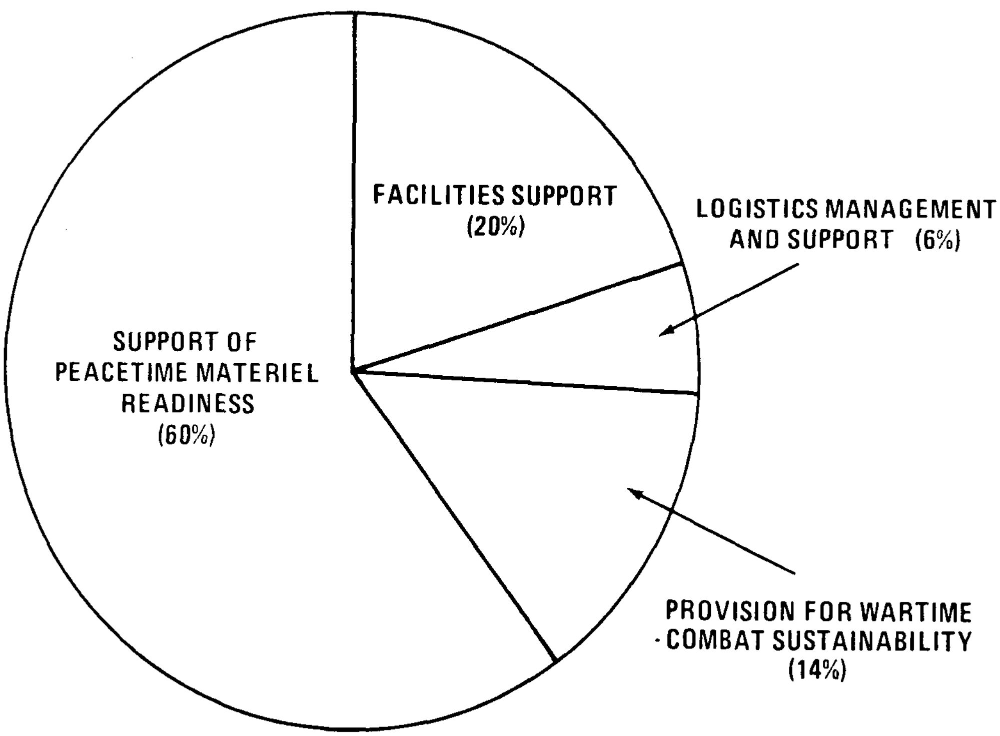
-- for logistics management and support; and

-- for facilities support.

Chart VI-1 displays the estimated distribution of logistics funding among these categories.

Chart VI-1

DISTRIBUTION OF FY 1979 LOGISTICS AND FACILITIES FUNDING



B. Support of Peacetime Materiel Readiness

The readiness of combat forces depends on a myriad of diverse and often interrelated factors. We sort these factors into two groups; the first of which, peacetime combat force readiness, covers both personnel readiness and peacetime materiel readiness. The components of peacetime materiel readiness are in large part determined by the adequacy of the DoD logistics and manpower programs to assure that major combat weapon systems and equipments attain their design capabilities, and to improve these capabilities. Support of peacetime material readiness includes three groups of programs -- maintenance (including modification of equipment), supply, and transportation. The maintenance, modification, and alteration of weapons systems and components include depot maintenance activities, procurement of spares and kits for modification and alteration, and maintenance at intermediate and unit levels. Supply operations include the resources to operate the world's largest supply system of "wholesale" supply warehouses and "retail" supply outlets at bases and units. The transportation activities include funds spent on movement of material; in estimating total logistics costs, we exclude transportation charges paid as part of materiel procurement costs and the movement of personnel and their household goods.

C. Provision for Wartime Combat Sustainability

The second major grouping comprises factors that determine our capability to sustain combat once initiated. Procurement of war reserve stocks (WRS) is a particularly vital element of DoD combat capability. We must maintain substantial quantities of war reserve munitions and fuels in our peacetime inventories to support combat forces in time of war. We also maintain peacetime inventories of spare and repair parts to support the wartime surge in activity levels. A second activity, industrial preparedness, includes the modernization and expansion of our munitions production base, as well as other capital investment in logistics facilities and equipment, manufacturing technology programs, and the layaway and maintenance of mothballed facilities.

D. Logistics Management and Support

This grouping includes additional activities such as the operations of logistics management headquarters, procurement of logistics support equipment, and other support activities. These items, though further removed from direct combat support than the previously enumerated activities, are essential to the proper functioning of the entire Defense Department.

E. Facilities Support

This important set of functions and activities, related to the support of DoD real property and capital plant, consumes substantial resources. The military construction program constitutes the bulk of the capital plant investment of the Department of Defense. Included under this heading is the Energy Conservation Investment Program (ECIP). Real property maintenance activities (RPMA) encompass utilities expense, minor construction, maintenance and repair of real property, and support services for installations. An important item to the well-being of our military personnel is family housing. This activity includes the construction of housing on military installations where adequate community housing does not exist, is substandard, or is priced beyond the financial capability of military personnel. Maintenance and utilities expenses are funded in this account and are currently receiving greater emphasis than new construction.

II. OBJECTIVES OF LOGISTICS PLANNING AND PROGRAMMING

The major objectives of our logistics planning and programming are:

- to ensure that the operational readiness and combat sustainability of our combat forces is consistent with the overall strategic concept for national defense planning;

- to provide the necessary levels of logistics support and weapon systems materiel readiness;

- to ensure that DoD's military population is adequately fed, clothed, and housed; and

- to provide for the essential upkeep of DoD's extensive capital plant and facilities and avoid costly deterioration of these assets.

III. TRENDS IN PEACETIME MATERIEL READINESS AND WARTIME COMBAT SUSTAINABILITY

A. The materiel readiness of our weapons systems and equipments refers to their ability, with a specified or assumed warning time, to perform satisfactorily at the required wartime activity levels. Explicitly (and perhaps artificially) excluded from this concept are issues of manpower and training.

The central elements of materiel readiness are:

-- the reliability and maintainability inherent in the design of the equipment;

-- the instantaneous materiel condition of the equipment (Is it working? Is it working, but falling apart from lack of repair?); and

-- the availability of the necessary spare parts, tools, documentation, munitions and other combat-essential supplies to initiate and sustain combat.

B. Update of FY 1978 Report

Last year, and indeed for several years before, serious shortfalls in materiel readiness were highlighted. It normally takes years to make significant changes in most of these areas. We are continuing to emphasize materiel readiness. For example, the FY 1978 budget amendment request added $280 million to cover the most urgent FY 1978 unfunded equipment overhauls and repairs. The current status of materiel readiness problems reported last year is as follows.

1. Ship Materiel Readiness

Past Defense Reports have emphasized that the materiel condition of the Navy ships was poor and deteriorating. This trend appears finally to have been arrested. While the situation is hardly satisfactory, inspection reports of the Navy's Board of Inspections and Survey, Propulsion Examining Boards, and the seriousness and frequency of casualty reports all show a modest improvement.

The backlog of ships overdue for overhaul as a result of past funding constraints is being reduced. The full funding of the overhaul program in FY 1978, which for the first time permitted the Navy to allow for inflation in ship overhaul budgeting, will permit the Navy to execute on schedule all of the program for which Congress appropriated funds. The ship overhaul funds that Congress added to the FY 1978 budget will permit the Navy to work in an orderly manner toward eliminating the backlog. Requested FY 1979 funds should reduce the backlog by about three ships.

The effort to increase the availability of repair materials in ships, tenders and other intermediate maintenance activities has allowed the sailors in these activities to maintain the ships better on a day-to-day basis. With the completion of the "hot plant" propulsion training facility at Great Lakes Naval Station and other less dramatic improvements in training, our enlisted mechanics are receiving significantly more realistic training.

Finally, the long-term effort to reexamine the basic questions of ship maintenance, and to develop integrated, engineered ship maintenance strategies for surface ships is continuing. A prototype of the first full nautical application of "Reliability-Centered Maintenance" (RCM) principles will be developed on the USS ROARK (FF-1053) in early 1978.

2. Aircraft Materiel Readiness

Past Defense Reports have emphasized unreliable and hard-to-support equipment design as an important, if not the principal, contributor to less-than-desirable weapon system performance in the field. In direct response, the Navy has initiated materiel readiness improvement programs for F-14 and S-3 aircraft designed to achieve specific goals for operational availability and full systems capability, which up to now have been much lower than expected. The major components of these programs are reliability and maintainability modifications. The design improvements are accompanied by additional procurement of certain spare components that have been in critically short supply.

3. Land Forces Equipment Programs

For the past several years a significant readiness problem for the Army has been a need for additional modern weapons and equipment to satisfy its requirements. The key factors behind this problem have been an expansion in the number of active divisions from 13 to 16; the conversion of two divisions from light to heavy; long procurement lead times; the withdrawal of equipment from inventories to satisfy urgent, but unprogrammed, security assistance demands such as support for Israel; increased war reserve inventory objectives due to a reevaluation of weapon attrition rates (influenced by improved analytical methodologies and the higher attrition rates of the 1973 Middle East War); and prior fiscal constraints.

We have substantially increased the procurement of weapons and equipment and have provided depot maintenance funding to eliminate the backlog of combat vehicles awaiting overhaul and repair by the end of FY 1979. However, recovery will be slow; we will be forced to distribute equipment among the many claimants without fulfilling any demands completely in order to maintain immediate combat readiness and allow needed training.

Currently, we are giving priority to early force readiness for Europe in order to meet the apparently increasing Warsaw Pact potential to launch a short-warning attack. Thus, the emphasis is on increasing the readiness of forces already deployed or to be deployed in the first month of such a war. The European POMCUS (Prepositioned Overseas Materiel Configured to Unit Sets) that we preposition overseas to permit rapid deployment will be essentially reconstituted by the end of FY 1978. Because of the increased requirement for rapid reinforcement, additional POMCUS will be prepositioned so that more troops could be airlifted from CONUS on short notice. This increase in immediate combat capability in Europe will exact a toll on stateside units, however, since all equipment needed in the near-term cannot come from the production lines. Much of it must be withdrawn from active and Reserve units, leaving them enough with which to train. The near-term readiness of later-deploying forces will thus suffer from limitations on the quantity of their equipment.

4. War Reserve Stocks

War reserve stocks of equipment, munitions, secondary items and other supplies are intended to replace attrition and consumption in the early stages of conflict.

War reserve requirements are based on war plans and deployment schedules that establish the numbers and types of U.S. units in-theater; and an assumed intensity of combat that drives attrition and consumption rates. Thus, war reserve requirements are dynamic, varying with changes in strategy, tactics, and force structure. As modern, more effective, munitions and equipment enter the inventory, the associated war reserve requirements change. There have been major increases in Army war reserve requirements resulting from new estimates of likely combat attrition rates based on new analysis and the lessons of the 1973 Middle East War. The shortfalls in war reserve stocks are of concern.

a. Weapons and Equipment

As discussed above, the Army needs additional modern weapons and equipment to satisfy all its requirements. The buildup of war reserve stocks has a priority in equipment distribution below the equipping of active Army units, affiliated Reserve Component units scheduled for early deployment, and the reconstitution of POMCUS. In fact, weapons and equipment have been redistributed from war reserve stocks to these higher priority requirements.

b. Munitions

There are currently large additional inventory requirements for the modern, much more effective (and costly) air and ground munitions (e.g., precision guided and clustered air munitions, air-to-air missiles, and improved conventional ground munitions). In general, we have adequate stocks of older, conventional munitions. This leads to the anomaly where we have 91 percent of our worldwide munitions requirement on a tonnage basis, but only 33 percent on a dollar basis. The Army's prepositioned war reserve munitions requirement for Europe is only partially satisfied because of a doubling in the stockage objective based on a reevaluation of consumption rates and because of a storage capacity deficiency. We are addressing this problem in an orderly fashion and are programming sufficient storage capacity in Europe for all of the increased prepositioned war reserve munitions requirement.

c. Secondary Items

Secondary item war reserves are those combat-essential consumables needed to repair, maintain, and support weapon systems and forces. Examples range from an aircraft radar component to GI combat boots. Secondary item war reserves are a relatively small part of the dollar value of total war reserves, which are dominated by munitions and major equipment costs. However, secondary item shortages can severely degrade our combat capability, so that the shortfall in the war reserve inventory is just as important as the major equipment and munitions shortages. The FY 1979 budget includes funding to reduce this shortfall.

C. Changing FY 1979 Priorities

We live in a world of limited resources; there are limits on the Federal budget, and within it, on the Defense budget. We always face choices; our main objective is to set our priorities to get the most capability out of the total resources that the United States allocates to national defense. Hence, rather than focusing on pure, but unfunded, "military requirements," each of which is valid when viewed in isolation, we must balance the competing resource demands within the Defense program.

Our immediate capability to engage in combat is being degraded by the peacetime materiel readiness problems described above. Thus we have decided to place more emphasis on initial combat capability and relatively less emphasis on combat staying power than has been done in the past. As an immediate objective, the Military Departments are to procure additional war reserve stocks for U.S. forces in NATO and Asia during FY 1979-83. They are also to procure war reserve stocks for our

Asian allies, to be retained under U.S. title and control. This will help pave the way for withdrawal of our combat ground forces from Korea. Finally, the Services will generally limit FY 1979-83 investment in new ammunition production facilities to those needed to support efficient peacetime munitions procurement.

The net effect of these changes in priorities has been to shift our current emphasis from long-term staying power to areas with a higher payoff in immediate combat capability.

D. Materiel Readiness Report to Congress

The Congress has recently legislated a very ambitious Defense materiel readiness reporting requirement. A provision in the FY 1978 Defense Authorization Act directs the Defense Department to identify specific materiel readiness requirements for our forces, to report on their past readiness status relative to those requirements, and to project future readiness in light of the funds requested.

The information required by these provisions will be extremely valuable in the internal management of the Defense Department. Our February 15, 1978, response to the Congress will provide the best data available relative to the new reporting requirement, and will describe the Defense Department's long-range plans for acquiring improved readiness measurement, reporting, and analysis capabilities.

IV. FACILITIES SUPPORT

There have been several changes in emphasis in facilities support since the FY 1978 Defense Report.

A. Defense Construction Program

A partial moratorium on domestic construction was imposed in FY 1978 pending an examination of the current DoD basing structure to identify essential domestic Defense installations. This moratorium was relaxed, in part, with the FY 1978 budget amendment request which added $200 million for construction and maintenance projects at domestic installations least likely to be affected by the examination. The FY 1979 budget request reflects a complete lifting of the moratorium.

B. Energy Conservation Investment Program (ECIP)

Funding for ECIP has been increased to achieve a 12 percent reduction below 1975 levels in facilities energy consumption by 1985. This investment will be recovered via energy savings in future years. The selection of ECIP projects is based on maximizing annual energy savings per dollar invested.

C. Real Property Maintenance Activities (RPMA)

RPMA funding has been adjusted to prevent any significant growth in the existing backlogs of maintenance and repair at all installations planned for retention in DoD's long-range basing plans. In addition, efforts have been made to improve the balance between new capital investment and maintenance activities, in order to utilize the available funding most effectively.

CHAPTER VII

MANPOWER

I. DOD MANPOWER STRENGTHS AND COSTS

The overriding Defense manpower consideration is maintaining the combat effectiveness of the Armed Forces. The most important factor in combat readiness, often taken for granted in discussions of sophisticated equipment systems, is people--soldiers, sailors and airmen who man our forces and the civilian force that supports them. Today's uniformed personnel are all volunteers. It is essential that first priority be given to attracting and retaining adequate quantities of skilled, motivated volunteers who are committed to train, deploy and, if necessary, fight.

For FY 1979 the Department will employ about 2.0 million active duty military personnel, 1.0 million civilians and about 0.8 million paid drill reservists (Table VII-1). About 1.3 million military retirees are paid from the DoD budget. The total cost of paying and supporting over five million personnel for their present and past service is estimated at $63.7 billion in FY 1979, approximately 55 percent of the total defense budget.

The proportion of the defense budget devoted to manpower will remain essentially unchanged from FY 1978. We have, however, been able to reduce the number of military personnel needed to fill our defense needs through improvements in training and reducing personnel turnover rates, while actually increasing the strength of personnel in military units. We are also making a small reduction in the size of the civilian work force. Paid drill Naval Selected Reserve strength is planned to decrease by 36 thousand in FY 1979, and more dependence will be placed on non-drilling reservists. I expect the number of paid drill reserve personnel in the Army and Marine Corps Reserve components to increase in FY 1979, finally reversing the period of decline that began in the early 1970s with the end of the draft.

Our principal concern in defense manpower is to provide sufficient manpower resources to maintain the combat effectiveness of our military forces. In this regard the leading question has been our ability to continue to man the active and reserve forces -- the total force -- with volunteers and within realistic budgeting constraints. In the past several years, this report has emphasized the progress and the problems of the active duty All-Volunteer Force (AVF); as I will discuss, we have made progress in some important active force areas during the past year. I would also like to discuss our perspective on the problems of the reserves and suggest a number of steps we are considering to improve the viability of the reserve forces under the AVF concept.

TABLE VII-1

Defense Manpower Strengths and Costs 1/

	FY 64	FY 74	FY 75	FY 76	FY 77	FY 78	FY 79
End Strengths (000)							
Active Military	2,687	2,161	2,127	2,081	2,074	2,069	2,049
Civilians 2/							
Direct Hire	1,035	1,014	989	960	948	936	929
Indirect Hire	140	95	89	87	88	85	79
Total	1,175	1,109	1,078	1,047	1,036	1,021	1,008
Reserve-Paid Drill 3/	953	925	896	823	808	815	801
Retired	435	1,012	1,073	1,132	1,199	1,243	1,285
Costs ($Billions)							
Defense Outlays (Military Functions)	49.6	77.6	85.0	88.0	95.6	105.3	115.2
Manpower Costs (Outlays $Billions)							
Manpower Outlays Military Personnel Appropriations	12.3	22.1	23.2	23.3	23.9	24.9	26.4
Defense Family Housing Appropriations 4/	.5	.7	.9	1.0	1.1	1.2	1.2
Military Retired Pay Appropriations 5/	1.2	5.1	6.2	7.3	8.2	9.2	10.1
Reserve/Guard Personnel Appropriations	.7	1.6	1.7	1.8	1.9	2.0	2.1
Civilian Costs 2/	7.6	14.2	15.4	16.5	17.5	18.7	19.4
Subtotal	22.3	43.8	47.5	49.8	52.5	56.0	59.2
Personnel Support Costs 6/	1.7	3.0	3.7	3.9	4.1	4.3	4.5
Total Manpower Costs	24.0	46.8	51.2	53.6	56.6	60.3	63.7
Percent of Defense Outlays	48%	60%	60%	61%	59%	57%	55%

NOTE: Detail may not add to totals, due to rounding.

