~~SECRET~~

82-AE-1146

0287

REPORT OF SECRETARY OF DEFENSE

HAROLD BROWN

TO THE CONGRESS

ON THE

FY 1980 BUDGET, FY 1981 AUTHORIZATION REQUEST
AND FY 1980-1984 DEFENSE PROGRAMS

JANUARY 25, 1979

CLASSIFIED BY The Secretary of Defense
"FORMERLY RESTRICTED DATA"

"Unauthorized disclosure subject to administrative and criminal sanctions. Handle as Restricted Data in foreign dissemination.
Section 144.b, Atomic Energy Act, 1954"

248

SecDef Cont No. x00679

~~SECRET~~

Cont. No. 43-79

CHAPTER 5

THE NUCLEAR BALANCE

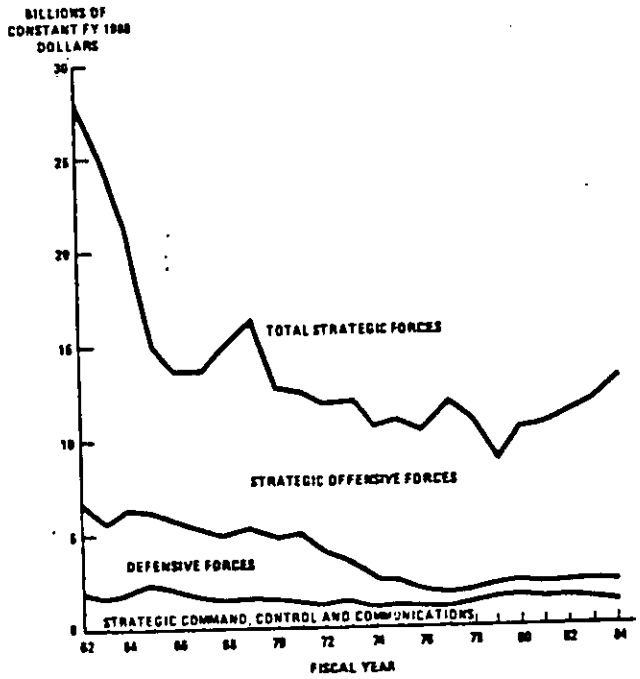
No nuclear weapons have been used in combat since 1945. A two-sided nuclear war has never been fought. It is generally conceded that the probability of a nuclear attack on the United States and its allies is very low at the present time. It is also the case, however, that the consequences of a major nuclear exchange would be so terrible that -- in the absence of complete and verifiable nuclear disarmament -- we must, at all times, maintain strategic forces powerful enough to keep that probability at a comparably low level in the future. We must, at the same time, ensure that our forces do not have characteristics that could make nuclear war more likely.

I. CURRENT U.S. STRATEGIC CAPABILITIES

The past and projected trend in total obligational authority allocated to the U.S. strategic nuclear forces is shown in Chart 5-1. The threat to part of our strategic force is already growing. But our most serious concerns -- which we need to act now to meet -- are about the period of the early-to-mid 1980s. Those concerns derive from the capabilities of the Soviet forces being deployed now and through then.

Chart 5-1

STRATEGIC FORCES BUDGET TREND



During 1979 and 1980, the U.S. ICBM force will continue to consist of 54 TITAN IIs, 450 single-warhead MINUTEMAN IIs, and 550 MINUTEMAN IIIs with MIRVs. We will also begin a program of refitting 300 MINUTEMAN IIIs with the MARK 12A warheads which, in conjunction with the NS-20 guidance improvements (already completed), will give the MINUTEMAN III a higher -- but still modest -- kill probability against hard targets.

The submarine-launched ballistic missile (SLBM) force will consist of 41 submarines. Of these, 10 will carry a total of 160 POLARIS (A-3) missiles, each equipped with multiple re-entry vehicles (MRVs). Another 27 will have 432 POSEIDON (C-3) MIRVed missiles, while four POSEIDON submarines will carry 64 TRIDENT I (C-4) missiles. We anticipate that the first TRIDENT submarine, equipped with 24 TRIDENT I (C-4) MIRVed missiles, will enter service early in FY 1981. Backfitting of the C-4 missiles into an additional four POSEIDON submarines will continue.

The air-breathing leg of the strategic TRIAD will contain unit equipment of 316 B-52 long-range bombers, 60 FB-111 medium bombers, and 615 KC-135 tanker aircraft. As in FY 1979, about 30 percent of the total bomber/tanker force will be kept at a high level of ground alert, and we will have the option to increase the fraction on alert from that steady-state level, should conditions warrant it. We also expect to begin deploying the first of our air-launched cruise missiles (ALCMs) to the B-52 force in December, 1981.

Inventory force loadings -- those independently targetable weapons in our ICBMs, SLBMs, and long-range bombers -- will amount to [redacted] warheads and bombs.

Our continental anti-bomber defenses will continue to depend on six squadrons of active-duty manned interceptors, and 10 squadrons of Air National Guard manned interceptors. In the future, six Airborne Warning and Control System (AWACS) aircraft will be assigned to CONUS defense. Depending on the nature of an emergency, CONUS-based tactical fighters and additional CONUS-based AWACS aircraft could augment the dedicated anti-bomber defenses. All dedicated surface-to-air missiles (SAMs) have been phased out of the basic CONUS defenses. However, we continue to deploy SAMs from our general purpose forces to sites in Florida and Alaska. In 1976, we deactivated and dismantled our one anti-ballistic missile (ABM) site in North Dakota, which was deployed to defend a MINUTEMAN wing. However, we keep its Perimeter Acquisition Radar operational as a missile warning and attack characterization sensor.

Surveillance and early warning of missile attacks will continue to be based on [redacted] The Ballistic Missile Early Warning System (BMEWS) and the PAVE PAWS SLBM Radar Warning System will provide both radar confirmation

[redacted] reports and additional attack characterization data. Warning of attacks from air-breathing systems will come from the Distant Early Warning (DEW) line along the 70th parallel, the Pinetree Line in mid-Canada, and CONUS-based radars. Over-the-horizon (OTH) radar will remain in prototype development status.

We are reviewing our passive defense programs. In the meantime, a modest civil defense effort will continue to be funded, but through the Federal Emergency Management Agency starting in FY 1980. In addition to continuing crisis relocation planning, shelter surveys, improved communications, and emergency planning, the FY 1980 budget contains about $15 million for studies of how the existing U.S. personal transportation assets and housing patterns outside of but near urban areas might serve as mechanisms for dispersing the urban population over a period of days or weeks during an extended crisis.

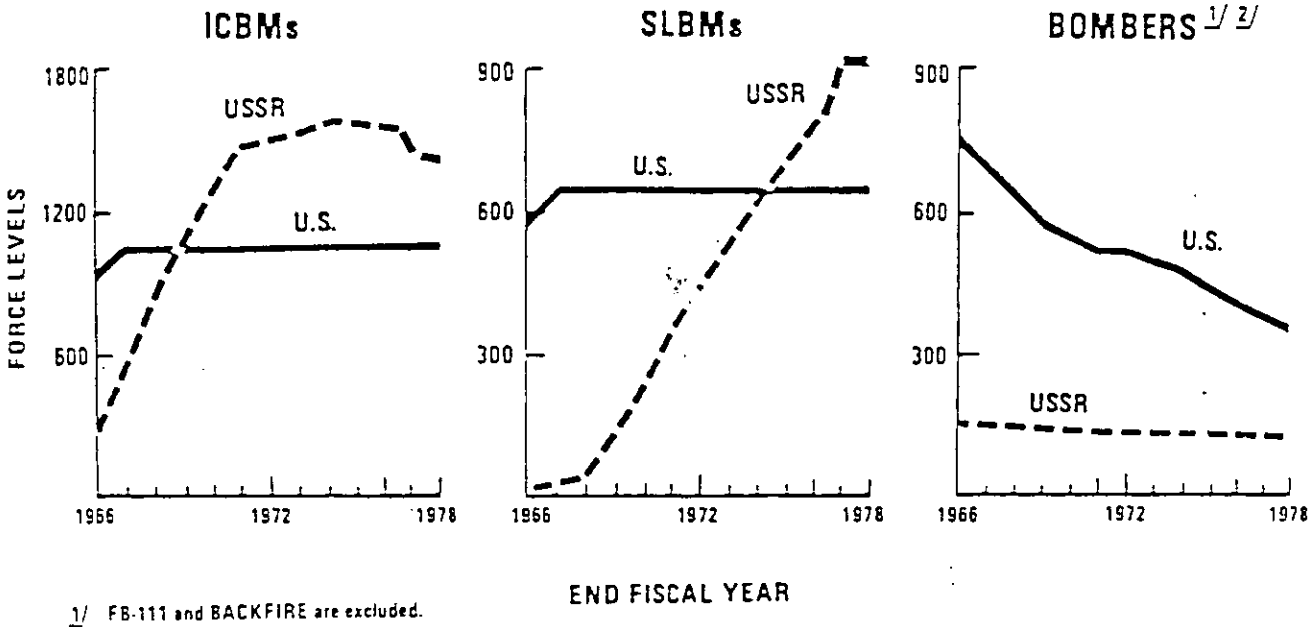
Whether these strategic force capabilities, and current programs for their improvement, are at the appropriate level for strategic deterrence and stability is not an easy issue to resolve. Despite SALT, the competition from the Soviet Union in strategic forces remains strong. The assessment is also made difficult by substantial differences over what measures to use in evaluating strategic deterrence; what Soviet measures and attitudes may be; and what, as a consequence, constitutes sufficiency to deter the Soviets under various situations.

II. SOVIET STRATEGIC CAPABILITIES

The trends in Soviet strategic offensive forces for the last 13 years are shown in Chart 5-2. These forces are at the limits set by the Interim Offensive Agreement of 1972. That agreement froze Soviet ICBM and SLBM levels at the number operational and under construction in 1972. In effect, it permitted the Soviets a strategic missile force of 950 SLBMs in 62 modern submarines and about [redacted] launchers. In order to build SLBMs within these limits, the Soviets have deactivated 209 of their older SS-7 and SS-8 ICBM launchers [redacted]

Chart 5-2

CHANGES IN U.S./U.S.S.R. STRATEGIC LEVELS



1/ FB-111 and BACKFIRE are excluded.

2/ Excludes approximately 220 B-52s in deep storage.

A. Offense

The Soviet long-range bomber force continues to consist of 150 BISON and BEAR strike aircraft. There are also [redacted] BISON tankers, [redacted] BEAR reconnaissance aircraft, about [redacted] BACKFIRES in the Soviet Long-Range Air Force (LRAF), and [redacted] in Soviet Naval Aviation. The BACKFIRE bomber has been in production for several years, and current production averages two and a half aircraft a month. We continue to believe that the primary purpose of the BACKFIRE is to perform peripheral attack and naval missions. Undoubtedly, this aircraft has an intercontinental capability in that it can surely reach the United States from home bases on a one-way, high-altitude, subsonic, unrefueled flight; with refueling and Arctic staging it can probably, with certain high altitude cruise flight profiles, execute a two-way mission to much of the United States.

We estimate that total Soviet force loadings (weapons that can be carried by the deployed strategic missiles and bombers) have risen from around 450 in 1965 to [redacted]5,000 at the present time. They have increased by around 1,000 since last year, reflecting the MIRVing of ICBMs and SLBMs.

B. Active Defenses

Soviet active defenses have not changed appreciably during the past year. The Moscow ABM defenses, which are more an area than a point defense system, still consist of only 64 GALOSH missile launchers, although the ABM Treaty of 1972 permits expansion of the system to 100 launchers. Anti-bomber defenses continue to depend on about 2,600 manned interceptors and [redacted] SAM launchers (which accommodate around 12,000 missiles, since some of the launchers have multiple rails). The Soviets also have [redacted] limited anti-satellite (ASAT) capability. [redacted] the Soviets conducted one test against a target vehicle with this system in 1978.

C. Passive Defenses

The Soviet civil defense program is not a crash effort, but its pace increased beginning in the late 1960s. It is directed by a nationwide civil defense organization consisting of about [redacted] full-time personnel at all levels of the Soviet government, military and economic system. We believe that the combined cost of salaries for full-time civil defense personnel, operation of specialized civil defense military units, and shelter construction amounted to about one percent of the estimated Soviet defense budget in 1976 (with the corresponding figure for the United States at about a tenth of a percent).

The Soviets probably have sufficient so-called blast-shelter space in hardened command posts for virtually all the leadership elements (roughly 110,000 people) at all levels of government, although these shelters could not withstand an attack directed specifically at them. Other shelters at selected key economic installations could accommodate about 25 percent of the total work force. Some 19 million people in all, or about 15 percent of the total population in urban areas (including essential workers), could be given some protection in shelters (based on an allowance of 0.5m^2 of space per person). We have only limited information about the adequacy of the supplies with which the shelters have been stocked.

About 70 percent of the urban population is defined as non-essential and would presumably have to be evacuated. We estimate that it would take at least two or three days to move them out of most Soviet cities. Evacuation from larger cities such as Moscow and Leningrad could take as much as a week. The required times could be lengthened by shortages in transportation, other bottlenecks, or adverse weather. After evacuation, temporary quarters would have to be found or built for many of the evacuees.

As is shown in Table 5-1, the Soviet program for geographic dispersal of industry is not being implemented to a significant extent. New plants have often been built next to major existing plants. Existing plants and complexes have simply been expanded. In fact, the value of overall productive capacity has been increased proportionately more in previously existing sites than in new areas. Little evidence exists to suggest a comprehensive program for hardening economic installations. The Soviets, at least in their literature, appear to have given greater emphasis to rapid shutdown of equipment and to other measures which could facilitate longer term recovery of installations after an attack.