1/ Data exclude civil functions.
2/ The cost of civilians is budgeted under the functional appropriations e.g., operations and maintenance, family housing, RDT&E. Numbers include indirect hire civilians who are often excluded from manpower costs and strength data. Indirect hire costs are $1.1 billion in FY 1979.
3/ Includes about 65,000 national guard and reserve technicians who are also counted as civilian employees.
4/ Excludes civilian pay portion of this appropriation which is included under civilian costs.
5/ For those already retired. Future retirement costs for the current force are not reflected in the budget.
6/ Preliminary data for FY 1978 and FY 1979. Excludes the direct costs of military and civilian personnel since these are accounted for separately. Includes costs of individual training, medical support, recruiting and examining, overseas dependent education, half of base operating support, and a miscellaneous category.

While the first part of this chapter will discuss the AVF, there are a number of other areas where we are trying to improve our ability to manage defense manpower resources. The second part will identify legislative initiatives we are proposing to reform the pay system for federal blue collar workers, to change our method of funding military retirement, and to reform the management of military officers. We will also discuss our progress in attaining equal opportunity objectives, new developments in health care and training, the DoD position on military unions, and the study currently underway by the President's Commission on Military Compensation.

II. ALL-VOLUNTEER TOTAL FORCE (AVF)

The "total force", which consists of all the resources available to perform our national defense missions, includes both the active and reserve forces. Total force planning is not new for the United States; planning to make the reserve components a useful part of the total force is as old as the Republic.

The success of today's total force policy is heavily dependent on the rapid mobilization and deployment of reserves to fight in a major, high intensity, conventional war in Europe. The anticipated nature of operations after D-day makes it imperative that reserve units and individuals be available at the time and in the numbers required. If we relied exclusively on active forces to meet this requirement we would have greater assurance of the quantity, and timeliness of the response. However, the size and cost of an active force to do this would be prohibitive. The total force policy, if we can make it effective, is thus the least costly way of meeting our wartime manpower requirements. The success of the total force depends on our ability to provide a sufficient number of trained and ready personnel to both the active and reserve forces.

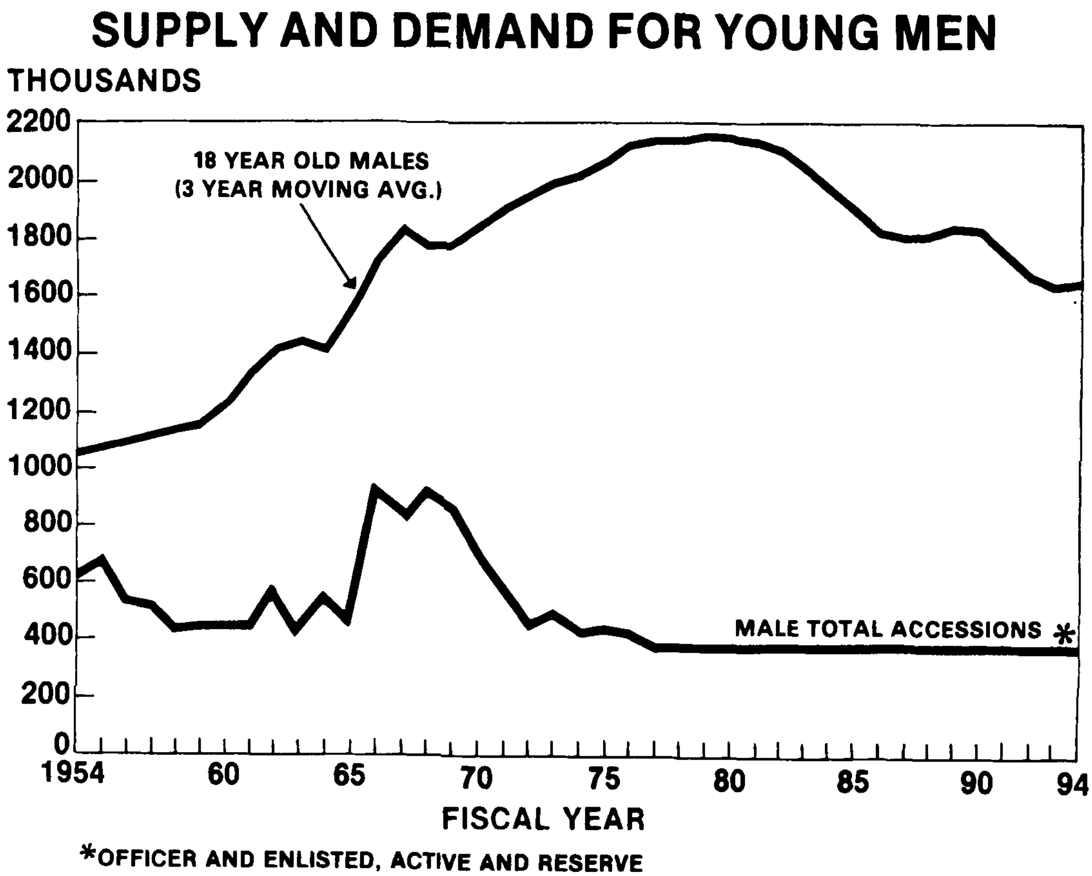
The active force is the larger and more expensive part of our total force. In the recent past the attainment of AVF objectives has received more attention in the active forces than in the reserves. Those objectives also deserve considerable emphasis in the case of the reserve forces, which are charged with providing over 50 percent of the Army's deployable units when full mobilization of U.S. forces has taken place and the reserve forces are ready for combat. Our discussion of the AVF treats active and reserve issues in turn beginning with the active force.

A. Active Force

1. The Beginning of the AVF

While the U.S. had always maintained a volunteer force in peacetime before World War II, it was not difficult to recruit for the garrison level peacetime forces of the period. Since the end of the Korean war, our military strength has not dipped below 2.0 million persons and is now over five times as large as the pre-World War II military force. Although the series of events culminating in the decision to end the draft in 1973 may have appeared to involve considerable risks, the success of the AVF has been materially aided by two factors. First, we now offer a level of pay to junior enlisted personnel that is roughly comparable to wages in the private sector. Second, the combination of population growth and a careful evaluation of military personnel requirements has resulted in the military taking a much smaller proportion of the available manpower pool in the 1970s than in the 1950s and 1960s (Chart VII-1). The eligible population has more than doubled in the past two decades, while the military is recruiting a smaller number for the active and reserve forces.

Chart VII-1



It has been five years since the last draftee entered military service. During this period, the active force has consistently met strength targets while maintaining high quality standards. As shown in Table VII-2, the active force was at 99 percent of authorized strength as of the end of FY 1977, and we expect the deviations from Congressional authorization to be eliminated by the end of FY 1978. But the greatest challenges to maintaining an all-volunteer active force may lie ahead.

TABLE VII-2

FY 1977 Active Military End Year Strengths (000)

	Strength	Congressional Authorization	Percent
Army	781.8	789.0	99.1
Navy	529.7	540.6	98.0
Marine Corps	191.6	192.0	99.8
Air Force	570.5	571.0	99.9
DoD	2,073.6	2,092.6	99.1

2. Future Accession Prospects

The size of the youth population will begin to decline in 1980. By 1985, the number of eighteen year old males will be about 15 percent below the FY 1977 level. The number of eighteen year olds will continue to decline until the mid-1990s. Consequently, it is important to examine carefully male accession requirements and reduce them wherever it is possible to do so without reducing military effectiveness.

-- Supply Shortages - With a smaller youth population, the number of males completing high school each year is also expected to decline. This will result in more intense competition for high school graduates among colleges, vocational schools, private employers and the military. If educational institutions are able to prevent a decline in enrollments and private employers continue to hire young workers at present or higher rates, then the supply of enlistees to the military could decline even more than the population decline.

-- Competition from Older Workers - During the period 1977 to 1990, the labor force as a whole will increase by about 20 percent. More important, workers in the prime productive years -- 25 to 54 years -- will increase by 37 percent. Consequently, the inexperienced eighteen year old may find the competition from the older, more experienced workers more intense than it is today. Changes in wage structure will probably raise the relative cost of inexperienced workers. Youth unemployment could remain at high levels even if overall unemployment is successfully reduced over the next few years. The training and experience the military offers could come to be even more attractive than now.

These structural changes foreseen in the labor force may thus tend to limit the effects of decline in the youth population and of increased competition from educational institutions upon military recruitment. Job opportunities for youth, however, will also depend on the overall growth rate in the economy, and it is possible that vigorous economic growth -- possibly fueled by the increased supply of experienced workers -- would make it increasingly difficult to attract large numbers of young people into the military. On the whole, we expect the number of male volunteers with high school diplomas to decline over the next several years and, as discussed in the following sections, we have directed our attention to reducing our need for these recruits.

I testified during 1977 that we would review the management of military manpower to improve effectiveness, reduce cost and lower accession requirements for males without prior military service. The following sections identify areas where initiatives have already been taken and where our review of the AVF suggests that considerable management flexibility exists in meeting AVF recruiting targets. Our review has already led the Department to increase female accessions and to reduce attrition during the first term of service. These changes will reduce by about 12 percent the number of male accessions required by FY 1983 and should cushion any effects from the projected decline in the youth population in the 1980s. 1/

3. Women in the Military

Prior to FY 1973, women provided less than two percent of total enlisted strength; but, under the volunteer force, the percentage rapidly grew to nearly six percent in FY 1977 (see Table VII-3). We plan to increase the number of women to 199,000 in FY 1983, almost doubling the FY 1977 strength.

1/ The Services plan the accession of about 331,000 male recruits in FY 1983, instead of the previously planned 370,000. In FY 1977, the Services recruited 353,000 men.

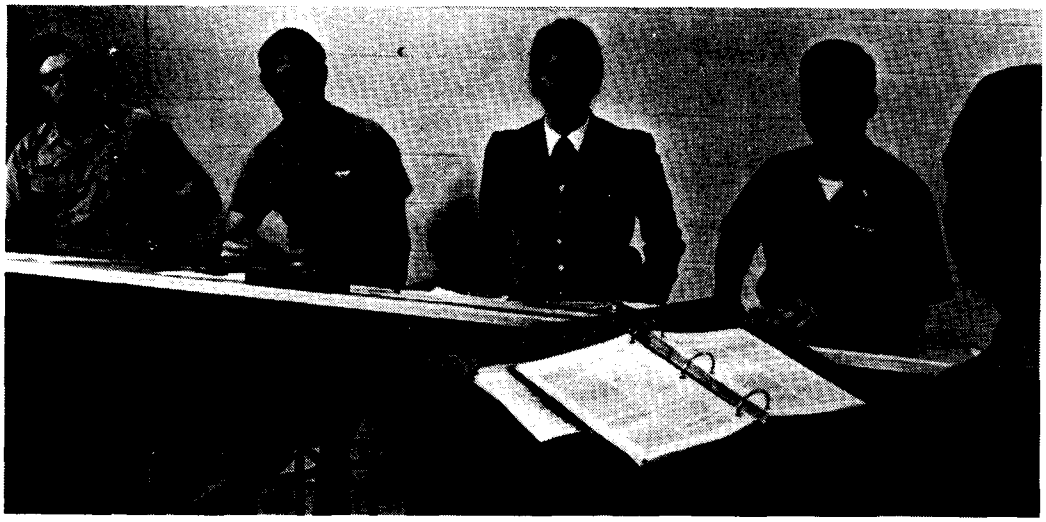


TABLE VII-3

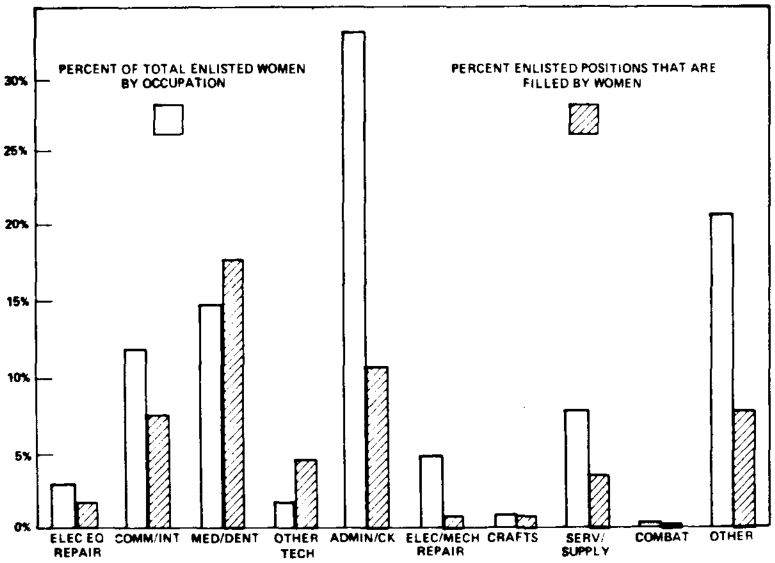
Enlisted Women in the Military (000)

	Actual						Projected		
	FY 64	FY 68	FY 71	FY 73	FY 76	FY 77	FY 78	FY 79	FY 83
Army	8	11	12	17	44	46	51	57	80
Navy	5	6	6	9	19	19	20	21	40
Marine Corps	1	3	2	2	3	4	4	5	7
Air Force	5	6	10	15	29	35	40	47	72
Total DoD	19	25	30	43	95	104	115	130	199
% of Active Enlisted Force	0.8	0.8	1.3	2.2	5.3	5.8	6.4	7.3	11.1

Women are now serving in military skills which previously have been closed to them. Chart VII-2 shows both the percentage of enlisted positions by occupation which are filled by women, and the distribution of women by occupation. Our evaluation has found that women are doing an excellent job in their expanded roles.

Chart VII-2

DISTRIBUTION OF ENLISTED FORCE BY DoD OCCUPATION GROUP (As of end FY 1976)



Our analysis indicates a potential to increase the number of women in the military even further -- in part because more women want to enlist than we now accept. But too rapid a rate of growth can result in an imbalance of women in the junior ranks because it takes years for people to be trained and promoted into positions as qualified supervisors. Moreover, we are not certain how many women will be attracted to non-traditionally female occupations, nor if they will reenlist in those occupations in sufficient numbers to meet career force requirements. We are studying all these issues in the context of a positive program to enlarge the role of women in the military service.

4. Women in Combat

Section 303, Public Law 95-70, requested that I provide Congress a definition of combat as related to women. Combat is defined as engaging an enemy in armed conflict: a person is considered to be in combat when he or she is in a geographic area designated by the Secretary of Defense as a combat/hostile fire zone. Women have by this definition served in combat in World War II, Korea and Vietnam.

At present, women are excluded by law from crews of Air Force and Navy aircraft on combat missions and from serving on Navy ships, except transports and hospital ships (of which there are none). The Army, not subject to restrictions placed on the Air Force and Navy, has recently opened all but the most hazardous and arduous combat positions to women. Women have received combat pay and medals which can only be earned in combat, such as the Purple Heart and the Bronze Star. Army nurses have served in combat for more than a century, although they and all other medical personnel are classified as non-combatants.

The fundamental issue raised by Congress is which positions in combat should be open to women and which, if any, should be restricted to men only. I supported S.1628 which is before the Senate Committee on Armed Services and will be submitting a similar legislative proposal this year. This proposal would remove artificial legal restrictions on women serving on ships of the Navy and certain aircraft of the Navy and Air Force. It would empower the Secretary of Defense, with appropriate Congressional supervision, to determine those positions in the Armed Forces which would be closed to women.

5. First-Term Attrition

Attrition rates for enlisted men in the first three years of service grew markedly between FY 1971 and FY 1976. In the Army, for example, the three-year attrition rate for people who enlisted in FY 1971 was 25 percent while the FY 1974 entry group had a rate of 40 percent. Higher attrition rates require more accessions to sustain a given force size and may unnecessarily increase costs. We have taken actions to reduce first-term attrition, relying primarily on improved leadership and training and a more careful selection of those persons offered a chance to enlist in our armed forces.

Table VII-4 shows attrition trends since FY 1971 and the reductions in first-term attrition planned for FY 1979 recruits. We believe these can be accomplished through improved management techniques.

TABLE VII-4

Percent Attrition*
(Based on Entry Year)

	Actual				Estimated			Projected	
Entry Year -	FY 71	FY 72	FY 73	FY 74	FY 75	FY 76	FY 77	FY 78	FY 79
Army	25	28	33	40	39	40	36	33	31
Navy	28	32	34	38	37	36	34	30	27
Marine Corps	31	25	39	42	44	41	38	34	30
Air Force	21	27	30	29	29	28	28	26	25

*Percent of male enlisted accessions entering in year shown who leave prior to completing three years of service.

6. Mental and Physical Standards

Current mental and physical standards for both enlistment and reenlistment are higher now than during the draft or the early days of the AVF. Higher standards tend to increase performance and reduce attrition. Yet today's standards also exclude many persons who would perform well if permitted to enlist. It is also more expensive to recruit enough enlistees from a smaller number of eligibles. Recruits at the highest educational and mental levels are more likely than other recruits to leave the military after a single term of service. If we do have recruiting shortages during the 1980s, we could vary enlistment standards to increase the number of eligible recruits. This would still permit us to maintain standards consistent with those in effect under the draft. We must ensure however, that the quality of our recruits is sufficiently high to operate and maintain the increasingly sophisticated weapon systems of today's armed forces.

7. Average Age and Experience of the Force

We continue to be concerned about reenlistments and about achieving the proper distribution between career and non-career military personnel. If we allowed the average age and experience level of military personnel to increase, this would reduce turnover rates and allow recruitment of fewer non-prior service people every year. Our armed forces have traditionally been a youthful profession (the median age today is 24 years) and most enlistees do not reenlist for a second term. Even small changes in the age and experience mix of the force have significant effects on the number of new recruits needed. In recent years, we have made efforts to limit reenlistments and to restrict recruitment of persons with prior military service to those skills where there are insufficient career personnel. Experienced people are paid more and are more likely to stay until retirement, thereby increasing compensation costs. Further, high reenlistment rates reduce opportunities for promotion. On the other hand, experienced personnel are critical for the operation and maintenance of an increasingly complex military force and reduce training costs. We are reexamining our policies now and expect to arrive at a better understanding of the age and experience mixes which will yield a cost/effective military force.

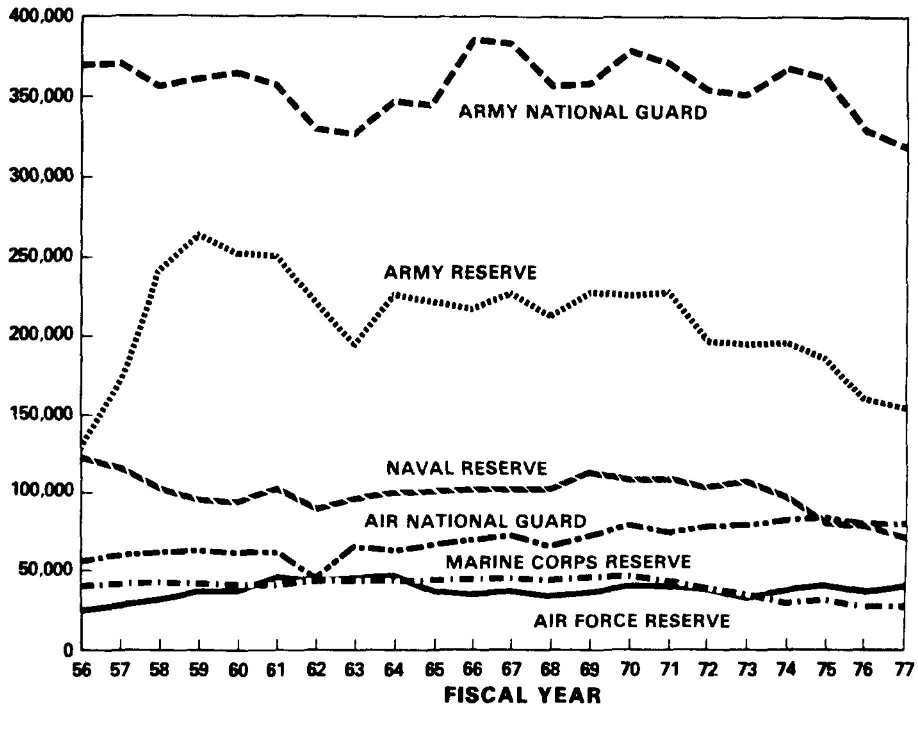
B. Reserve Forces

1. Selected Reserves

The selected reserves are those reservists who are in units or paid to drill. The strength of our selected reserve forces has declined during the years of the AVF. Chart VII-3 shows personnel strength trends dating back to the height of the cold war in the 1950s. The Army and Marine Corps reserve components appear to have been adversely affected by the AVF. However, the Air Force components have maintained relatively constant strength and the declines in the Navy Reserve are for reasons other than personnel shortages.

Chart VII-3

END STRENGTH TRENDS ENLISTED SELECTED RESERVE (Total Paid Drill)



A comparison of FY 1977 Congressional authorizations with selected reserve strengths (Table VII-5) shows large shortages in the Army and Marine Corps.

TABLE VII-5

FY 1977 Selected Reserve Average Strengths (000)

	Strengths	Congressional Authorization	Percent
Army	549.2*	602.4*	91.2
Navy	94.1	96.5	97.5
Marine Corps	29.7	33.5	88.6
Air Force	139.9*	145.3*	96.3
DoD	812.8	877.7	92.6

* Includes both reserve and National Guard authorizations and strengths.

The combined FY 1977 Army and Marine Corps selected reserve strength was nine percent below 1977 authorization, 18 percent lower than the FY 1973 authorizations and 12 percent lower than the FY 1973 strength.

While the decline in reserve component strength since the end of the draft five years ago is to some degree a reflection of the difficulties in recruiting in the all-volunteer environment, I believe today's reserve manpower problems are also due in part to past practices in manning the reserves. During the Vietnam war the reserves were filled in substantial part by youth seeking to avoid the military draft, few of whom reenlisted. Accessions were readily available and of high quality.

Since the end of the draft, we have faced problems of replacing unusually large losses from the draft-induced enlistees in the reserve components. Fortunately, this period is nearly ended and we expect reserve strengths to rise starting in FY 1979.

Today most reserve accessions are veterans. In the past, most were junior males with no prior military service. In FY 1977, 65 percent of Army Reserve and National Guard enlisted accessions were veterans in comparison to 16 percent in FY 1970. While experienced personnel are more productive than untrained recruits, they are more expensive and may be causing grade distribution problems in some of our reserve units, particularly in the land combat forces. Because of reserve manpower shortages and the problems of relying so heavily on prior service personnel, we have intensified our efforts to obtain reserve recruits without prior service. Reserve recruiting funds are programmed at about $120 million in FY 1979. This is roughly double the FY 1976 level.

We have also launched a major study of the reserve compensation system. The study, scheduled for completion in June has revealed some major deficiencies. For example:

-- We are unable to vary reserve pay by occupation or by unit even though it is more difficult to recruit for some occupations and units than others.

-- The current system emphasizes deferred compensation, or retirement benefits, rather than immediate cash payments. This leads to too many senior personnel and too few first-term people. We are unable to attract and keep sufficient numbers of people in the first six years of service.

The Reserve Compensation System Study is examining these problems and identifying adjustments to reserve compensation to make it more responsive to the needs of a reserve force in an AVF environment. We will propose specific corrective actions in the FY 1980 budget which will materially assist the reserve and guard components in solving their differing manning problems.

2. Individual Ready Reserve (IRR)

Strength of the enlisted IRR [2/] has decreased from about 1.5 million in FY 1971 to less than 300,000 in FY 1977. Chart VII-4 shows that the most severe drop has been in the Army. Past management actions to preserve strengths in the active and selected reserve forces together with high attrition rates have seriously depleted the sources of trained manpower available for the IRR. These actions included increasing the minimum active duty enlistment from two to three years, enlisting people in the delayed entry pool for up to one year prior to commencement of active duty, releasing people who fail to make the grade in the active forces from their reserve obligation and increasing prior service accessions into the selected reserve. All of these actions reduce the amount of time people spend in the IRR. Another major factor is the reduction in the size of the active force which reduces the number of

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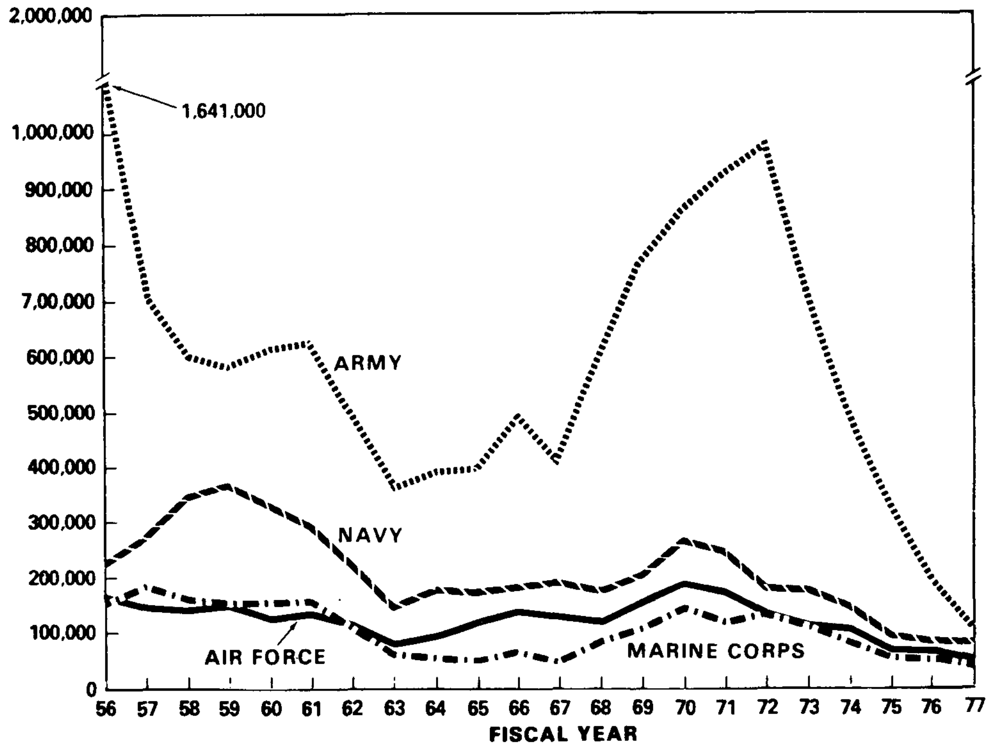
2/ Anyone who joins the active or reserve forces incurs a six year military obligation. Part of this obligation can be served on active duty; the remainder is served in the ready reserve. IRR pools play a very important role in current DoD mobilization planning. Under the total force policy upon mobilization, IRR members must: (1) fill our active force units to combat strength; (2) raise deploying selective reserve units to full mobilization strength; and (3) provide replacements for initial combat losses until new people can be drafted and trained.

Chart VII-4

END STRENGTH TRENDS
ENLISTED INDIVIDUAL READY RESERVE (IRR)
(NOT ON ACTIVE DUTY)



people separating and eligible for the IRR. Under the high active force levels of the draft, Defense always had more IRR people than were needed. This is no longer the case and we are now studying how to meet current and future IRR requirements. In addition to reviewing stated IRR requirements we are considering initiatives to solve the IRR supply problem. Among these initiatives are:

-- Improving the management of the IRR force, to include review of management procedures and policies which result in qualified people not being retained in the IRR through their obligated commitment.

-- Eliminating the practice of assigning people with service obligations to the stand-by reserve and keeping all members in the IRR until the end of their obligated service.

-- Changing the total obligated service commitment to increase the size of the IRR.

We are continuing to examine our selected reserve and IRR requirements. Although reserve forces were not widely used during the Vietnam war, present total force planning requires that they be used during any future contingency requiring a rapid expansion of our active duty forces.

Capable and ready reserve forces are essential to a NATO defense of Western Europe against a Warsaw Pact attack. However, there are also areas where reserve manpower may be greater than needed. We are carefully examining our requirements for wartime replacement manpower with an eye to coming up with a realistic target for the strength of the IRR. We also find we can decrease the number of Naval paid drill reservists as discussed in the following section.

3. Naval Reserve Paid Drill Strength

The FY 1979 budget includes a reduction in the number of Naval paid drill reservists from the 87,000 level in FY 1978 to 51,400 by transferring 35,000 reservists to the individual ready reserve (IRR) and by eliminating the Naval Air Reserve Helicopter Antisubmarine Warfare squadrons. 3/

Some 28,000 Naval reservists are programmed primarily to augment existing active operational staffs and shore support units upon mobilization. Two weeks active duty per year are considered sufficient to maintain the proficiency of this group when combined with previous training and civilian experience. Consequently, these people do not require monthly or weekly drills to accomplish their mobilization mission and are being transferred to the individual ready reserve.

The reduction also includes 7,000 reservists in nine of the seventeen Naval Reserve Mobile Construction Battalions (Seabee). The remaining eight active and eight reserve Seabee Battalions provide all of the immediate construction support required for Navy and Marine Corps forces. Follow-on sustaining construction requirements can be provided by the Seabee Reservists in the individual ready reserve, the construction forces of other services, and the civilian construction industry.

Funds are provided in the FY 1979 budget for the 36,000 reservists transferred to the individual ready reserve to perform two weeks active duty training.

In addition to the paid active duty for training, the reservists concerned may accrue reserve retirement credits through participation in non-paid drills, correspondence courses and other voluntary training activities. No reservist will be involuntarily separated from the naval reserve through this action nor will any reservist in this category be denied the opportunity to achieve reserve retirement.

3/ IRR members are authorized to perform paid annual training of 12-14 days but are not authorized paid inactive training.

C. Cost of AVF vs. Draft

We have recently reviewed several estimates of the cost of the AVF, including a study by the General Accounting Office. The task of determining the cost of launching the AVF is difficult and the results perhaps not meaningful, since many of the programs undertaken also had the purpose of raising the very low standard of living imposed on junior enlisted personnel prior to the AVF. In my view, the most useful way to examine the cost of the AVF is to estimate the annual budget saving that would result from a decision to reinstitute compulsory military service during peacetime.

A return to the draft would not, by itself, save much money. If one accepts the premise that equity requires payment of wages to all service members that are comparable and competitive with those in the private sector, then the annual budget savings under a new draft would be about $500 million. These savings would result from smaller expenditures for active and reserve recruiting and enlistment bonus programs. Larger savings could be secured by reducing pay for junior enlisted personnel to the minimum wage, but at a large human cost; this would in effect be a heavy tax extracted from those least able to pay.

While $500 million is a large sum, it clearly is not a major portion of the cost of manpower. We do not believe that the American people would favor a return to the draft to achieve a dollar saving that represents less than one half of one percent of the total Defense budget.

Other factors currently surfacing, however, may well add to the cost of the AVF. Because military service is no longer an expected obligation of citizenship, it is no longer safe simply to assume that junior soldiers, sailors and airmen perceive society's support and appreciation for their service. Many military personnel will judge society's support and measure their satisfaction to a considerable degree by how well the Services provide for their basic needs. Today's military service is characterized by a higher percentage of young married enlisted people, especially among the lower grades. Without adequate support, growing hardships will be experienced among these service members, especially in overseas and high-cost areas. The quality of life support for the soldier is a critical ingredient to enlistment, retention, commitment to service, and readiness.

D. DoD Desertion Rates

Enlisted desertion rates in FY 1977 are compared with those of the past in Table VII-6. The Marine Corps has the highest desertion rate and the Air Force the lowest rate. All of the services have shown recent improvement, except the Navy. The Navy has been experiencing an alarming increase in people who are absent without official leave (AWOL) for more than thirty days -- administratively called desertion. During the last year, the Navy desertion rate reached its highest level since World War II. It has more than doubled since FY 1972. In FY 1977, there were 3.2 incidents of desertion for every 100 enlisted personnel.

TABLE VII-6

Desertions Per Hundred Enlisted Personnel

	FY 64	FY 68	FY 72	FY 76	FY 77
Army	1.34	2.91	6.20	1.77	1.33
Navy	.62	.85	.88	2.48	3.16
Marine Corps	1.78	3.07	6.53	6.92	4.70
Air Force	.06	.04	.28	.12	.05
DoD	.79	1.76	3.22	1.99	1.78

Most Navy deserters turn themselves in to military authorities and are discharged. It should be noted, however, that desertion is only one component of overall attrition. Total Navy attrition for all causes is comparable to figures reported by the other services.

The Navy has found that the average deserter serves on sea duty, is between 18 and 22 years old, ranks in the lower mental categories and is in the first term of enlistment. Once these common traits were identified, the Navy began working on modifying the factors which tend to lead such an individual to desert. Examples of management initiatives which have been developed to help turn around the desertion problem in the Navy include revised recruit screening procedures, improved sea pay legislation, new leadership courses for petty officers and junior commissioned officers and an enlistment bonus for the boiler technician rating.

III. PERSONNEL MANAGEMENT AND MILITARY COMPENSATION

There are several continuing personnel management problems in addition to those directly related to the AVF. These problems and our progress toward solving them are discussed under the following headings:

(1) Major legislative proposals, including civilian wage board pay reform, accrual accounting for military retirement and the Defense Officer Personnel Management Act; (2) Personnel management issues, including equal opportunity, health care, and unionization; and finally, (3) the study being conducted by the President's Commission on Military Compensation.

A. Major Legislative Proposals

1. Federal Wage System Reform

I support legislation proposed by the Civil Service Commission to reform the federal wage system for blue collar employees. Passage of the requested legislation will reduce the Defense budget by $136 million in FY 1979 and about $573 million annually by FY 1983. I believe that federal employees should be paid wages comparable with those in the non-federal sector. This legislation strengthens that principle. Current law, however, requires in some instances that the government pay wages an average of eight percent greater than those paid for comparable jobs in private industry. This increases the burden on the U.S. taxpayer and also:

- -- Creates inequities between government blue collar workers and other federal and private sector employees.
- -- Limits the number of workers we can afford to employ in maintaining weapon systems and in performing other readiness-related functions.
- -- Promotes inflationary pressure by forcing private employers to raise wage rates to match the higher federal rates in order to compete; in turn federal wage are raised even more to meet the provisions of the law.

Two provisions of the Administration's bill are of special interest. The first would match the average federal wage to the average local prevailing wage, where currently the average local wage is matched to step two of the wage scale while the average federal worker is at step four. Second, the legislation would repeal the Monroney Amendment, which bases the wage rate of DoD blue collar workers in some areas on the higher rates of more densely populated areas. Thus, some DoD employees are paid more than their local counterparts for comparable jobs.

2. Accrual Accounting for Military Retirement

The Administration is proposing a fundamental shift in the way the Federal Government budgets for military retirement. We now budget only for the current payments to military retirees and survivors. In contrast, the Civil Service Commission maintains a retirement fund with contributions from both the employee and the Federal Government. Funds are thus accrued to meet future retirement obligations. Although there is disagreement about the adequacy of the amounts set aside to fund Civil Service retirement, the effects of this procedure are (1) to reflect current liabilities for future retirement obligations in the agency budgets, and (2) to avoid making retired individual's payments, to which they are entitled by law, subject to a year-to-year appropriation. The President's FY 1979 budget proposes legislation to shift military retirement to an accrual accounting system. National Defense costs in the DoD budget would then reflect the accrual retirement liability of the current military forces rather than the retirement costs resulting from previous national security actions. The retirement payments to those currently on the military retired rolls would be shifted out of the National Defense function into the income security function, as is currently the case for Federal Civil Service retirement payments.

The annual estimates of accrued retirement costs depend on the economic assumptions. For example if we assume that interest will be two and one half percent above the inflation rate and that annual pay increases will exceed inflation by one and one half percent then about seven billion dollars must be set aside for retirement in FY 1979. The proposed legislation recommends that an agency outside of DoD perform the actuarial task and establish the accrual rates to be used.