Table 5-1

Estimated Cumulative Percentage Distribution of Soviet Population and Industrial Production

Number of Cities	Population		Industrial Production	
	1966	1975	1966	1975
10	8.0	8.7	18.4	17.1
50	17.2	19.6	40.0	38.4
100	22.5	26.0	52.4	51.9
200	28.1	32.9	64.5	65.3
300	31.4	36.6	70.9	72.5

The U.S. and Soviet strategic postures as of January 1, 1979 are shown in Table 5-2.

TABLE 5-2

U.S. AND SOVIET STRATEGIC FORCE LEVELS

	1 JANUARY 1979	
	U.S.	USSR
OFFENSIVE		
OPERATIONAL ICBM LAUNCHERS 1/, 2/	1,054	[redacted]
OPERATIONAL SLBM LAUNCHERS 1/, 3/	656	950
LONG-RANGE BOMBERS (TAI) 4/		
OPERATIONAL 5/	348	[redacted]
OTHERS 6/	221	0
VARIANTS 7/	0	[redacted]
FORCE LOADINGS 8/		
WEAPONS	9,200	[redacted]
DEFENSIVE 9/		
AIR DEFENSE SURVEILLANCE RADARS	59	7,000
INTERCEPTORS (TAI)	309	[redacted]
SAM LAUNCHERS	0	
ABM DEFENSE LAUNCHERS	0	64
[redacted]	4	[redacted]

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 [redacted]

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

5/ Includes deployed, strike-configured aircraft only.

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

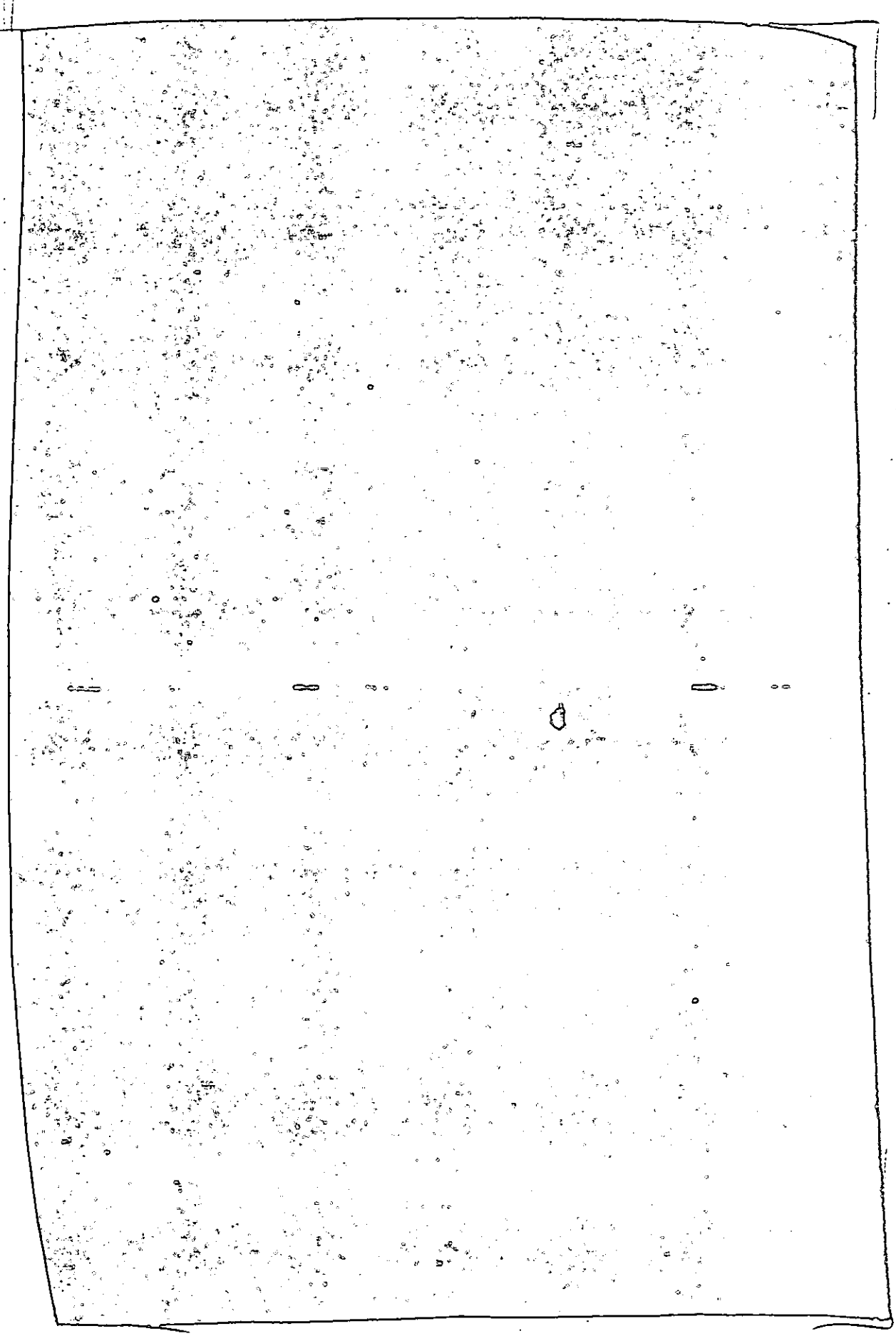
7/ Includes for USSR: BISON tankers, BEAR ASW aircraft, and BEAR reconnaissance aircraft. U.S. tankers (641 KC-135s) do not use B-52 airframes and are not included.

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

[redacted]



D. Force Improvements

The Soviets are continuing to modernize their strategic nuclear capabilities. Like our own programs of modernization, these activities are taking place within the limits set by the SALT I agreements.

1. Offense

The deployment of the SS-17, SS-18, and SS-19 ICBMs is continuing at a combined rate of approximately 125 missiles a year. There are now [redacted] SS-18 launchers in converted SS-9 silos, and about [redacted] SS-17 and [redacted] SS-19 launchers in converted SS-11 silos. All three types of missiles can carry either single, high-yield warheads or MIRVs. The SS-17 and SS-18 are designed for cold launch, the SS-19 for hot launch. [redacted]

The SS-16 is a solid-fuel, three-stage ICBM with a post-boost vehicle (PBV), but armed thus far only with a single warhead. The SS-16 has been designed as a land-mobile missile, but it has not been deployed as a mobile system [redacted] It has only been tested once [redacted] since 1975.