3. Defense Officer Personnel Management Act (DOPMA)

In 1974, the Department proposed the most comprehensive legislation since 1947 to update the laws that govern the management of the officer corps within the armed forces. The Defense Officer Personnel Management Act (DOPMA) will eliminate many inconsistencies in existing law which create inequities in the way officers are managed by the different services and in the way male and female officers are managed in all the services. It will also enable us to conduct the long-range planning which is so essential to providing our officers with careers that are competitive with civilian opportunities and which help to attract and retain the high quality officer force needed for our national security. The DOPMA legislation has been submitted to the Congress three times. It was passed by the House of Representatives in the 94th Congress, but action was not completed by the Senate. It was introduced as a Congressional initiative to the 95th Congress in the House of Representatives on March 23, 1977, as H.R. 5503, approved by the Committee and is awaiting consideration by the full House. If DOPMA is not enacted by September 1978, it will be necessary to submit a request for temporary grade authorizations for the Air Force as well as urgent legislation designed to avoid some undesired personnel problems brought about through the effects of the National Emergencies Act (P.L. 94-412).

Management of the officer corps is becoming increasingly more uncertain as a result of outmoded laws, conflicting pressures and unwarranted service differences. For several years the officer corps has been anticipating changes in the management system which are of vital importance to them and their careers. The uncertainties must be removed as soon as possible so that the efficiency, readiness, and morale of the officer corps will not be impaired. I urge the Congress to give high priority consideration to this important legislation to ensure completion of action on it before the end of this Congress.

B. Personnel Management Issues

1. Equal Opportunity

During FY 1977, the Department of Defense has strengthened both military and civilian manpower programs by incorporating equal opportunity considerations into a wide spectrum of programs and activities.

a. Minorities

The percentage of minority members in the selected reserves has increased from about two percent in FY 1971 to over 20 percent in FY 1977. In the past, minorities were seriously under-represented in the reserve components. This change is especially important since these units have a strong local orientation and provide many services to their states and communities as well as backing up the active forces for national defense.

The percentage of active duty military officers drawn from the minority populations continues to increase. Black officers comprised 4.0 percent of the active force at the end of FY 1977. This represents a gain since 1971 of 1.7 percentage points in black officers. More such gains are needed; those achieved reflect the positive effort and direction of commissioning programs at the service academies, ROTC universities, and other officer training programs.

The curriculum of the Defense Race Relations Institute (DRRI) is being refocused to concentrate on the means to eliminate institutional discrimination within the Department of Defense, rather than on ways of raising awareness of racial problems in the society at large. This new direction will require changes in the basic principles and purposes of the course, the specific course content, the faculty, and the student body. Future graduates must be more effective in helping commanders and managers eliminate the real causes of embedded institutional discrimination.

b. Women

The Department of Defense, will, on a continuing basis, review its programs and policies to ensure that women are provided equal job opportunities with men within the constraints of law.

Currently, 10 U.S. Code 6015 precludes women from serving on Navy ships. A change in this leglsiation to give women an expanded role in the Navy has been requested. The issue of women in combat is discussed in the All-Volunteer Force section of this Chapter.

A significant number of well qualified women have been given major responsibilities in the Department of Defense by this Administration. Women currently hold the following positions:

General Counsel, Department of Defense

Assistant Secretary of the Air Force (Manpower, Reserve Affairs and Installations)

General Counsel, Department of the Army

Deputy Under Secretary of Defense for Research and Engineering (Research and Advanced Technology)

Deputy Assistant Secretary of Defense (Equal Opportunity)

Deputy Assistant Secretary of Defense (International Security Affairs, Plans and Policy)

Deputy Assistant Secretary of Defense (ISA, International Economic Affairs)

Deputy Under Secretary of the Navy

Deputy Assistant Secretary of the Navy for Manpower

Associate General Counsel, Department of the Navy

Below the executive level, however, the Department of Defense has experienced reductions in the numbers of civilian women (as of civilian men) as a result of recent reductions in force (RIF). The RIF procedures emphasize seniority and veterans preference and unintentionally tend to discriminate against women. I support a change in legislation that would modify the Veterans Preference Act to recognize better the needs of other groups in modern society.

c. Private Sector

The Department of Defense Contractor Employment Compliance (CEC) Program originated with Executive Order 11246. It is the largest equal opportunity program in the Department of Defense, affecting 50,000 contractor facilities and over twenty million people. This represents approximately 40 percent of the national federal contractor employment compliance workload.

In FY 1977, the Department of Defense conducted approximately 7,400 CEC reviews, affecting five million employees. During the last five years in contractor facilities reviewed by the Department of Defense, the total number of minority people in the work force increased by 16.0 percent overall and the female work force increased by 1.1 percent. This was despite a general decline in overall contractor work force size of 1.5 percent. Increases have been particularly evident in higher level jobs. For example, minority employment in the officer and manager category increased by 69.5 percent and of women by 81.8 percent. This compares to an overall growth of 8.5 percent.

2. Health Care

The Defense Health care system is composed of the military direct care system and the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS). It maintains a healthy peacetime active military force and provides a nucleus around which we could expand to achieve a wartime medical force.

The military health care system is sized primarily on the requirements of wartime planning scenarios. Ideally, these requirements would be met by the peacetime military direct care system supplemented by the reserve components and the civilian sector. However, the Department recognizes that the present state of the reserve components severely limits their contribution to total requirements. The degree to which the reserve components and the civilian sector can satisfy full mobilization requirements is currently under review. The outcome of the review will determine the required size of the peacetime military direct health care system. In the interim, present policy is to base the direct care system on the peacetime needs of the active force unless:

-- Adequate health care facilities for dependents and other beneficiaries are not available locally;

-- The marginal cost of treating dependents and other beneficiaries in-house is less than local CHAMPUS costs;

-- A valid teaching or training requirement exists.

The Department is faced with a physician shortage which is expected to constrain the military direct care system to some degree in the near term. The current shortage is about 10 percent of authorized peacetime levels. Increased efforts to recruit civilian physicians and greater reliance on contract services are being utilized to minimize the loss of capability during this period. However, the Department's goal is to maintain the quality of care and to rely on the CHAMPUS program in those areas and specialties where the direct care system cannot satisfy demand.

The Department anticipates that physician requirements can be met by the early 1980s. Projected increases in the national supply of physicians, improved retention of physicians entering via the Armed Forces Health Professions Scholarship Program, and graduates from the Uniformed Services University of the Health Sciences (USUHS) are major factors -- of varying effectiveness and cost -- supporting this prediction.

3. Individual Training and Education

There have been a number of important improvements in training efficiency and effectiveness in recent years, and we are planning to make significant reductions in training times and costs in FY 1979. The length of the Navy recruit training course was reduced from nine to eight weeks last year and will be further reduced to seven weeks in FY 1979. The Marine Corps recruit training course will be shortened from the current eleven weeks to nine weeks.

In specialized training, we are reducing military students and staff by approximately nine percent from the FY 1978 level, principally by shortening courses and extending the use of on-the-job training. The Army has realized substantial savings through the use of one-station unit training (OSUT) courses, which combine in one course at one location recruit and specialized training. The Army plans to conduct a test comparing OSUT and a similarly shortened two-station training for infantrymen beginning in late FY 1978; savings in initial trainee time under either method will be three to four weeks.

More generally, the Services are making training both more efficient and more effective by identifying tasks actually performed in the field and structuring courses to focus on essential tasks and effective training methods. Department of Defense training and education are discussed in detail in the annual Military Manpower Training Report submitted to the Congress.

4. Defense-Labor Cooperation in Pre-enlistment Training

The Department of Labor plans to expand the Job Corps, during the current fiscal year. As part of this expansion, military-oriented programs will be established within selected Job Corps centers. These programs will be designed to raise the capability of participants to qualify them for enlistment in the Military Services or for other employment. The Department of Defense will aid in this program by referring applicants not accepted for enlistment to the Job Corps, providing surplus equipment and facilities for Job Corps uses, assisting in program design and assessing the progress of those subsequently accepted for military service. A memorandum of understanding between the two Departments specifying the details of interdepartmental cooperation was recently prepared. When the program is operational, it should be helpful in enlarging the pool of qualified applicants for military service.

5. Unionization

I have issued a DoD directive (1354.1) which establishes departmental policies and procedures with respect to organizations whose objective is to organize or represent members of the armed forces on active duty, inactive duty training, or members of reserve components serving in their military capacities for purposes of negotiating or bargaining about terms or conditions of military service. These policies and procedures provide uniform direction and guidance to officials in the Department of Defense and members of the armed forces. They also ensure consistent and even-handed treatment of members of the armed forces and individuals, groups, organizations, and associations seeking or purporting to represent members of the armed forces for the purpose of such negotiating or bargaining.

This directive prohibits commanders and supervisors of the Department of Defense, acting on behalf of the United States, from engaging in negotiation or collective bargaining with members of the armed forces or with individuals, groups, organizations, or associations purporting to represent members of the armed forces for the purpose of resolving, bilaterally terms or conditions of military service. It also prohibits members of the armed forces from engaging in strikes, slowdowns, work stoppages, actions which obstruct or interfere with the performance of military assignments, and picketing for the purpose of causing any of the foregoing, when such actions are related to terms or conditions of military service. The directive proscribes efforts on military installations to recruit members of the armed forces into certain types of organizations and, in specific circumstances, prohibits membership by members of the armed forces in certain organizations.

C. Military Compensation Study

Military compensation, including its miliary retirement component, is of major importance to this Administration. A number of studies of military compensation have been made in recent years by the Third Quadrennial Review of Military Compensation, the Defense Manpower Commission, the Comptroller General, and others. Unfortunately, their conclusions and recommendations do not agree.

In an effort to reconcile the conflicting findings, President Carter appointed a nine-member Commission on Military Compensation on June 27, 1977. The Commission's task is to review the findings, analyses, and conclusions of previous studies, to solicit and take testimony, to perform whatever additional analysis they feel is warranted, and to provide the President with independent advice and recommendations on what should be the long-term compensation policy of the United States for the active military force. The Commission is scheduled to submit a report by March 15, 1978.

In their review the Commission have been asked to develop a position on at least the following issues:

-- What form of military compensation is the most effective for meeting the needs of the nation in peace and war? Is the present pay and allowances system adequate? If not, what changes (such as some form of military salary) offer greater potential to serve the national purpose?

-- Are specific standards appropriate and necessary for setting and adjusting military compensation? If so, what should the standards be? What element of compensation should be based on such standards?

-- What provisions are appropriate for differential compensation (such as special and incentive pays) and what are the appropriate criteria for using them?

-- What are the purposes of the military retirement system? Is the present system effective in achieving these purposes? What changes are appropriate?

-- Should the unique characteristics of military service be reflected in the compensation system, and if so, how?

CHAPTER VIII

MANAGEMENT

I. INTRODUCTION

The problems of an organization as large and diverse as the Department of Defense (DoD) are not unique to government. Often they are characteristic of large organized enterprises in general. DoD must make or recommend the technical military decisions regarding strategic posture, force structure, weapons selection, logistics, and the highly specialized issues involved in shaping our nation's defense. The Department must also deal with the extraordinarily complex task of organizing and managing its bureaucracy, worldwide activities, and numerous programs as effectively as possible. With my own desire to increase efficiency and to get the most out of every defense dollar, there is a compelling need to streamline organizational relationships and management arrangements in the Department of Defense. Accordingly, I have made organizational and management reform a matter of priority.

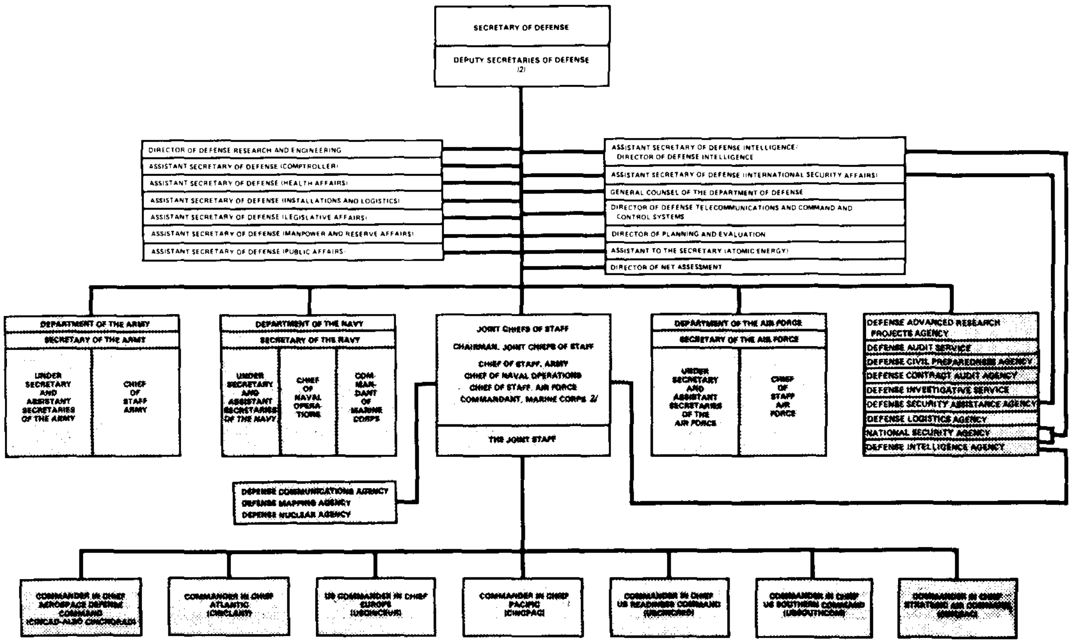
Considering its enormous size and complexity, the Department of Defense has been (and, I think, is) a well run organization. However, organizational arrangements and management processes are of necessity dynamic in nature. They must be adjusted to respond to changing conditions and new requirements.

II. PLANNING

The changes made to the Defense Planning, Programming and Budgeting System (PPBS) to accommodate Zero Based Budgeting (ZBB) are outlined in the Budget Chapter of this Report. In addition to these changes, we have been closely studying the PPBS in order to improve further the timeliness and fidelity of its responsiveness to national security objectives and Presidential policy initiatives, on the one hand, and the needs of the Military Services and our combat commanders on the other. We expect to make substantial additional improvements in the PPBS in the months ahead.

Chart VIII-1

DEPARTMENT OF DEFENSE
JANUARY 1977



1/ OFFICE OF THE SECRETARY OF DEFENSE IS INDICATED BY THE UNSHADED AREA

2/ COMMANDANT, MARINE CORPS SITS WITH JCS ON MATTERS CONCERNING USMC

III. ORGANIZATION

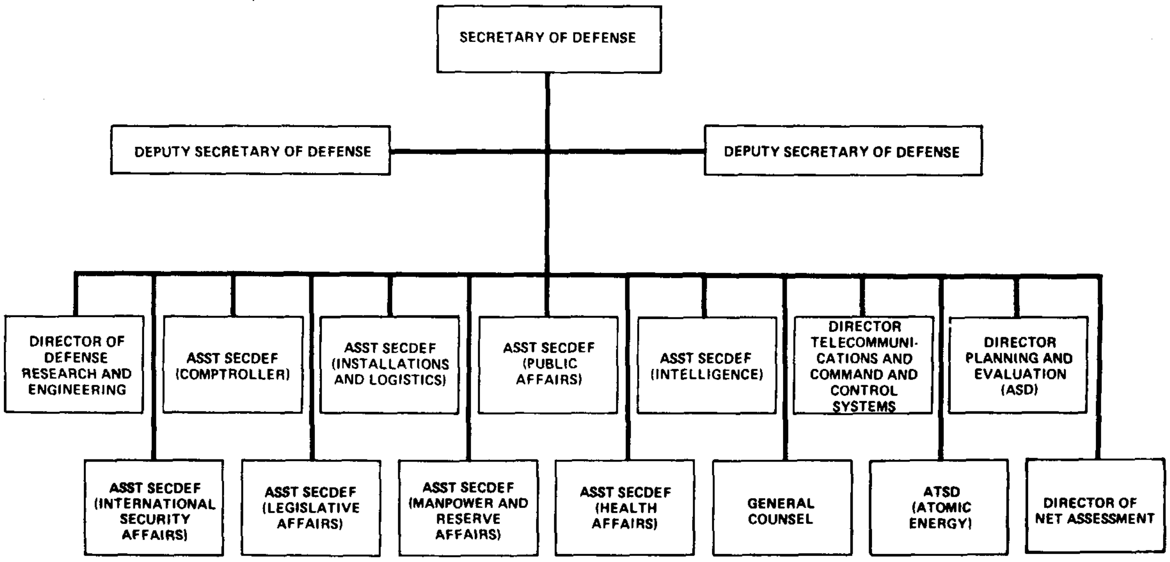
A. Chart VIII-1 shows the Department of Defense as it was organized in January 1977. After a careful examination of this structure, I concluded that:

1. The Office of the Secretary of Defense (OSD) and the Headquarters of the Military Departments were too large and engaged in too many activities that could be effectively performed at lower levels in the Department.

2. The Secretary's span of control was too broad for effective management. At that time, 29 major offices of the Department, plus seven Unified/Specified Commands reported to me. Of these, almost half were within the Office of the Secretary itself (Chart VIII-2). Furthermore, the fragmentation of executive authority among independent offices within the Office of the Secretary, several of which had closely related functions and responsibilities, created the need for excessive and time-consuming coordination and required the elevation of far too many decisions to the Secretary or Deputy Secretary for resolution. Virtually every review of the Department's organization in the past several years concluded that these conditions hampered effective management.

Chart VIII-2

OFFICE OF THE SECRETARY OF DEFENSE
AS OF JANUARY 31, 1977



3. The existence of two Deputy Secretary of Defense positions confused the distribution of executive responsibilities and lines of authority within the Department.

4. There was a need to integrate logistics and manpower activities in order to strengthen relationships between logistics systems and the people they are intended to support.

5. Intelligence users and defense policy makers needed to have more influence over the requirements and priorities established for communications, command and control, and intelligence. Too often, system capabilities and technical innovations, rather than user needs, were determining the design, configuration, and products of these key support programs.

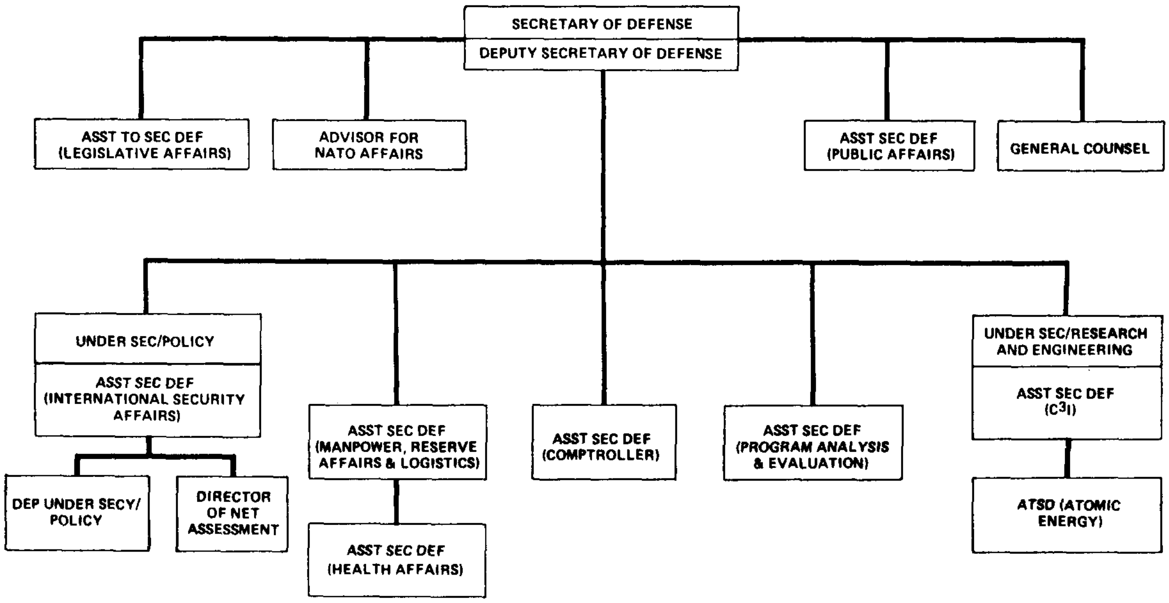
6. The weapons systems acquisition process needed to be more closely integrated with research and engineering in order to provide for a more comprehensive approach to weapons systems management from concept development through acquisition stage. At the same time, the Department needed a more independent evaluation of operational test results of new weapon systems prior to major production and acquisition decisions.

7. Since NATO-related programs are of great size and importance, there needed to be clearer top management focus on NATO aspects of defense management at both OSD and Service levels. NATO could not remain everybody's business and nobody's.

Since January, I have initiated a number of administrative actions and proposed legislation designed to remedy these problems. To date, they have included a major reorganization and staff reduction in the Office of the Secretary of Defense, staff reductions and organizational realignments in the Headquarters of the Military Departments, and initiation of a Defense Reorganization Study to review comprehensively organizational and management arrangements in DoD.

Chart VIII-3

OFFICE OF THE SECRETARY OF DEFENSE
CURRENT



B. Office of the Secretary of Defense Reorganization

The Office of the Secretary of Defense has been restructured as shown in Chart VIII-3. The number of major staff offices within OSD reporting to me has been reduced from 14 to nine. Some of the changes were accomplished administratively, while others required legislative action. The major features of the reorganization are:

1. The positions of Assistant Secretary of Defense (Intelligence) and Director, Telecommunications, Command and Control Systems have been abolished, and their resource management and systems development functions consolidated under a new Assistant Secretary of Defense (Communications, Command, Control, and Intelligence). Combining these two organizations enabled us to eliminate an executive level position and its associated overhead. Also, it strengthened internal coordination and working relationships between the closely related technologies and operational requirements of these two functions: particularly in the areas of resource management, hardware development, systems design, and program evaluation.

2. A Deputy Under Secretary for Policy has been established to monitor and develop policy for DoD communications, command and control (C^3) and intelligence analyses, requirements and priorities. Separation of these functions from the hardware-oriented responsibilities of the Assistant Secretary of Defense (Communications, Command, Control, and Intelligence) will assure that full consideration is given to the needs of product users. This, combined with the responsibility to verify response to requirements, will help ensure that all Departmental activities in these important areas are better coordinated.

3. The position of Assistant Secretary of Defense (Installations and Logistics) has been abolished. Its weapon systems acquisition and related procurement policy functions have been consolidated with the functions previously performed by the Director of Defense Research and Engineering (DDR&E). This will improve the quality of our planning for new weapon systems by assuring the consideration of acquisition factors early in the design and development stages. In addition, the logistics, installations, and housing functions previously performed by the Assistant Secretary of Defense (Installations and Logistics) have been transferred to the Assistant Secretary of Defense (Manpower and Reserve Affairs), who has been redesignated as the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics) to reflect this expanded role. These newly transferred functions, along with the manpower personnel functions previously performed by the Assistant Secretary of Defense (Manpower and Reserve Affairs) are integral parts of the systems, facilities and resources which comprise the military support structure. Their consolidation should ensure that decisions affecting this support structure consider manpower as well as materiel in a more balanced fashion.

4. The Director, Planning and Evaluation has been upgraded to Assistant Secretary of Defense (Program Analysis and Evaluation) and has assumed responsibility for operational test and evaluation. This separates the analysis of operational test results from the personnel responsible for research and engineering, thereby providing me with a completely independent evaluation of all major weapon systems prior to each major decision point in the development and acquisition process.

5. There are ten defense agencies in the Department, whose directors in the past typically reported directly to the Secretary. To streamline the Department and to reduce my own span of control, I have now placed most of these agencies under the direction of one of the under secretaries or assistant secretaries. This change will permit the agencies to receive prompt policy guidance from the senior OSD official best situated to provide it. Thus, the Defense Advanced Research Projects Agency, the Defense Nuclear Agency and the Defense Mapping Agency report to the Under Secretary of Defense for Research and Engineering. The Defense Civil Preparedness Agency reports to the Under Secretary of Defense for Policy. The Defense Contract Audit Agency reports to the

Assistant Secretary of Defense (Comptroller), and the Director of the Defense Audit Service reports as a Deputy Assistant Secretary to the ASD (Comptroller). The Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics) supervises the Defense Logistics Agency; the General Counsel is responsible for the Defense Investigative Service; and the Assistant Secretary of Defense (Communications, Command, Control and Intelligence) directs the Defense Communications Agency. In addition, the Assistant Secretary of Defense (International Security Affairs) continues to supervise the Defense Security Assistance Agency. To reduce further the number of officers reporting directly to me, I have also asked that the Director of Net Assessment report to the Under Secretary of Defense for Policy, and that the Assistant to the Secretary of Defense (Atomic Energy) report to the Under Secretary of Defense for Research and Engineering. All of these changes are designed to make the Department more manageable and responsive to policy direction, and to assure that implementation is adequately supervised.

In addition to these administratively directed changes I proposed, in April of this year, legislation which would further strengthen Departmental management by disestablishing one of the Deputy Secretary of Defense positions and the Director of Defense Research and Engineering, and establishing instead, two new Under Secretaries of Defense, one for Policy and the other for Research and Engineering. This legislation was approved by Congress and signed into law by President Carter on October 21, 1977.

6. Disestablishment of the second Deputy Secretary of Defense position eliminates confusion regarding the distribution of executive authority immediately below the Secretary and permits me to use the remaining Deputy as my single principal assistant in all areas of Defense management. Since it was originally authorized in 1972, the second Deputy Secretary of Defense position has been filled only once. Its incumbent operated in a limited and specialized area of Defense management. The new legislation reflects President Carter's and my belief that the Secretary needs one Deputy who can act with full authority in his behalf at all times, on any matter within the Department.

7. The Under Secretary of Defense for Policy will be my principal adviser and staff assistant for all matters concerned with political-military affairs, arms limitation negotiations, and the integration of departmental plans and policies with overall national security objectives. This consolidates, under a single adviser, all of the closely related international military policy functions within the Department, thereby permitting me to receive fully coordinated advice and assistance in these important and sensitive areas. In addition to his previous functions, the Assistant Secretary of Defense (International Security Affairs) will also serve as the Principal Deputy Under Secretary of Defense for Policy. This will preclude staff layering by enabling the Under Secretary for Policy to draw support from the Office of the Assistant Secretary of Defense (International Security Affairs).

8. The Under Secretary of Defense for Research and Engineering is my principal adviser and staff assistant for all of the statutory functions previously performed by the DDR&E, major weapon systems acquisition and related procurement policy, and communications, command, control and intelligence resource management. The Assistant Secretary of Defense (Communications, Command, Control, and Intelligence) serves as the Principal Deputy Under Secretary of Defense for Research and Engineering. This arrangement provides for the effective integration of the systems design, development and acquisition of major hardware programs within the Department of Defense. Again, we have consolidated several closely related functions under a single adviser to the Secretary.

9. I have also instituted special arrangements to ensure that NATO considerations receive appropriate emphasis. DoD organizational arrangements and programming procedures have been revamped in order to strengthen our focus on NATO-oriented activities in relevant DoD and Service components. Key civilian and uniformed managers have been tasked to supervise their respective efforts. Moreover, I have appointed an Advisor for NATO Affairs directly responsible to me to coordinate and focus all NATO activities. He and the ASD/ISA now participate in the Defense System Acquisition Review Council (DSARC) in order to assure that NATO considerations are taken adequately into account in development and production decisions.

Currently, the Assistant Secretary of Defense (Health Affairs) reports to me through the Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics). The purpose of this arrangement is to assure that health program matters are considered within the context of other manpower and personnel support programs. We are studying the possibility of consolidating health affairs more fully with these related programs by transferring the health function to a Deputy Assistant Secretary (Health Affairs) reporting to the Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics).

These changes represent the nucleus of our organizational restructuring efforts. By streamlining and strengthening managerial lines of authority at the top of the Department, the stage has been set for similar consolidations within the Military Departments and other DoD Components. For example, the Military Departments have realigned their installations and logistics functions to reflect disestablishment of the Assistant Secretary of Defense (Installations and Logistics). Other realignment actions are taking place to effect recently directed staff reductions at the Departmental Headquarters level.

C. OSD and Military Department Headquarters Staff Reductions

The changes described above and related actions involving transfer of various functions no longer required to be performed at the Secretary of Defense level have enabled us to reduce the manpower authorization for the Office of the Secretary of Defense by 546 positions from its January 1977 strength of 2,065, a reduction of approximately 26 percent. Of these reductions, 337 have been accomplished by transferring personnel and functions to other DoD organizations and 209 positions have been abolished outright. I also directed a reduction of approximately 22 percent in Defense Agencies and field activities which receive their administrative support from OSD (such as the Defense Security Assistance Agency and the American Forces Information Service). The January 1977 combined strength of these organizations was approximately 1,600 personnel. At the same time, I directed the Secretaries of the Military Departments to reduce their immediate staffs and those of the Service Chiefs by a comparable percentage. They are currently in the process of effecting these reductions by abolition and by transfer. In these efforts, as in the OSD reduction, maximum emphasis is being placed on consolidating related functions, eliminating unnecessary or marginal functions, and transferring to lower echelons those functions which are primarily operational in nature. As much as possible, the top-level Departmental headquarters staffs will limit their functions to policy development, resource management and program evaluation matters. These changes ultimately will make possible significant savings to the taxpayer by resulting in improved utilization of this nation's defense resources.

D. Defense Reorganization Study

On September 20, 1977, President Carter requested that I "initiate a searching organizational review -- to produce an unconstrained examination of alternative organizations, management and decision processes within the Department of Defense." This request complemented the reorganization efforts which were already in progress within the Department. After consultation with the President and his reorganization advisers, I directed the initiation of a Defense Reorganization study focusing on three major areas of inquiry:

- -- The Defense Department Headquarters Structure -- a review of the roles, functions, and responsibilities of OSD, the Service Secretariats, and Service Staffs.
- -- The DoD Organization for Resource Management -- a review of DoD resource management systems and DoD support activities.
- -- The National Military Command Structure (NMCS) -- a review of the ability of the NMCS to respond to the National Command Authorties, and a review of the appropriate roles of the Secretary of Defense, Joint Chiefs of Staff, and Unified and Component Commanders in the NMCS.

The major objective of this study is to improve the efficiency and responsiveness of Defense organization and management by:

-- Strengthening management arrangements by identifying and eliminating unnecessary overlap, fragmentation, or operating redundancies in major DoD programs, functions, and responsibilities.

-- Improving the effectiveness of the structures, methods, and procedures used to direct and control our operating combat forces.

-- Improving DoD resource management structures and processes.

In order to assure the development of a full spectrum of alternatives in each of the study areas, we have included, whenever possible, participation of experts from outside of the department and from non-government sources. This effort is currently underway; I am confident that a comprehensive examination will result. Whether it will involve major reorganization or the streamlining of our current structure remains to be seen. We are not interested in reorganization merely for the sake of change. Those alternatives that will best improve Defense efficiency and responsiveness will be selected for implementation.

We appreciate the cooperation shown by the Congress in our reorganization efforts to date. We shall, of course, continue to coordinate future changes with Congress. Some are likely to require formal Congressional approval for implementation.

IV. PROGRAM IMPROVEMENTS

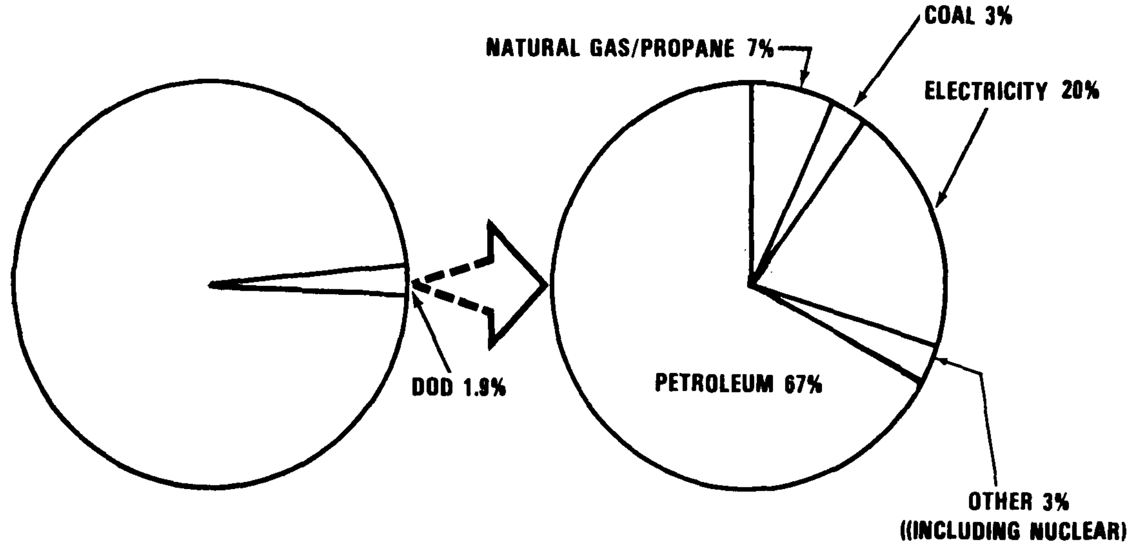
A. Energy Conservation

The Department of Defense accounts for approximately 1.9 percent of total national consumption of energy. This is the equivalent of approximately 260 million barrels of oil per year. As shown on Chart VIII-4, roughly 67 percent of this demand is filled by liquid petroleum products, 20 percent by electricity, seven percent by natural gas, and three percent by coal. The remaining three percent is filled by a combination of purchased steam, hot water, and nuclear energy. Chart VIII-5 depicits DoD energy usage as distributed among the Military Departments (Air Force, understandably, is the largest user, followed by Navy and Army, respectively) and in terms of end use (with aircraft operations and installation support heading the list in this category).

Chart VIII-4

TOTAL DOD ENERGY CONSUMPTION

US TOTAL CONSUMPTION (FY 1977) | **DOD ENERGY BY SOURCE (FY 1977)**



13,620 MILLION BARRELS OF OIL EQUIVALENT (ESTIMATED)

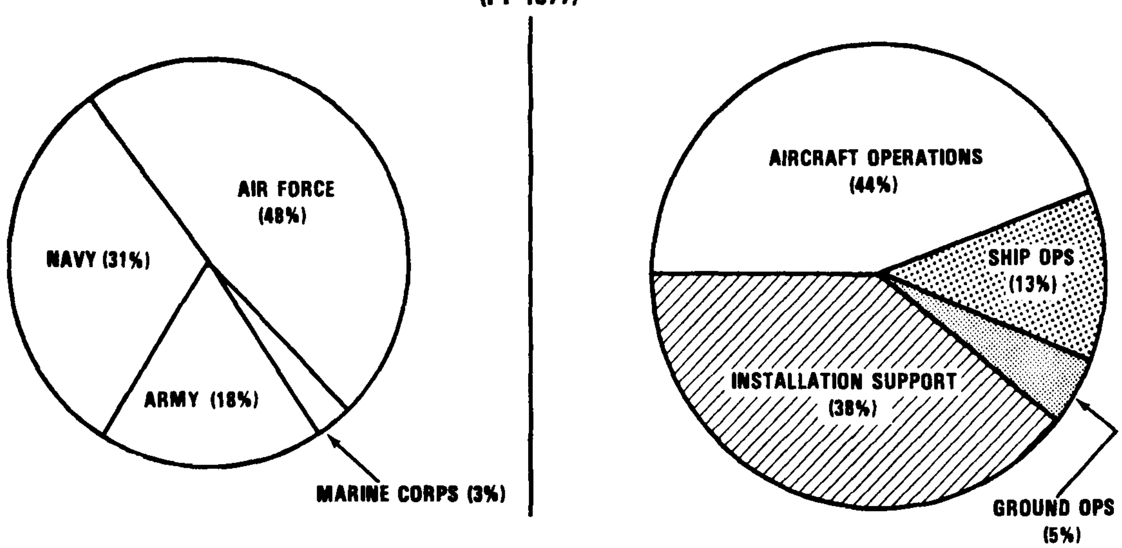
260 MILLION BARRELS OF OIL EQUIVALENT

Chart VIII-5

DOD WORLDWIDE ENERGY CONSUMPTION

BY MILITARY SERVICE | **BY OPERATIONAL FUNCTION**

(FY 1977)



Because of the extent of its energy consumption and the vital importance of adequate energy supplies to military readiness, the Department of Defense is keenly aware of its responsibility to conserve the nation's dwindling energy resources. Largely as the result of an aggressive energy program, we have been able to achieve a 32 percent reduction in energy consumption between 1973 and 1976.