A derivative of the SS-16, the SS-20, is a mobile intermediate-range ballistic missile (IRBM). It consists of the first two stages of the SS-16, is configured to carry three MIRVs, and has a range of well over [redacted] kilometers with that payload. [redacted] It is already in the field, and will replace or augment the current force of [redacted] medium-range ballistic missiles (MRBM) and IRBM launchers. [redacted]

As I noted last year, the Soviets have a fifth generation of ICBMs, consisting of [redacted] missiles -- some of which are probably modifications of existing ones -- in development. [redacted]

We estimate that, in the past, the Soviets have kept [redacted] of their ICBMs on what, by our standards, would constitute a quick-reaction alert. Today, a much higher percentage is on alert, as newer missiles come into the force. Soviet long-range and medium bombers do not stand on quick-reaction alert.

The Soviet SLBM force has reached the limit of 950 modern launchers allowed under the Interim Offensive Agreement of 1972, and modernization of the force continues. Construction of the YANKEE-class submarine stopped at 34 boats (540 tubes)[redacted] The SS-NX-17 solid-fuel missile with a post-boost vehicle, and greater accuracy than the SS-N-6, was backfitted into only one YANKEE submarine.

The Soviets now have a total of [redacted] operational DELTA submarines[redacted]

The DELTA Is and IIs continue to be armed with the SS-N-8, a single-warhead, liquid-fuel missile with a range of [redacted] kilometers. The Soviets have begun to deploy the SS-N-18, a liquid-fuel missile installed in the DELTA III. This missile has a range of between [redacted] kilometers, and a post boost vehicle capable of dispensing three MIRVs[redacted] With the SS-N-8, the Soviets already have a missile with a greater range than our TRIDENT I. Both the SS-N-8 and the SS-N-18 permit the Soviets to cover targets in the United States from patrol areas in the Barents Sea and the western Pacific.

[redacted] We believe that, with the advent of the newer, longer range missiles and the elimination of long transits to patrol areas, the percentage of on-station submarines will rise[redacted] in the near future.

The first prototype of a new, modern, long-range Soviet bomber may be rolled out in the near future. If deployed, this aircraft would presumably replace the aging force of BISONs and BEARs as the backbone of the Soviet intercontinental bomber force. Both the BEAR and the BACKFIRE can carry [redacted] air-launched cruise missiles with ranges of about 500 kilometers. As yet, there is no evidence that the Soviets have developed a cruise missile comparable to our ALCM although they may be developing a long-range cruise missile of their own design.

2. Defense

As permitted by the ABM Treaty of 1972, the Soviets continue an active ABM research and development program. The main efforts appear to be going toward improving large phased-array detection and tracking radars, and toward developing a [redacted] interceptor. Research work is undoubtedly proceeding on lasers and charged particle beams as well, although there are severe technical obstacles to converting this technology into a defensive weapon system that would offer a capability against ballistic missiles. There is no evidence, furthermore, that the Soviets have yet devised, even conceptually, a way to eliminate these obstacles.

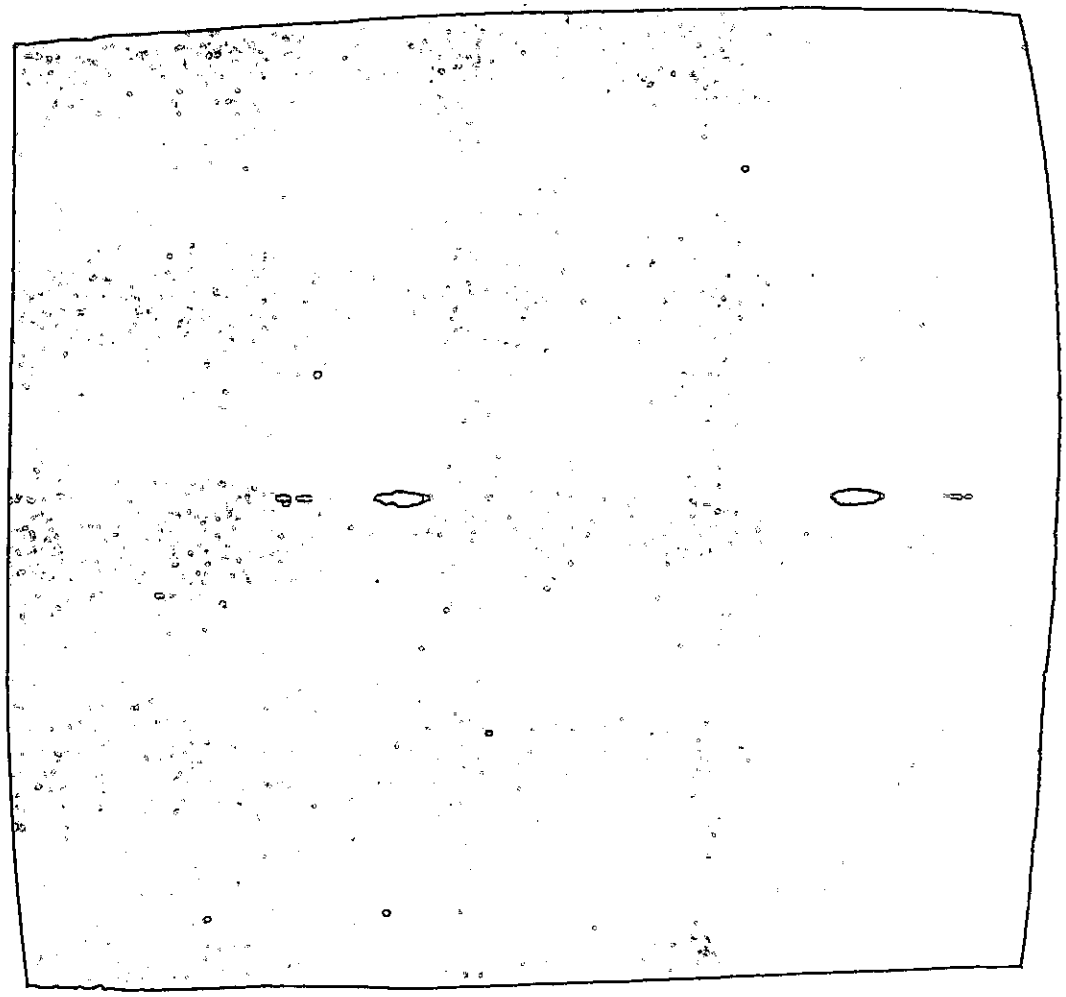
The Soviets have not yet solved the problem of bombers and cruise missiles penetrating their defenses at very low altitudes. They have two operational over-the-horizon (OTH) radars facing the United States, but presumably for early warning of approaching missiles. They have [redacted] the MOSS aircraft for airborne early warning; they are developing an AWACS-type aircraft with a lookdown radar; they are improving their manned interceptor force with the FLOGGER B (MIG-23); they are working on a modified FOXBAT with a lookdown/shootdown capability; and they continue to develop a new SAM, the SA-X-10, for low-altitude intercepts. However, they have not yet developed a lookdown radar comparable to AWACS or completed the development of the shootdown capability to go with it. Such an AWACS aircraft is unlikely to become operational before 1982, although a lookdown/shootdown fighter with a capability against bombers and fighters could enter the force in 1981.