The Energy Conservation Investment Program (ECIP) makes up the major part of our energy conservation plan. This is an FY 1976 to FY 1984 military construction program designed to retrofit existing DoD facilities to achieve maximum energy conservation while at the same time providing substantial savings in utility costs. Funding for this program has recently been increased to a total of $1.5 billion. This is a substantial investment. However, it will ultimately reduce our energy use by 6.4 billion BTU, or 12 percent DoD-wide, and produce projected cost savings of approximately $227 million per year expressed in FY 1978 constant dollars. Other ongoing programs will reduce DoD facility energy use by another eight percent, provided sufficient O&M funding is forthcoming. Typical projects include weatherization, installation of energy recovery systems, boiler plant modifications, heating, ventilating, and air conditioning retrofits, and the installation of more efficient lighting systems, electrical energy systems, and steam/condensation systems.

In addition to these conservation measures, the Department is actively engaged in efforts to reduce its dependence on petroleum through the application of new energy technology, such as the utilization of renewable resources and synthetic fuels. Our major new initiatives in this regard are in the areas of solar applications, photovoltaics, geothermal energy, refuse derived fuel, and synthetic fuels. Although still in the developmental stages, these initiatives show considerable promise for the future.

Further, the Department has made great strides in conserving scarce energy resources, particularly petroleum products, in its daily operations by emphasizing energy trade-offs in the early phases of operations and training planning. Increased use of aircraft simulators, and reductions in steaming and flying hours are examples of such measures. There is a limit, however, to how far energy consumption by our forces can be reduced without crippling their ability to maintain adequate readiness. Further significant energy reductions in operations, therefore, will be largely dependent on incorporating energy saving features in our weapons systems. Since such features must be designed into these systems during the development phase, a considerable amount of time will elapse before the systems are placed in the field and larger operational energy savings can be realized. In the interim, the Department will continue its efforts to manage energy consumption carefully in its daily military operations and to conserve to the maximum extent, consistent with mission and force readiness requirements.

B. Commercial Commodity Acquisition Program (CCAP)

As a means of decreasing its acquisition costs of non-military-items, the Department is seeking to increase its purchases of commercial, off-the-shelf, products. In January 1977, a CCAP pilot program was initiated to test the commercial concept over a broad range of commodities procured by the Services and Agencies. An evaluation of the program's results is expected to result in a significant revision of procurement policies and procedures for acquisition of commercial, off-the-shelf products. Expected benefits to the Department include: savings on R&D and production costs, increased supply reliability, improvement of the industrial base in various commodity areas, and earlier product availability.

C. Computer Resources and Software Management

The Department has taken significant action to improve the acquisition, management, and control of computer resources, particularly software in weapons, communications, command and control, and intelligence systems. Major initiatives in this area include: improved management controls of our research efforts in support of the Defense Systems Software Management Program, development of a framework for NATO cooperation in selected aspects of software management techniques and technology, improvement of the quality and consistency of DSARC and similar reviews with respect to computer resources issues, and progress in standardization of programming languages and computer logic systems.

D. Production Management Techniques

The Department has made considerable progress in strengthening its production management activities over the past year. A new DoD Directive "Defense Production Management" (DoD 5000.34, dated 31 October 1977) has been developed in consultation with industry. The Directive clarifies the responsibilities of the Military Departments and system contractors, and establishes specific production management considerations for each major program milestone decision. Each program's production management status will now be reviewed by the Defense System Acquisition Review Council (DSARC) in a manner similar to the independent assessments made for cost, and for test and evaluation. A thorough production readiness review of each program will be conducted prior to limited production and/or full production release. Further, responsibility for managing production, including the conduct of production readiness reviews, has been delegated to the Military Departments. Each Department has now established a focal point to coordinate overall production management activities.

E. Contractor Incentive

The Department believes that contractors should be encouraged to make their own investments in cost reducing capital assets. To achieve this goal we are instituting investment incentive techniques (value engineering incentives, award fee incentives) which can be tailored to individual programs in order to encourage capital investment when advantageous to the government.

F. Overseas Military Banking

With the concurrence of the Office of Management and Budget, the Department has taken over the management and funding of the overseas military banking program from Treasury. The program provides banking services for military and civilian personnel, nonappropriated fund activities, and military disbursing officers at overseas installations. The banking facilities are operated by U.S. banking institutions under contracts that permit the Department to reimburse them for net operating losses. As recommended by the Comptroller General, this transfer of responsibility places management and funding in the department that receives the benefits of the program and also permits Congress to review the annual request for appropriations as part of the Defense Budget.

G. Regional Planning and Health Care

The nation's health care system is undergoing major organizational changes and the concept of regional planning and delivery of health services is emerging as an acknowledged way to improve services while containing costs. The Department of Defense recognizes the potential benefits of managing its health care resources on a regional basis and is taking action to achieve this goal. Last year, the DoD Health Council was established to provide coordination, standardization, and supervision of military health programs. With the assistance of the Council, the Armed Forces Regional Health Services System is being refined to further this aim. Nine military medical regions have been established within the Continental United States, with a Regional Review Committee in each to provide interservice coordination. This arrangement provides a management mechanism which will reduce unnecessary duplication of services, improve coordinated health planning, constrain steadily increasing health costs through cooperative programs within regions, increase productivity, and improve coordination between the provision of health care in Defense facilities and the purchase of care from civilian sources through the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS).

Through the regionalization program we have already begun to:

-- Review capital equipment investment, construction proposals and major medical services costs;

-- Develop an improved patient referral process; and

-- Improve the assessment of patient demand for planning and resource allocation purposes.

CHAPTER IX

THE DEFENSE BUDGET

I. SUMMARY

Department of Defense funding requirements for the programs previously discussed are summarized as follows:

TABLE IX-1

Department of Defense - Military Functions
($ Millions)

Current Dollars	FY 1977	FY 1978	FY 1979
Total Obligational Authority (TOA)	108,276	116,778	126,000
Budget Authority	108,425	115,264	125,567
Outlays	95,650	105,300	115,200
Constant FY 1979 Dollars			
Total Obligational Authority (TOA)	122,558	123,731	126,000
Budget Authority	122,719	122,129	125,567
Outlays	108,775	111,719	115,200

Budget authority (BA) represents the legal authority to incur obligations, that is, authority to hire personnel or enter into contracts involving expenditures of funds from the Treasury within a specified period of time. Budget authority, in most cases, is provided by appropriation, but there are some exceptions. For military functions, the exceptions are technical and relatively minor; budget authority is virtually identical to the amount appropriated.

Total obligational authority (TOA) represents the value of the direct Defense program for each fiscal year regardless of the method of financing (which could include balances available from prior years or resources available from sale of items from inventory); BA on the other hand represents the value of annual new authority to incur obligations.

Outlays represent expenditures or net checks issued. About three-quarters of FY 1979 outlays will result from FY 1979 budget authority; the remainder will come from budget authority provided in FY 1978 and earlier years.

Until this year, military assistance was included in the National Defense functional heading in the President's budget, and has been included in summary presentations of the Defense budget. After consultation with the Congress, the decision was reached to shift military assistance from the National Defense functional heading in the President's Budget to the International Affairs heading. For FY 1979 and thereafter, then, military assistance will no longer be shown as a part of the Defense budget totals. Thus the text and the tables in this chapter will address military functions only.

TOA for military functions rose by $8.5 billion from FY 1977 to FY 1978. After adjustments for price changes, the real increase was $1.2 billion or fractionally less than one percent.

Aggregate TOA is projected to rise by $9.2 billion from FY 1978 to FY 1979 in current dollars. Of that amount, about $6.9 billion is necessary to cover the effects of inflation while the remaining $2.3 billion is needed to provide:

-- Real program growth in the investment accounts for force modernization necessary to continue to reverse some adverse trends in relative U.S./Soviet force capabilities.

-- Improvement in the day-to-day readiness of U.S. forces through the procurement of critical equipment and the enhancement of aircraft capability.

-- Increased sustainability for U.S. forces through the replenishment of depleted prepositioned and war reserve materials and ammunition.

TABLE IX-2

Total and Baseline Programs
($ Millions)

Current Prices	1975	1976	1977	1978	1979
TOA	86,270	96,156	108,276	116,778	126,000
Prior-Year ship building	1,411	-1,377	-1,597	- 566	- 636
Comparable TOA	87,681	94,779	106,679	116,212	125,364
Retired pay	6,239	7,326	8,219	9,240	10,172
Military Functions, Southeast Asia	270				
Naval Petroleum Reserves	68	118			
Total, nonbaseline	6,577	7,444	8,219	9,240	10,172
Baseline TOA, DoD	81,104	87,335	98,460	106,972	115,192

Constant FY 1979 Prices	1975	1976	1977	1978	1979
TOA	111,689	116,720	122,558	123,731	126,000
Prior-Year ship-building	1,411	-1,377	-1,597	- 566	- 636
Comparable TOA	113,100	115,343	120,961	123,165	125,364
Retired pay	8,437	8,923	9,451	9,840	10,172
Military Functions, Southeast Asia	340				
Naval Petroleum Reserves	90	145			
Total, nonbaseline	8,867	9,068	9,451	9,840	10,172
Baseline TOA, DoD	104,233	106,275	111,510	113,325	115,192

II. COMPARISON WITH PAST YEARS

A. Baseline

The Defense budget, even in TOA terms, represents certain costs which have been incurred in prior year programs and while contributing to today's defense requirements do not represent new FY 1979 capabilities. For example, prior-year shipbuilding costs must be identified. In this case we are requesting FY 1979 funds to meet shipbuilding programs approved in prior years (assumed to be fully-funded) where additional funds are now needed to complete the original, congressionally approved program. Retired pay (as distinguished from accrual retired pay which is addressed in another section) is another cost which does not add to present defense requirements but rather pays for past services. Defense costs in FY 1975 for the conflict in Southeast Asia are also deleted to arrive at baseline costs. Similarly, naval petroleum reserves were deducted since this activity was not in support of current baseline programs. Baseline trends are significant in that they more realistically identify defense resources needed to meet today's military requirements.

B. Total

The increase in real purchasing power projected for FY 1979, if approved, will continue the path of real growth necessary to reverse the downward trend that existed until FY 1976. Charts IX-1 and IX-2 summarize these trends over the past fifteen years in current and constant dollars respectively for both TOA and outlays.

III. ASSUMPTIONS AND PROJECTIONS

A. The proposed FY 1979 Defense Budget and the FY 1980-83 projections are based on a number of economic assumptions which are identified below. The most critical economic assumption underlying these projections is that the rate of inflation will be only somewhat lower in the FY 1979-83 period than it has been in the past few years.

B. Purchase price increases were determined on the basis of an index maintained by the Department of Commerce. The present deflator consists of indexes which are applicable principally to the private sector; they may not fully represent actual Department of Defense price experience. However, the Commerce Department's Bureau of Economic Analysis (BEA) and the Office of the Secretary of Defense (Comptroller) are currently developing price deflators specifically for Defense purchases. Preliminary results are just now becoming available. The detailed results of this project should be completed in time for use in the FY 1980 budget projections. In the interim, projections of purchase price increases for defense were developed by using economic factors furnished by the Office of Management and Budget. On this basis, the trend in the prices of the goods and services purchased from industry is projected to be:

Chart IX-1

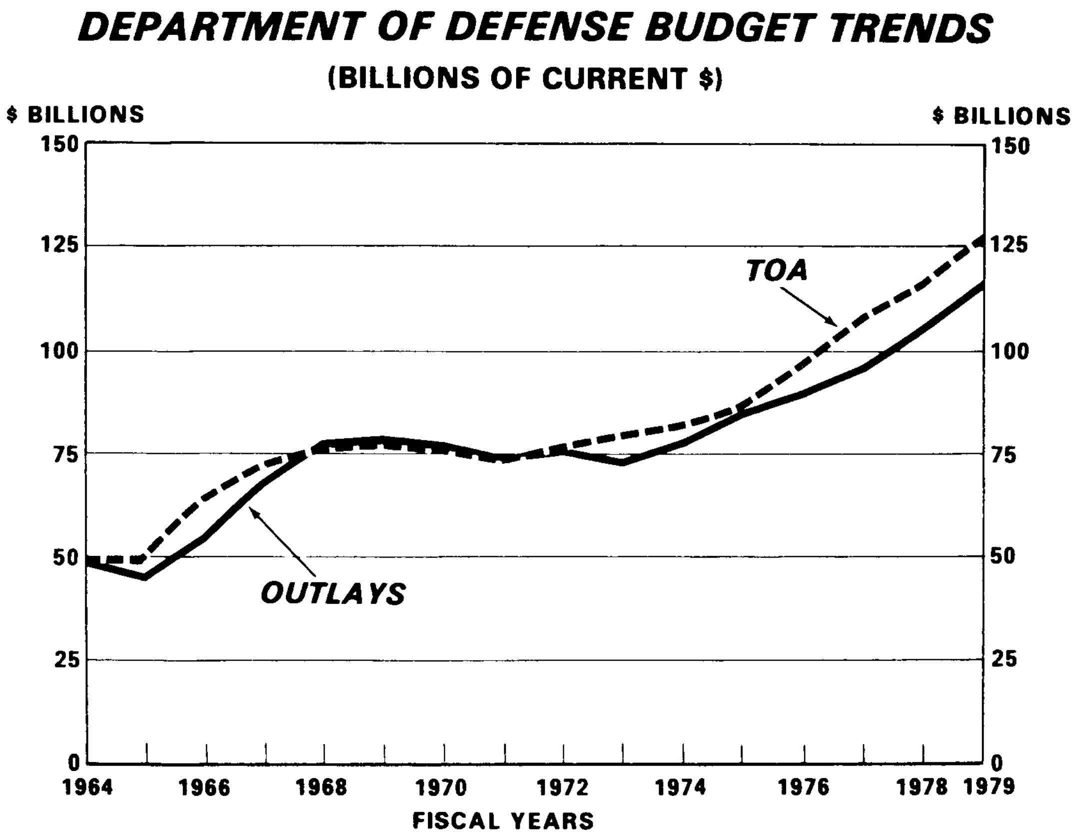


Chart IX-2

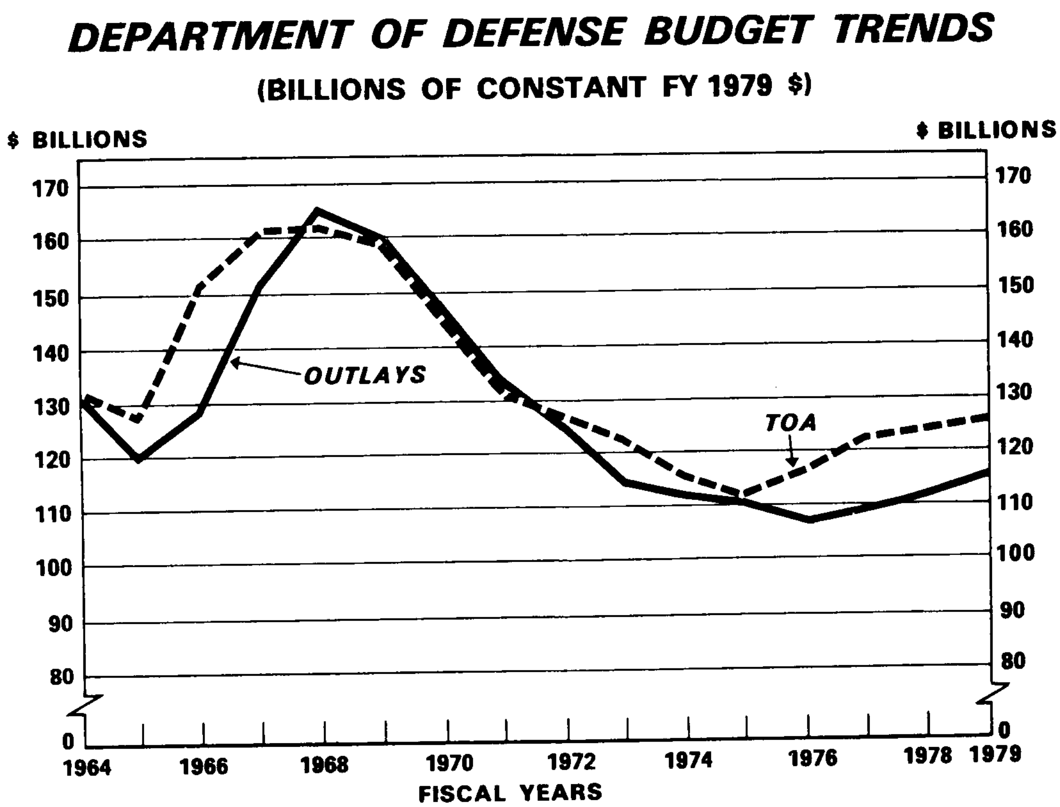


TABLE IX-3

Fiscal Year	Percent Increase
1977-78	7.0
1978-79	6.2
1979-80	6.0
1980-81	5.5
1981-82	5.5

C. The pay increases for active duty military and civilians employed by DoD and the cost-of-living adjustments for retired military personnel are shown in the following table. These projections are based upon guidance furnished by the Office of Management and Budget.

TABLE IX-4

Pay Raise Assumptions, FY 1978-83
Percent Change

General Schedule and Military Personnel		Wage Board Blue Collar Increases		Military Retired Pay CPI's			
October 1, 1977	7.05	FY 1978	7.9	9/1/77	4.3	9/1/80	2.7
October 1, 1978	6.5	FY 1979	3.4*	3/1/78	2.5	3/1/81	2.7
October 1, 1979	6.4	FY 1980	3.4*	9/1/78	2.9	9/1/81	2.4
October 1, 1980	6.1	FY 1981	6.1	3/1/79	3.1	3/1/82	2.5
October 1, 1981	5.7	FY 1982	5.7	9/1/79	2.9	9/1/82	2.2
October 1, 1982	5.4	FY 1983	5.4	3/1/80	3.0	3/1/83	2.2
						9/1/83	1.9

* Rates identified by asterisk assume wage board reform.

IV. OUTYEAR PROJECTIONS

Using these assumptions Defense budget projections from FY 1979 through FY 1983 will be as follows:

TABLE IX-5

DoD, $ Billions (Current Prices)
Military Functions

	TOA	Outlays
FY 1979	$126.0	$115.2
FY 1980	137.2	125.8
FY 1981	148.6	136.5
FY 1982	160.5	147.9
FY 1983	172.7	159.5

V. ANALYSIS BY PROGRAM AREA

The following tables provide a financial summary of the ten major programs:

TABLE IX-6

Department of Defense Budget Financing
Summary by Major Program
($ Billions)

	Current Dollars Total Obligational Authority			
Military Program	FY 1976	FY 1977	FY 1978	FY 1979
Strategic Forces	7,281	9,394	9,259	9,823
General Purpose Forces	33,048	38,238	42,640	46,891
Intelligence and Communications	6,661	7,414	7,824	8,300
Airlift and Sealift	1,269	1,529	1,623	1,799
Guard and Reserve Forces	5,395	5,903	6,654	6,730
Research and Development	8,659	9,868	10,245	11,039
Central Supply and Maintenance	9,759	11,133	12,019	12,779
Training, Medical, Other General Personnel Activities	21,663	22,536	24,012	25,984
Administration and Associated Activities	2,176	2,042	2,258	2,393
Support of Other Nations (Excl MAP)	244	219	243	262
Total	96,156	108,276	116,778	126,000

TABLE IX-7

Department of Defense Budget Financing
Summary by Major Programs
($ Billions)

Military Programs	Constant FY 1979 Dollars Total Obligational Authority FY 1976	FY 1977	FY 1978	FY 1979
Strategic Forces	8,845	10,599	9,811	9,823
General Purpose Forces	39,991	43,138	45,124	46,891
Intelligence and Communications	8,082	8,371	8,283	8,300
Airlift and Sealift	1,535	1,728	1,719	1,799
Guard and Reserve Forces	6,564	6,680	7,043	6,730
Research and Development	10,475	11,176	10,864	11,039
Central Supply and Maintenance	12,004	12,636	12,748	12,779
Training, Medical, Other General Personnel Activities	26,266	25,664	25,486	25,984
Administration and Associated Activities	2,662	2,317	2,395	2,393
Support of Other Nations (Excl MAP)	296	248	258	262
Total	116,720	122,558	123,731	126,000

A. Strategic Forces

In current dollars there is a growth of \$.6 billion from FY 1978 to FY 1979 for strategic forces. However, after allowing for the effects of inflation funding for this program remains essentially level over this two-year period.

B. General Purposes Forces and Other Program Missions

Real growth of \$1.8 billion is projected for General Purpose Forces from FY 1978 to FY 1979. The operations area within General Purpose Forces increases \$.5 billion. Procurement increases by \$.9 billion and military construction is up by \$.4 billion. For the remaining major program areas the most significant real increase is in Training, Medical, Other General Personnel Activities which is up \$.5 billion.

VI. THE BUDGET BY APPROPRIATION CATEGORY

The following tables provide a financial comparison of the FY 1979 defense budget by appropriation category with previous years.

TABLE IX-8

Department of Defense Budget Financial Summary by Appropriation Category
($ Billions)

Appropriation Title	Current Dollars Total Obligational Authority FY 1976	FY 1977	FY 1978	FY 1979
Military Personnel	25,430	25,947	27,285	28,677
Retired Pay	7,326	8,219	9,240	10,172
Operation and Maintenance	28,848	32,011	34,978	38,069
Procurement	21,299	27,515	30,321	31,952
RDT&E	9,520	10,588	11,413	12,551
Military Construction	2,223	2,392	1,857	2,741
Family Housing	1,286	1,294	1,420	1,625
Civil Defense	86	86	92	97
Revolving and Management Funds	135	220	171	101
Special Foreign Currency	3	4	2	14
Total	96,156	108,276	116,778	126,000

TABLE IX-9

Department of Defense Budget Financial Summary by Appropriation Category
($ Billions)

Appropriation Title	Constant FY 1979 Dollars Total Obligational Authority FY 1976	FY 1977	FY 1978	FY 1979
Military Personnel	30,346	29,330	28,868	28,677
Retired Pay	8,923	9,451	9,840	10,172
Operation and Maintenance	35,625	36,416	37,121	38,069
Procurement	25,735	30,845	32,041	31,952
RDT&E	11,521	11,992	12,103	12,551
Military Construction	2,729	2,711	1,972	2,741
Family Housing	1,570	1,463	1,504	1,625
Civil Defense	104	98	97	97
Revolving and Management Funds	164	249	181	101
Special Foreign Currency	3	4	3	14
Total	116,720	122,558	123,731	126,000

VII. DEFENSE AND THE ECONOMY

Over the past decade there has been concern that the defense budget has had an especially harmful effect on the U.S. economy. Some observers claim defense spending creates greater economic loss than other forms of public spending: for example, more inflation, and less employment. Others simply believe increased defense budgets take resources away from other public needs. Recently some have challenged these beliefs, yet these beliefs still remain widely accepted despite what the evidence clearly shows. Over the past ten years (FY 1968 to FY 1978) social and economic spending in this country has grown about five times faster than defense spending. If the effects of inflation are taken into account, defense spending has declined by 23 percent over this period (see Chart IX-2) while social and economic spending has increased by over 100 percent. Though this period compares defense from the peak levels during the conflict in Southeast Asia, it still appears that many people do not realize how sharp the decline in public resources allocated to defense has been since that time.

Chart IX-3 shows that the Defense budget as a percent of total federal spending has fallen from 43 percent in FY 1968 to 23 percent in FY 1978. Defense spending as a percent of gross national product (GNP) over this period has fallen from over 9 percent to just above 5 percent. Table IX-10 summarizes these trends for selected years.

Chart IX-3

DEPARTMENT OF DEFENSE BUDGET

FINANCIAL SUMMARY

DOD AS A PERCENTAGE OF:

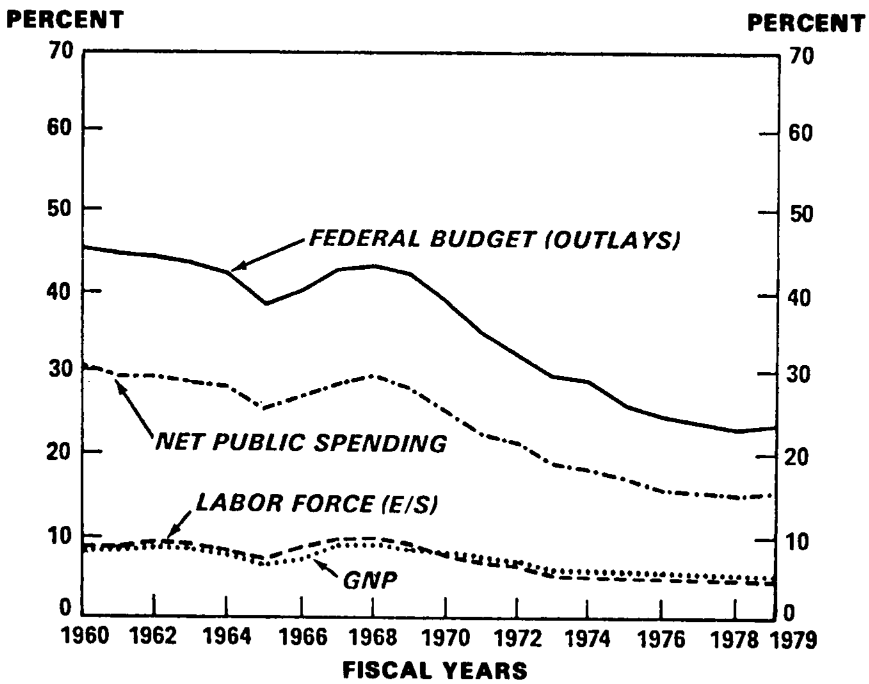


Table IX-10

DEPARTMENT OF DEFENSE BUDGET
FINANCIAL SUMMARY

	FY 1964	FY 1968	FY 1977	FY 1978	FY 1979
DEPARTMENT OF DEFENSE AS PERCENTAGE:					
Federal Budget (Outlays)	41.8%	43.3%	23.8%	22.7%	23.0%
Gross National Product	8.0%	9.3%	5.2%	5.2%	5.1%
Labor Force	8.3%	9.9%	4.9%	4.9%	4.9%
Net Public Spending	27.9%	29.5%	15.6%	15.2%	15.2%

VIII. MISSION-ORIENTED BUDGET PRESENTATION

The Defense program structure has been evolving for sixteen years and at the present time consists of both force-related and support-related missions. The force-related mission programs, such as strategic and general purpose, contain resources which are directly relatable to our combat capabilities. Support related programs, such as central supply and maintenance and training, medical and other personnel support, are centrally managed and generally serve as Defense-wide support of mission programs. Many of them are directly required for combat readiness. They support mission programs such as strategic forces, general purpose forces, or even the central support organizations themselves.

Program elements represent the lowest common denominator and are the basic building blocks of the Five-Year Defense Plan (FYDP). They have been aggregated and reaggregated in a variety of ways. The program element structure has been continually modified to associate maximum resources practicable with the force-oriented programs while retaining necessary visibility of support programs. This evolutionary process has permitted the DoD to maintain the FYDP data base in such a manner as to keep pace with changing management needs and at the same time maintain the mission orientation.

The Department of Defense has maintained a continual dialogue over the past two years with the Congressional oversight committees on the subject of mission budgeting as required by Section 601 (i) of P.L. 93-344. Our primary objective was to develop a mission structure acceptable to the committees which could be derived to the extent possible from the Five Year Defense Program.

On October 8, 1977, Deputy Secretary Duncan forwarded such a proposal to the Chairman of the Senate Budget Committee. Senator Muskie responded on November 18, 1977 extending his appreciation for the cooperation afforded by DoD on this effort. In addition, he indicated he was looking forward to receiving the DoD mission presentation outlined in Secretary Duncan's letter, as a positive first step in improving the Congressional analysis of the Defense budget.

Current planning and data preparation indicate a submission date of the first week of February 1978, which has been agreed to by the Senate Budget Committee staff.

Zero Based Budgeting (ZBB)

The FY 1979 Defense budget has been developed using zero-based budgeting techniques as directed by the President. The Department of Defense has aggressively pursued alternative and less costly ways of meeting its objectives, starting from the lowest levels within the Department. Existing programs have not automatically been extended and new programs have not been introduced without careful review. The programs included in the FY 1979 budget were introduced at alternative levels and screened for need by line managers at all levels. For the first time, budgets were presented in terms of requests using a range of budget levels. Increments above the minimum essential level were described and priced, and the managers indicated their views on priorities among these various increments. In other words, the basis for a ranking process was begun internally in the budget review.

To accomplish this, the Department directed considerable effort to the task of educating its many components in the principles of zero-based budgeting through lectures, seminars, directives, special bulletins, field visits and video tape presentations.

The structure and "ground-up" aspects of ZBB have had the greatest impact upon the operations portion of the budget. The investment area of the Defense budget (procurement, research, development, test and evaluation, and construction) has essentially been zero-based in the past. Individual projects and line items are considered on such a basis. The operations area of the budget demanded the most attention to ensure a full zero-base evaluation.

The DoD components presented their budgets in terms of the amounts to be provided for each decision unit at three fund levels. The components were thus able to present the Secretary with their judgment on where budget reductions would do the least harm and where budget increases would do the most good in meeting military requirements. At the same time, the components had the opportunity to express their views on programs at higher budget levels than they were permitted to address in the past. This greatly expanded the effective range of choice and contributed to a much more meaningful interaction between the Secretary and the Services in the budget formulation.

The thousands of decision units throughout the Department of Defense were reduced to manageable proportions as the budget process evolved. Some decision units were zeroed out; others were aggregated and reaggregated up the line.

The Service Secretaries and military chiefs devoted extensive effort to the ranking of packages presented to me. In concert with the OSD Staff, I adjusted, revised and reranked the decision packages into a single DoD-wide program priority list. In the process, issues were sharpened, the effect of alternative levels and relative priorities made clear, and varying viewpoints analyzed. The end product is an FY 1979 budget in which all line items clearly meet the test of need -- a budget put together by managers throughout the organization who are better prepared to justify and carry out the overall Defense program by virtue of having participated in this new approach to decision making.

IX. Program Execution and Available Balances

FY 1977 marked a major turning point in Defense purchases. The volume of contracting for direct Defense programs rose by 21.9 percent, the largest increase in a decade, as the Department began letting contracts for the larger procurement programs approved by the Congress for FY 1976 and FY 1977. This increase was more than enough to offset inflation, and represented the first real increase (in terms of buying power) in Defense contract activity for several years. Payments to contractors rose by 10.2 percent -- again, more than enough to cover inflation and the first real increase in many years. The necessary steps were taken to convert the higher amounts approved by the Congress into weapons and other needed items in the hands of the armed forces. As a result of these developments, the previous trend of significantly increasing unobligated balances is being reversed.

APPENDICES

APPENDIX A
TABLE 1
Department of Defense
Financial Summary
(In Millions of Dollars)

	FY 1964	FY 1968	FY 1972	FY 1976	FY 1977	FY 1978	FY 1979
Summary by Budget Title							
Military Personnel	12,983	19,961	23,147	25,430	25,947	27,285	28,677
Retired Pay	1,211	2,093	3,889	7,326	8,219	9,240	10,172
Operation and Maintenance	11,693	20,950	21,242	28,848	32,011	34,978	38,069
Procurement	15,028	22,528	18,528	21,299	27,515	30,321	31,952
Research, Development, Test, & Evaluation	7,053	7,263	7,584	9,520	10,588	11,413	12,551
Special Foreign Currency Program	-	-	12	3	4	2	14
Military Construction	977	1,557	1,237	2,223	2,392	1,857	2,741
Family Housing & Homeowners Asst. Prog.	602	612	840	1,286	1,294	1,420	1,625
Civil Defense	111	86	78	86	86	92	97
Revolving & Management Funds	-	-	-	135	220	171	101
Total-Direct Program (TOA)	49,657	75,051	76,557	96,156	108,276	116,778	126,000
Summary by Program							
Strategic Forces	8,498	7,213	7,242	7,281	9,394	9,259	9,823
General Purpose Forces	16,395	30,495	25,503	33,048	38,238	42,640	46,891
Intelligence and Communications	4,380	5,542	5,458	6,661	7,414	7,824	8,300
Airlift and Sealift	1,040	1,747	1,114	1,269	1,529	1,623	1,799
Guard and Reserve Forces	1,768	2,177	3,258	5,395	5,903	6,654	6,730
Research and Development	4,834	4,270	5,750	8,659	9,868	10,245	11,039
Central Supply and Maintenace	4,618	8,365	8,640	9,759	11,133	12,019	12,779
Training, Medical, Other Gen. Pers. Activ.	6,969	12,219	15,257	21,663	22,536	24,012	25,984
Administration and Assoc. Activities	1,074	1,233	1,682	2,176	2,042	2,258	2,393
Support of Other Nations 1/	81	1,789	2,652	244	219	243	262
Total-Direct Program (TOA)	49,657	75,051	76,557	96,156	108,276	116,778	126,000
Summary by Component							
Department of the Army	12,275	24,962	22,073	23,966	26,740	28,862	32,144
Department of the Navy	14,450	20,781	24,040	31,480	36,538	39,735	41,728
Department of the Air Force	19,958	24,974	23,835	28,443	31,550	33,200	35,590
Defense Agencies/OSD/JCS	1,007	1,498	1,742	3,492	3,770	4,140	4,531
Defense-wide	1,857	2,749	4,788	8,689	9,592	10,749	11,909
Civil Defense (DCPA)	111	86	78	86	86	92	97
Total-Direct Program (TOA)	49,657	75,051	76,557	96,156	108,276	116,778	126,000
Financing Adjustments	82	1,378	- 1,473	- 444	149	-1,514	- 433
Budget Authority (NOA)	49,739	76,429	75,084	95,712	108,425	115,264	125,567
Outlays	49,577	77,373	75,151	88,036	95,650	105,300	115,200

Note: In the FY 1977, FY 1978, and FY 1979 columns, amounts for military and civilian pay increases, military retired pay reform and other proposed legislation are distributed. Details may not add to totals due to rounding.

1/ Support of Other Nations excludes MAP.

TABLE 2

DEPARTMENT OF DEFENSE
SUMMARY OF SELECTED ACTIVE MILITARY FORCES

	ACTUAL	ACTUAL	ACTUAL	ESTIMATED	
	6-30-64	6-30-68	9-30-77	9-30-78	9-30-79
STRATEGIC FORCES:					
Intercontinental Ballistic Missiles:					
MINUTEMAN	600	1000	1000	1000	1000
TITAN II	108	54	54	54	54
POLARIS-POSEIDON MISSILES	336	656	656	656	656
Strategic Bomber Squadrons	78	40	24	24	24
Manned Fighter Interceptor Squadrons	40	26	6	6	6
Army Air Defense Firing Batteries	107	81	0	0	0
GENERAL PURPOSE FORCES:					
Land Forces:					
Army Divisions	16 ⅓	17	16	16	16
Marine Corps Divisions	3	4	3	3	3
Tactical Air Forces:					
Air Force Wings	21	30	26	26	26
Navy Attack Wings	15	15	12	12	12
Marine Corps Wings	3	3	3	3	3
Naval Forces:					
Attack & Antisubmarine Carriers	24	23	13	13	13
Nuclear Attack Submarines	19	33	66	70	73
Other Warships	370	377	168	166	172
Amphibious War Ships	133	153	62	64	65
AIRLIFT & SEALIFT FORCES:					
Strategic Airlift Squadrons:					
C-5A	0	0	4	4	4
C-141	0	14	13	13	13
Troopships, Cargo Ships & Tankers	100	130	48	48	48

APPENDIX B

TABLE 1

Department of Defense

General and Flag Officer Strengths

Actual	General and Flag Officer Strengths	General and Flag Officer Per 10,000 Total Military
1960	1,260	5.1
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
Programmed 1/		
1978	1,119	5.4
1979	1,119	5.5

1/ FY 1979 President's Budget

TABLE 2

Department of Defense

Officer and Enlisted Strength

Actual	Officer Strength (000s) 1/	Enlisted to Officer Ratio
1960	317	6.8
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	6.6
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
Programmed 2/		
1978	274	6.6
1979	273	6.5

1/ Includes all officers on extended active duty.
2/ FY 1979 President's Budget.