The Soviets continue to search for a strategic antisubmarine warfare capability. However, the performance of their ASW forces is evolving gradually and remains substantially less effective than those of the United States. The VICTOR-class nuclear-powered attack submarine (SSN) constitutes the most capable Soviet ASW platform, but neither it nor other currently deployable Soviet ASW systems represent a serious threat to our ballistic missile submarines.

In the realm of passive defenses, the Soviets will probably continue their emphasis on the construction of blast-resistant shelters in urban areas. If this results in a pace of construction matching what has happened since 1968, by 1988 the number of people who could be sheltered (which is not the same thing as surviving) in urban areas could increase to some 30 million -- about 17 percent of what we project the Soviet urban population to be at that time.

III. CHINESE NUCLEAR CAPABILITIES

There are no striking new developments to report in the nuclear programs of the PRC. Delivery vehicles liquid-fuel MRBMs liquid-fuel IRBMs IU-16 and TU-4 medium-range bombers with operational radii of around 3,000 kilometers.



The PRC has developed a few multi-stage, limited-range, liquid-fuel ICBMs A full-scale, liquid-fuel ICBM

continues under development. Full-range testing has not yet been attempted [redacted] has been used successfully as a launcher of satellites.

There are no new developments in the SLBM program of the PRC. However, we believe that the Chinese are continuing to work on nuclear-powered submarines and solid-fuel missiles.

The PRC has tested 25 nuclear devices since 1964. We believe that two atmospheric and one underground tests were conducted in 1978.

IV. THE ADEQUACY OF THE U.S. STRATEGIC CAPABILITIES

The adequacy of the U.S. strategic capabilities must be judged primarily in light of Soviet offensive and defensive forces. It must be recognized, in this connection, that Soviet nuclear forces can threaten our friends as well as the United States. If we are unable or unwilling to counter this range of threats in a convincing manner, we must -- at a minimum -- face a growing vulnerability on the part of our friends to threats and blandishments from the other side, and a deterioration in the cohesion of our alliances. The loss of confidence in the U.S. nuclear deterrent could, as one extreme result, lead to heightened and accelerated efforts by other nations to acquire nuclear capabilities of their own, and, as another, to major Soviet political gains.

A. Targeting Issues

This problem has been with us for some time. Not only has it complicated our force planning; in the process, it has raised difficult questions about how the nuclear forces should be used: what should be the targets for these forces, how many targets should be covered, and under what circumstances, and in what numbers, particular sets of targets should be attacked.

It is tempting to believe, I realize, that the threat to destroy some number of cities -- along with their population and industry -- will serve as an all-purpose deterrent. The forces required to implement such a threat can be relatively modest, and their size can perhaps be made substantially, though not completely, insensitive to changes in the posture of an opponent. In that way, at least our side of the arms race could be ended, since an opponent could never be certain that the threat of city-destruction would not be executed.

Unfortunately, however, a strategy based on assured destruction alone no longer is wholly credible. A number of Americans even question whether we would or should follow such a strategy in the event

of a nuclear attack on the United States itself, especially if the attack avoided population centers and sought to minimize the collateral damage from having targeted military installations. (I myself continue to doubt that a Soviet attack on our strategic forces whose collateral damage involved "only" a few million American deaths could appropriately be responded to without including some urban-industrial targets in the response.) Our allies, particularly in Europe, have questioned for some time whether the threat of assured destruction would be credible as a response to nuclear threats against them.

True, bluffing is always possible, and nuclear bluffs may be more difficult to call than most. But if we try bluffing, ways can be found by others to test our bluffs without undue risk to them. Moreover, military postures and plans cannot very well be constructed on the basis of pretense. And Presidents, understandably, will never be satisfied in a crisis to have only one plan -- and such a catastrophic plan as assured destruction. It is little wonder, in the circumstances, that for many years we have had alternatives to counter-city retaliation in our plans, and a posture substantial enough and responsive enough to permit the exercise of these options.

B. Objectives and Measures

I do not wish to pretend, in pointing out some of the problems with a strategy and a posture based on assured destruction only, that anyone has found a way of conducting a strategic nuclear exchange that remotely resembles a traditional campaign fought with conventional weapons. We are not talking here about a Schlieffen working out a great flanking attack on France, or an Eisenhower planning an assault on Germany. We are talking about successive bombardments delivered by long-range missiles and bombers with nuclear weapons -- weapons that are capable of destroying targets and producing large amounts of lethal radiation, but quite incapable of holding or occupying territory, or even of blockading it.

Admittedly, counterforce and damage-limiting campaigns have been put forward as the nuclear equivalents of traditional warfare. But their proponents find it difficult to tell us what objectives an enemy would seek in launching such campaigns, how these campaigns would end, or how any resulting asymmetries could be made meaningful. We are left instead with large uncertainties about the amounts of damage that would result from such exchanges, about escalation, and about when and how the exchanges would terminate.

These uncertainties, combined with the heavy responsibilities that have fallen on the United States, leave us with a dilemma. We now recognize that the strategic nuclear forces can deter only a relatively narrow range of contingencies, much smaller in range than was foreseen

only 20 or 30 years ago. We also acknowledge that a strategy and a force structure designed only for assured destruction is not sufficient for our purposes. At the same time, we have to admit that we have not developed a plausible picture of the conflict we are trying to deter.

One way of escaping the dilemma would be to design our forces on the basis of essential equivalence, assuming we know what is meant by the term. By one definition, U.S. capabilities could be made roughly comparable to those of the Soviet Union in each of such static measures as numbers of delivery systems, throw-weight, and equivalent megatonnage. A more reasonable interpretation demands that judgments be made and would require us to be ahead by some measures if behind in others. However, even that approach mixes together our deterrent strategy with our arms control criteria.

The Soviets have made a great deal of requiring equality with the United States in strategic nuclear forces, and we do not disagree. But since precise equality is impossible to define when the forces of the two sides differ in so many respects, we have adopted the principle of essential equivalence as a surrogate for equality. Among other reasons, that is why the issue of the BACKFIRE bomber has loomed so large in SALT, [redacted] But to plan our forces, and measure their adequacy, simply on the basis of essential equivalence would give no assurance that the forces would perform their essential deterrent functions. We must insist on essential equivalence with the Soviet Union to symbolize the equality that both sides accept in this realm. But we must not mistake the symbols, however important, for the substance. We may be able to obtain deterrence, and can achieve assured destruction or more, without equivalence; it is by no means certain that equivalence alone will give us deterrence.

There is no obvious solution to our dilemma at this juncture. As a reasonable minimum (but this may also be the best we can do), we can make sure that, whatever the nature of the attacks we foresee, we have the capability to respond in such a way that the enemy could have no expectation of achieving any rational objective, no illusion of making any gain without offsetting losses. This countervailing strategy has a number of implications. We must have forces in sufficient numbers and quality so that they can: (1) survive a well-executed surprise attack; (2) react with the timing needed, both as to promptness and endurance, to assure the deliberation and control deemed necessary by the National Command Authorities (NCA); (3) penetrate any enemy defenses; and (4) destroy their designated targets.

We must also have the redundancy and diversity built into these forces to ensure against the failure of any one component of the capability, to permit the cross-targeting of key enemy facilities, and to complicate the enemy's defenses as well as his attack. Survivable

command-control-communications are equally essential if we are to respond appropriately to an enemy attack and have some chance of limiting the exchange. High accuracy and reduced nuclear yields can be equally important in minimizing collateral damage and the escalation that could follow from it. Even some measure of civil defense evacuation can be desirable, if only to reduce the effects produced by attacks on targets other than population centers.

To have a true countervailing strategy, our forces must be capable of covering, and being withheld from, a substantial list of targets. Cities cannot be excluded from such a list, not only because cities, population, and industry are closely linked, but also because it is essential at all times to retain the option to attack urban-industrial targets -- both as a deterrent to attacks on our own cities and as the final retaliation if that particular deterrent should fail. The necessary forces should be included in whatever requirements we set for a strategic nuclear reserve following initial exchanges.

The degree to which hard targets such as missile silos, command bunkers, and nuclear weapons storage sites need to be completely covered as part of the list is a more difficult issue. As the growing Soviet threat to our ICBM force indicates, this kind of targeting, by forcing the other side to respond with redesigned capabilities, is bound to affect long-term stability, in what could be (but need not be) a negative way. On the other hand, attacks on these targets would not disarm an enemy in a first-strike (because of his survivable non-ICBM forces), but on a second-strike could suppress his withheld missiles and recycling bombers that could otherwise be used against crucial targets.

One resolution of this issue, in light of the conflicting pressures, would lie, first, in being able to cover hard targets with at least one reliable warhead with substantial capability to destroy the target and, second, in having the retargeting capability necessary to permit reallocation of these warheads either to a smaller number of crucial hard targets, or to other targets on the list. Even with slow-reacting capabilities such as cruise missiles, this would ensure that an enemy's silos are not a kind of sanctuary from which he can shoot with impunity. Uncertainties on the part of each side about the other's capabilities make it likely, I should add, that fixed ICBMs will have to be regarded by both as having, at best, uncertain survivability as we reach the late 1980s (although these uncertainties will affect the U.S. ICBMs [redacted].

A variety of other targets warrant inclusion on the list. No enemy should be left with the illusion that he could disable portions of our nuclear forces -- CONUS-based or overseas -- as a preliminary to attacks in specific theaters with his general purpose forces. The latter can

and should be targeted. Under many conditions, moreover, they may be more time-urgent targets than residual missiles. So might the command-control, war reserve stocks, and lines of communication necessary to the conduct of theater campaigns. In some circumstances, we might also wish to take war-related industries under attack, especially those decoupled from cities.

I realize that such a list of targets, military and non-military, could be long. It is quite finite, however, and not all the targets on the list would necessarily have to be covered by the strategic forces. I also recognize that the strategy behind such a list is essentially defensive in nature, designed primarily to prevent an enemy from achieving any meaningful objective. Nonetheless, the times and the uncertainties surrounding nuclear deterrence warrant such an approach. With careful design, it ensures that we cover targets of concern to our friends as well as ourselves; and it permits us to respond credibly to threats or actions by a nuclear opponent. No matter what the nature of the attack, we would have the option to reply in a controlled and deliberate way, and to proportion our response to the nature and scale of the provocation.

Equally important, this approach gives a concrete basis on which to assess the adequacy of our strategic forces. It would be inefficient to base those forces on such a conservative definition of the assured-destruction mission that it would provide us with a surplus of warheads in most circumstances (but perhaps of the wrong types) for use against non-urban targets. It would be an equally questionable measure of success to have, after an exchange, a residual capability -- whether measured in throw-weight or warheads -- that is equal to or larger than the residual capability of the Soviet Union, especially if both nations had been reduced to radioactive rubble in the meantime. The U.S. interest appears to me to lie in a countervailing strategy, the targets that go with such a strategy, and the forces to cover those targets under second-strike conditions.

If our forces are able, with high confidence, to destroy those targets, our deterrent should be adequate to cope with a wide variety of contingencies in as credible a fashion as nuclear weapons permit. Such a deterrent should also retain the confidence of our friends, help to minimize pressures for nuclear proliferation and permit us, with confidence, to resist coercion short of attack.

C. Assessment

In my judgment, we currently have an adequate strategic deterrent by these standards. I believe, moreover, that we can maintain the deterrent for the foreseeable future with the resources we have requested in the FY 1980 defense budget, and in the Long-Range Defense Projection we have developed.

At the present time, our alert bombers, SLBMs on patrol, and a large percentage of our ICBMs are survivable, even in the face of a well-executed Soviet surprise attack, and most of them could penetrate Soviet defenses and destroy their designated targets. The force has the capability to carry out a variety of attacks, and respond at the appropriate level to varied provocations. In particular, we can cover targets of special concern to our allies. Furthermore, the number of surviving warheads would be sufficient in a full retaliation to cover a comprehensive set of targets in the Soviet Union. I do not wish to pretend, however, that current capabilities would give us high confidence of destroying a large percentage of Soviet missile silos and other very hard targets on a time-urgent basis, that is, with ballistic missiles. Nor do I mean to suggest that our retaliatory capability is not effectively matched by that of the Soviet Union. Even after a hypothetical U.S. first strike, the Soviets could retaliate with approximately equal force, although they could not cover an equally comprehensive target list in the United States because of their smaller inventory of warheads. In that sense, a situation of mutual nuclear deterrence prevails at the present time. A reasonable degree of nuclear stability in a crisis is probably assured as well.

Unfortunately, longer-term stability is not fully assured, and the future competition in strategic capabilities is likely to become more dynamic than need be the case. As I pointed out last year, the main impulse for this dynamism comes from the Soviet Union in the form of a large ICBM force with an expanding hard-target-kill capability, a much publicized civil defense effort, and the likelihood of significantly upgraded air defense capabilities.

These programs make it clear that the Soviets are concerned about the failure of deterrence as well as its maintenance, just as we need to be and are; and that they reject the concept of minimum deterence and assured destruction only, just as we should and do. That much is understandable. More troublesome is the degree of emphasis in Soviet military doctrine on a war-winning nuclear capability, and the extent to which current Soviet programs are related to the doctrine (which sounds like World War II refought with nuclear weapons).

To say this is not to suggest that the Soviets have any serious prospect of succeeding in this kind of an enterprise. They do not. But if they persist in their efforts, and we do not, they will -- at least hypothetically -- make our strategic retaliatory capability less fully effective than we want it to be. Short of a U.S. response, moreover, they will achieve that result without paying any penalty in resources or in political terms, for causing instability. They might even see opportunities in that case for political intimidation. That cannot be permitted to happen.