TABLE 3

Department of Defense

MANPOWER LEVELS
(End Year - In Thousands)

Actual	Active Military 1/	Civilian 2/	Total
1960	2,476	1,230*	3,706*
1961	2,494	1,215*	3,709*
1962	2,808	1,244	4,052
1963	2,700	1,226	3,926
1964	2,687	1,176	3,863
1965	2,655	1,155	3,810
1966	3,094	1,261	4,355
1967	3,377	1,398	4,775
1968	3,547	1,393	4,940
1969	3,460	1,391	4,851
1970	3,066	1,265	4,331
1971	2,714	1,190	3,904
1972	2,322	1,159	3,481
1973	2,252	1,100	3,352
1974	2,161	1,109	3,270
1975	2,127	1,078	3,205
1976	2,081	1,047	3,128
19TQ	2,083	1,042	3,125
1977	2,074	1,022	3,096
Programmed 3/			
1978	2,069	1,021	3,090
1979	2,049	1,008	3,057

1/ Excludes military personnel on active duty who are paid from Civil Works and Reserve Components appropriations.
2/ Direct and indirect hire. Excludes Civil Functions, special youth employment programs, and NSA employees.
3/ FY 1979 President's Budget.

* Estimated.

TABLE 4

DEPARTMENT OF DEFENSE BUDGET

DEFENSE EMPLOYMENT OUTLOOK

(END YEAR—IN THOUSANDS)

	FY 64	FY 68	FY 77	FY 78	FY 79	CHANGE FY 78-79
DIRECT HIRE CIVILIANS						
Army	360	462	315	316	314	−2
Navy/Marine Corps	332	419	307	305	303	−2
Air Force	305	331	241	238	234	−4
Defense Agencies	38	75	76	77	77	—
Total D.H. Civilians	1,035	1,287	939	936	928	−8
INDIRECT HIRE CIVILIANS						
Army	93	80	56	58	51	−7
Navy/Marine Corps	14	14	11	10	11	+1
Air Force	33	26	15	15	15	—
Defense Agencies	—	—	1	2	2	—
Total I.H. Civilians	140	120	83	85	79	−6
TOTAL CIVILIANS	1,175	1,407	1,022	1,021	1,007	−14
MILITARY						
Army	972	1,570	782	774	772	−2
Navy	667	765	530	532	522	−10
Marine Corps	190	307	192	192	190	−1
Air Force	856	905	570	571	565	−6
Total Military	2,685	3,547	2,074	2,069	2,049	−20
TOTAL—MILITARY & CIVILIANS	3,860	4,954	3,096	3,090	3,056	−34
Defense Related Industry	2,280	3,173	1,810	1,930	2,050	+120
TOTAL DEFENSE MANPOWER	6,140	8,127	4,906	5,020	5,106	+86

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APPENDIX C

TABLE 1

FY 1979 DEPARTMENT OF DEFENSE BUDGET
FY 1978 SUPPLEMENTALS
($ THOUSANDS)

PURPOSE	SUPPLEMENTALS
Civilian and Military Pay Increases, October 1, 1977	1,835,140
B-1 Bomber and SRAM-B Programs	-463,400
Funds for the Cruise Missile and the F-14 Programs	423,800
Wage Board Pay Increases	324,875
Retired Pay Cost of Living Increases	211,800
Foreign Currency Adjustment Costs	187,028
Foreign National Indirect Hire Pay Increases	121,772
Two Additional Communication Satellites	58,700
Increased Subsistence Costs	32,336
Impact of October 1, 1977 Military Pay Increases on Retired Pay	17,800
TOTAL	2,749,851
TITLE	
Military Personnel	1,248,898
Retired Pay	229,600
Operation and Maintenance	1,244,400
Procurement	-233,800
Research, Development, Test and Evaluation	249,500
Family Housing	9,653
Civil Preparedness, DCPA	1,600
TOTAL	2,749,851
COMPONENT	
Army	912,933
Navy	892,660
Air Force	554,090
Defense Agencies	149,200
Defense-wide	239,368
Civil Preparedness, DCPA	1,600
TOTAL	2,749,851

869-7

TABLE 2

DEPARTMENT OF DEFENSE BUDGET
DEFENSE BUDGET TOTALS
($ IN BILLIONS)

CURRENT DOLLARS	FY 1977 ACTUAL	FY 1978 ESTIMATE	FY 1979 ESTIMATE	INCREASE FY 1978-79
Total Obligational Authority (TOA)	108.3	116.8	126.0	9.2
Budget Authority (BA)	108.4	115.3	125.6	10.3
Outlays	95.7	105.3	115.2	9.9
CONSTANT FY 1979 DOLLARS				
Total Obligational Authority (TOA)	122.6	123.7	126.0	2.3
Budget Authority (BA)	122.7	122.1	125.6	3.4
Outlays	108.8	111.7	115.2	3.5

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TABLE 3

DEPARTMENT OF DEFENSE BUDGET

FINANCIAL SUMMARY BY MAJOR PROGRAM

(BILLIONS OF $)

MILITARY PROGRAM	FY 1977	FY 1978	FY 1979
	CURRENT DOLLARS TOTAL OBLIGATIONAL AUTHORITY		
Strategic Forces	$ 9.4	$ 9.3	$ 9.8
General Purpose Forces	38.2	42.6	46.9
Intelligence and Communications	7.4	7.8	8.3
Airlift and Sealift	1.5	1.6	1.8
Guard and Reserve Forces	5.9	6.7	6.7
Research and Development	9.9	10.2	11.0
Central Supply and Maintenance	11.1	12.0	12.8
Training, Medical, Other Gen. Pers. Activ.	22.5	24.0	26.0
Administrative and Assoc. Activities	2.0	2.3	2.4
Support of Other Nations (Excludes Map)	.2	.2	.3
TOTAL	$108.3	$116.8	$126.0

C-3

869-7

TABLE 4

DEPARTMENT OF DEFENSE BUDGET
FINANCIAL SUMMARY
BY MAJOR PROGRAM—CONSTANT PRICES
(BILLIONS OF $)

MILITARY PROGRAM	CONSTANT FY 1979 DOLLARS TOTAL OBLIGATIONAL AUTHORITY		
	FY 1977	FY 1978	FY 1979
Strategic Forces	$10.6	$ 9.8	$ 9.8
General Purpose Forces	43.1	45.1	46.9
Intelligence and Communications	8.4	8.3	8.3
Airlift and Sealift	1.7	1.7	1.8
Guard and Reserve Forces	6.7	7.0	6.7
Research and Development	11.2	10.9	11.0
Central Supply and Maintenance	12.6	12.7	12.8
Training, Medical, Other Gen. Pers. Activ.	25.7	25.5	26.0
Administrative and Assoc. Activities	2.3	2.4	2.4
Support of Other Nations (Excludes Map)	.2	.3	.3
TOTAL	$122.6	$123.7	$126.0

869-7

TABLE 5

DEPARTMENT OF DEFENSE BUDGET
FINANCIAL SUMMARY BY APPROPRIATION CATEGORY
(BILLIONS OF $)

APPROPRIATION TITLE	CURRENT DOLLARS TOTAL OBLIGATIONAL AUTHORITY FY 1977	FY 1978	FY 1979
Military Personnel	$25.9	$27.3	$28.7
Retired Pay	8.2	9.2	10.2
Operation and Maintenance	32.0	35.0	38.1
Procurement	27.5	30.3	32.0
RDT&E	10.6	11.4	12.5
Military Construction	2.4	1.9	2.7
Family Housing	1.3	1.4	1.6
Civil Defense	.1	.1	.1
Revolving and Management Funds	.2	.2	.1
TOTAL	$108.3	$116.8	$126.0

869-7

TABLE 6

FY 1979 DEPARTMENT OF DEFENSE BUDGET SCHEDULING OF BUDGET REQUESTS

(TOA, $ MILLIONS)

	DOD APPROPRIATIONS ACT	MIL CON/FAMILY HOUSING	CIVIL DEFENSE	GRAND TOTAL
FY 1978				
Appropriations (TOA) Requested with Budget Transmitted in January 1978	113,409	3,277	92	116,778
FY 1979				
Appropriations (TOA) Requested with Budget Transmitted in January 1978	119,247	4,352	96	123,695
Appropriations to be Requested at a later date, but included in Defense Budget Estimate:				
October 1, 1978 Civilian and Military Pay Raise	(2,080)	(4)	(1)	(2,085)
FY 1979 Wage Board Raises	(156)	(10)		(166)
Proposed Legislation:				
Military Trailer Allowance	(8)			(8)
Family Separation Allowance	(29)			(29)
Retired Family Protection Plan	(7)			(7)
Quarters Allowance Navy Personnel	(10)			(10)
Officer Pers Management Act	(14)			(14)
Dual Compensation	(– 30)			(– 30)
Sea Pay	(16)			(16)
Total Appropriations to be Requested Later	2,290	14	1	2,305
Total FY 1979 Budget Estimate	121,537	4,366	97	126,000

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TABLE 7

LONG-RANGE FORECASTS AND PAY/PRICE ASSUMPTIONS

	FY 1979	FY 1980	FY 1981	FY 1982	FY 1983
TOA ($ Billions):					
Military Retired Pay	$10.2	$11.2	$12.2	$13.2	$14.3
Other Military Functions	115.8	126.0	136.4	147.3	158.4
Total, Current Prices	126.0	137.2	148.6	160.5	172.7
Total, Constant (FY 1979) Prices	126.0	129.4	133.0	136.6	140.3
Outlays ($ Billions)					
Military Retired Pay	10.1	11.2	12.2	13.2	14.2
Other Military Functions	105.1	114.6	124.3	134.7	145.3
Total, Current Prices	115.2	125.8	136.5	147.9	159.5
Total, Constant (FY 1979) Prices	$115.2	$118.7	$122.2	$125.9	$129.6
Composite Pay/Price Assumptions (FY 1979 = 100):	100.0	106.0	111.7	117.5	123.1

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TABLE 8

ANNUAL INFLATION RATES

	CONSUMER PRICE INDEX	WHOLESALE PRICE INDEX	GNP DEFLATOR	INFLATION ON DEFENSE BUDGET: OUTLAYS	TOA
FY 1974 to FY 1975	11.1%	16.9%	10.8%	10.7%	9.1%
FY 1975 to FY 1976	7.1%	5.3%	7.0%	6.9%	6.7%
FY 1976 to FY 1977 [1]	7.5%	6.8%	6.6%	6.9%	7.2%
FY 1977 to FY 1978	6.0%	6.6%	6.0%	7.2%	6.8%
FY 1978 to FY 1979	6.1%	6.2%	6.2%	6.1%	6.0%
Compound Annual Average, FY 1974-1979	7.2%	7.9%	6.9%	7.2%	6.8%

[1] 15 Months

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TABLE 9

DEPARTMENT OF DEFENSE BUDGET PROJECTIONS—TOA

(CURRENT PRICES EXCLUDING MILITARY ASSISTANCE)

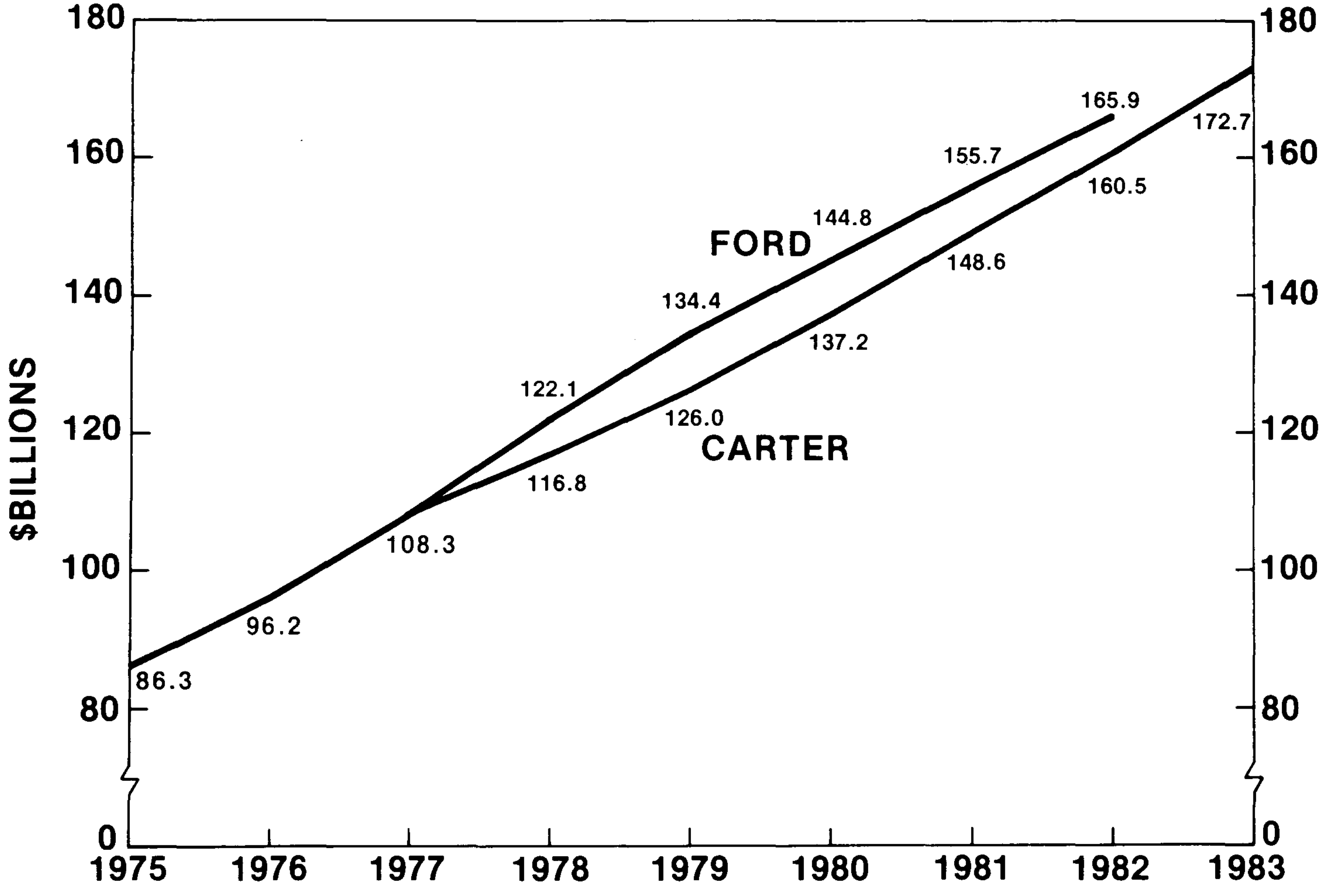

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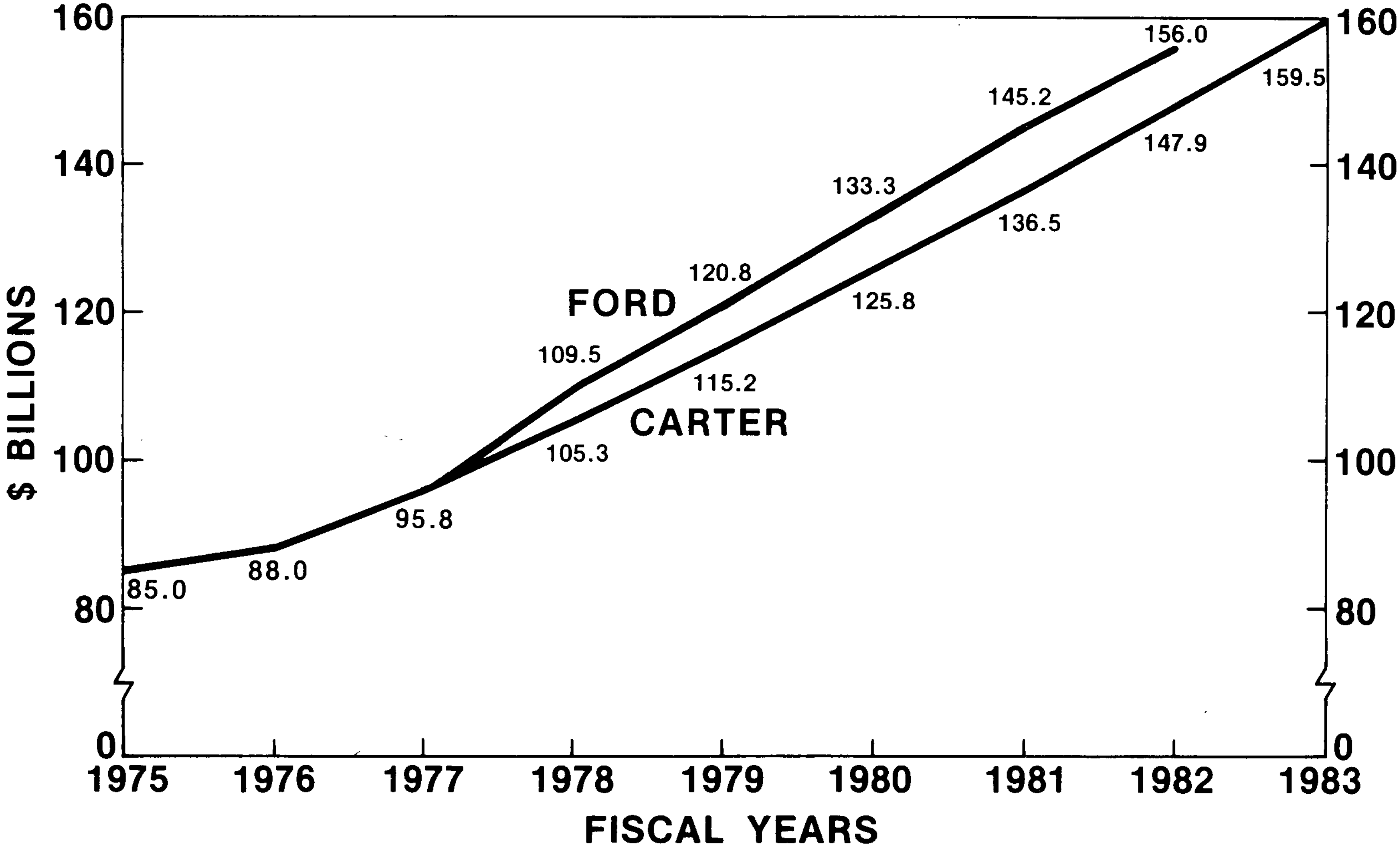
TABLE 10

DEPARTMENT OF DEFENSE BUDGET PROJECTIONS—OUTLAYS

(CURRENT PRICES EXCLUDING MILITARY ASSISTANCE)



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*U.S. GOVERNMENT PRINTING OFFICE : 1978 O-733-989/512