There is no prospect that the Soviet Union, any more than the United States, can develop a disarming first strike in the decade ahead -- if the United States reacts to modify its forces appropriately. Similarly, there is no prospect that the Soviet Union, any more than the United States, can -- over the next 10 years -- design a serious damage-limiting capability, if we react. That is simply not in the cards.

What is in prospect is this: the Soviets will have at least the hypothetical capability, in the early to mid-1980s, to destroy [redacted] of our ICBM silos, [redacted] our non-alert bombers, and any SSBNs that might be in port; they may also be able to give as much as 10 to 20 percent of their population at least some kind of temporary protection against our retaliation. Even so, we would still have the capability, with our SLBMs on patrol and alert bombers armed with cruise missiles, to deliver [redacted] warheads on target in the Soviet Union. In addition, the USSR can never be sure that our ICBM force would not be launched under the attack, increasing the number of U.S. delivered warheads [redacted].

It is difficult to imagine any circumstances or expectations that would prompt Soviet leaders to undertake such a self-destructive attack. There are, nonetheless, several reasons why it would be unacceptable not to take measures to correct our impending vulnerabilities. Although the total number of warheads in the U.S. force will be increasing with the deployment of TRIDENT and ALCM, the destruction of the ICBM force could result in a net loss of second-strike target coverage with our forces on day-to-day alert, decrease our ability to attack time-urgent targets, and reduce the flexibility with which we could manage our surviving forces. The threat of such a loss would also undermine our confidence in the strategic TRIAD, and quite possibly encourage the Soviets to strive for a similar success against our other second-strike capabilities.

I realize that, quite apart from the implausibility of a Soviet first strike in these circumstances, a number of questions have been raised about the feasibility of executing a successful attack on our ICBM force. In fact, I pointed out some of the difficulties in this report a year ago. It is equally important to acknowledge, however, that the coordination of a successful attack is not impossible, and that the "rubbish heap of history" is filled with authorities who said something reckless could not or would not be done. Accordingly, we must take the prospective vulnerability of our ICBM force with the utmost seriousness for planning purposes. Even where the probability of an event seems low, it may (depending on how costly the effort) be worth reducing still further when the consequences of its occurrence are so great. A focus of our planning, in these circumstances, is on how to deal with this problem. SALT II will leave open all options.

I should note, in this connection, that a criticism of SALT is that it has failed to remove or postpone significantly the vulnerability of MINUTEMAN. That criticism is unwarranted. SALT cannot be expected to solve all our strategic problems for us. But as it proceeds, SALT can continue to contribute to stability and ensure, where the problems are too knotty for the bilateral process, that we retain the freedom to solve them unilaterally. SALT II will permit us to do just that.

While I have emphasized the impending vulnerability of our ICBM force, it is not the only problem that will face us in the years ahead. We must be concerned about the aging of our bomber and SSBN capabilities. We must also recognize that our current civil defense program can do little to limit collateral damage even should the Soviets not attack urban areas directly. If our limited, second-strike, response options are to be fully credible, our friends as well as our opponents must understand not only that we can use our strategic forces in a deliberate and controlled way against meaningful targets, but also that people at risk in potential target areas in the United States can be evacuated and protected, at a minimum, from the short-term effects of nuclear weapons.

Clearly, we have a number of tasks ahead of us. I am confident that the FY 1980 defense budget and the Long-Range Defense Projection, as currently visualized, will enable us to get on with those tasks at an acceptable pace.

V. THE THEATER NUCLEAR CAPABILITIES

As I emphasized last year, our theater nuclear forces do not constitute a full-fledged and independent capability. They are, for the most part, organic to the general purpose forces. The longer range systems are integrated in targeting with the central strategic forces, many of which are programmed against theater targets. Thus, should their weapons be released, our theater nuclear forces would probably be used in conjunction with regular ground, tactical air, naval, and in many cases strategic forces.

A. Current U.S. Capabilities

The PERSHING missile is the only U.S. delivery system currently dedicated solely to the tactical use of nuclear weapons. For the rest, we rely on dual-purpose artillery, missiles such as LANCE and HONEST JOHN, aircraft, surface ships, submarines, and SAMs -- systems with a non-nuclear capability -- to deliver our theater-designated weapons.

CHAPTER 1

STRATEGIC FORCES

I. STRATEGIC OFFENSIVE FORCES

A. Program Basis

Total Department of Defense spending for Strategic Offensive Forces in FY 1980 is more than $8 billion. This is around six percent of the DoD budget.

1. U.S. Strategic Force Requirements

The main objective of U.S. strategic forces is to deter a nuclear attack on the United States, our forces, our allies or others whose security is important to us. In conjunction with general purpose and theater nuclear forces, our strategic forces also enhance deterrence of non-nuclear aggression against NATO and our Asian allies.

2. The Strategic Balance

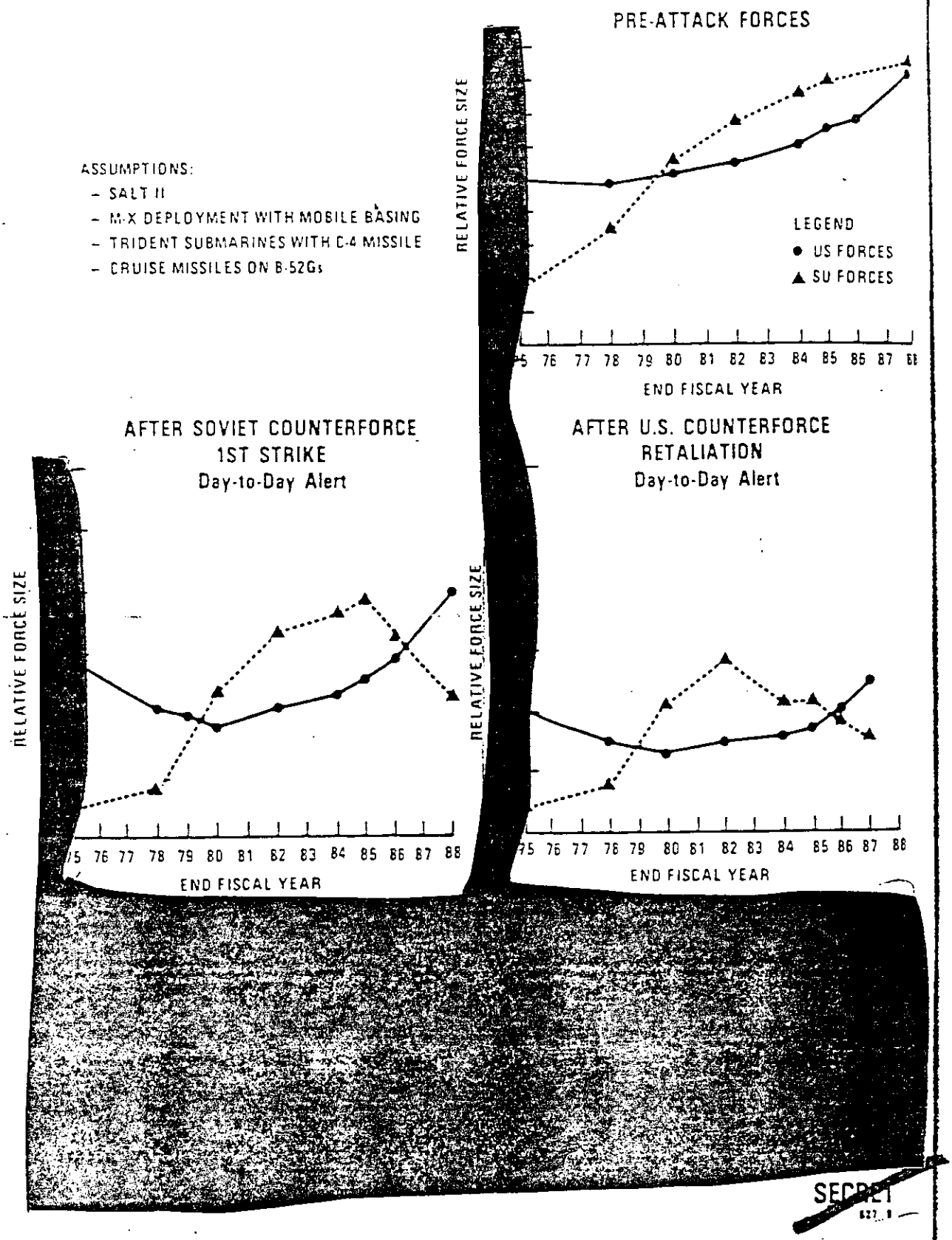
Neither the United States nor the Soviet Union could launch a disarming first-strike that would prevent the other side from launching a retaliatory strike of devastating proportions. This situation will remain for the foreseeable future. Soviet ICBMs can threaten our ICBMs but the Soviets must also consider the vulnerability of their silo based systems. On the other hand, both Soviet and U.S. alert bombers and SLBMs, while subject to attrition through counterforce attacks or defensive systems, contribute to retaliatory capability without posing a major direct threat to their counterparts.

Since we cannot measure deterrence directly, I believe an appropriate measure results from an examination of how our forces might perform in response to a hypothetical Soviet attack. We must be confident that our forces are resilient enough to counter any threat that the Soviet Union can develop. I believe that a Soviet surprise attack in which our forces "rideout" the attack poses a severe test, and that the analysis of such an attack can provide critical insight into the effectiveness of our forces.

Chart 1-1 compares the relative size of U.S. and Soviet forces over the period 1975-1987 under the demanding test of a hypothetical Soviet surprise first-strike scenario. This measure reflects the calculated capabilities of the planned U.S. and projected Soviet strategic arsenals, using detailed performance characteristics (e.g., yield, accuracy, reliability) and the best projection of the threat that the forces are expected to encounter. The Soviets are now estimated to be introducing new missiles with more warheads and improving the accuracy

SECRET

U.S. AND SOVIET STRATEGIC FORCES COMPARISON



SECRET

of their warheads, more rapidly than we had expected a year ago. The increasing vulnerability of our ICBMs means that by 1982 the balance calculated to result after a Soviet first strike and a U.S. retaliation would be less favorable than we would wish, though remaining U.S. forces would be enough to wreak enormous damage. Thereafter improvements in our SLBM and bomber forces will, if resolutely pursued, correct this imbalance, and deployment of a new suriviable ICBM will reverse it. We should not lose sight of the fact that until survivable ICBMs are deployed the relative outcome of these exchanges will be more sensitive to uncertainties associated with the possibility of attrition of SLBM and bomber forces being greater than expected, and to command and control uncertainties.

3. Key Needs for Strategic Forces

It is my view that the best way to proceed to our goal of maintaining deterrence and stability is to take those steps necessary to maintain effective strategic forces which retain the characteristics -- including the diversity, redundancy, and flexibility of the current TRIAD. By having three largely independent survivable systems, our capability has been well hedged in the past. Various factors -- silo vulnerability, block obsolescence, and advances in strategic defense capability to name a few -- require action to prevent the deterioration of our currently effective strategic forces into a force with undue reliance on one or two components. Three key problems must be addressed if we are to ensure the continued effectiveness of our strategic programs: (1) a solution must be found to the problem of increasing vulnerability of land-based ICBMs; (2) the high survivability of the SLBM force must be maintained as POLARIS/POSEIDON submarines reach the end of their planned service life; and (3) high reliability, survivability, and penetration for weapons assigned to the air-breathing leg must be continued.

B. Program Description

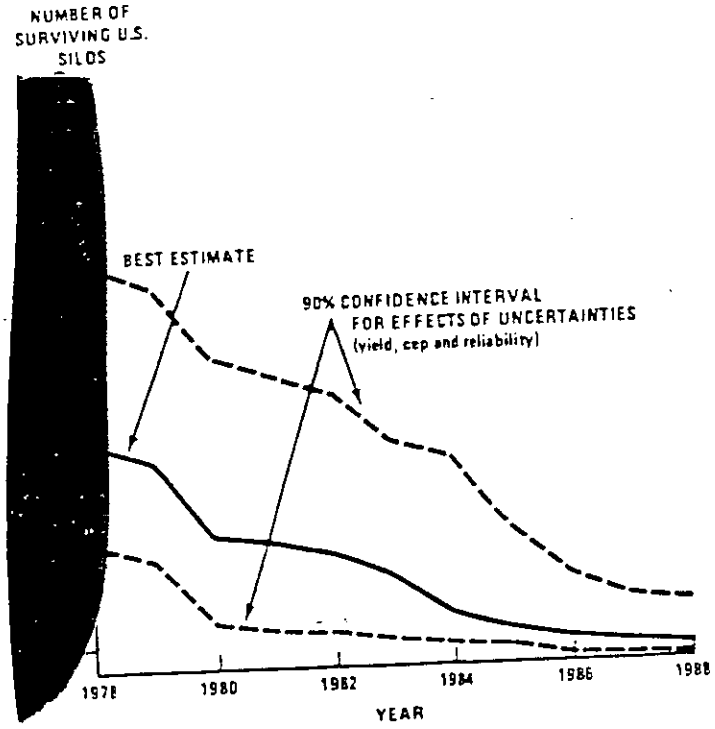
The five-year program places emphasis on those programs which address our major deficiencies.

1. Finding a Solution to the Problem of the Increasing Vulnerability of Land-Based ICBMs

During the past year, we have given considerable attention to the questions surrounding modernization of the ICBM force, especially the problem of choosing a survivable basing mode. Major progress has been made in understanding the evolving Soviet threat to our ICBMs and the courses of action available to us. Analysis of intelligence data collected on recent flight tests of new versions of the SS-18 and SS-19 missiles indicates that by the early 1980s a substantial threat to our MINUTEMAN will exist. Our best estimate of surviving U.S. silo-based

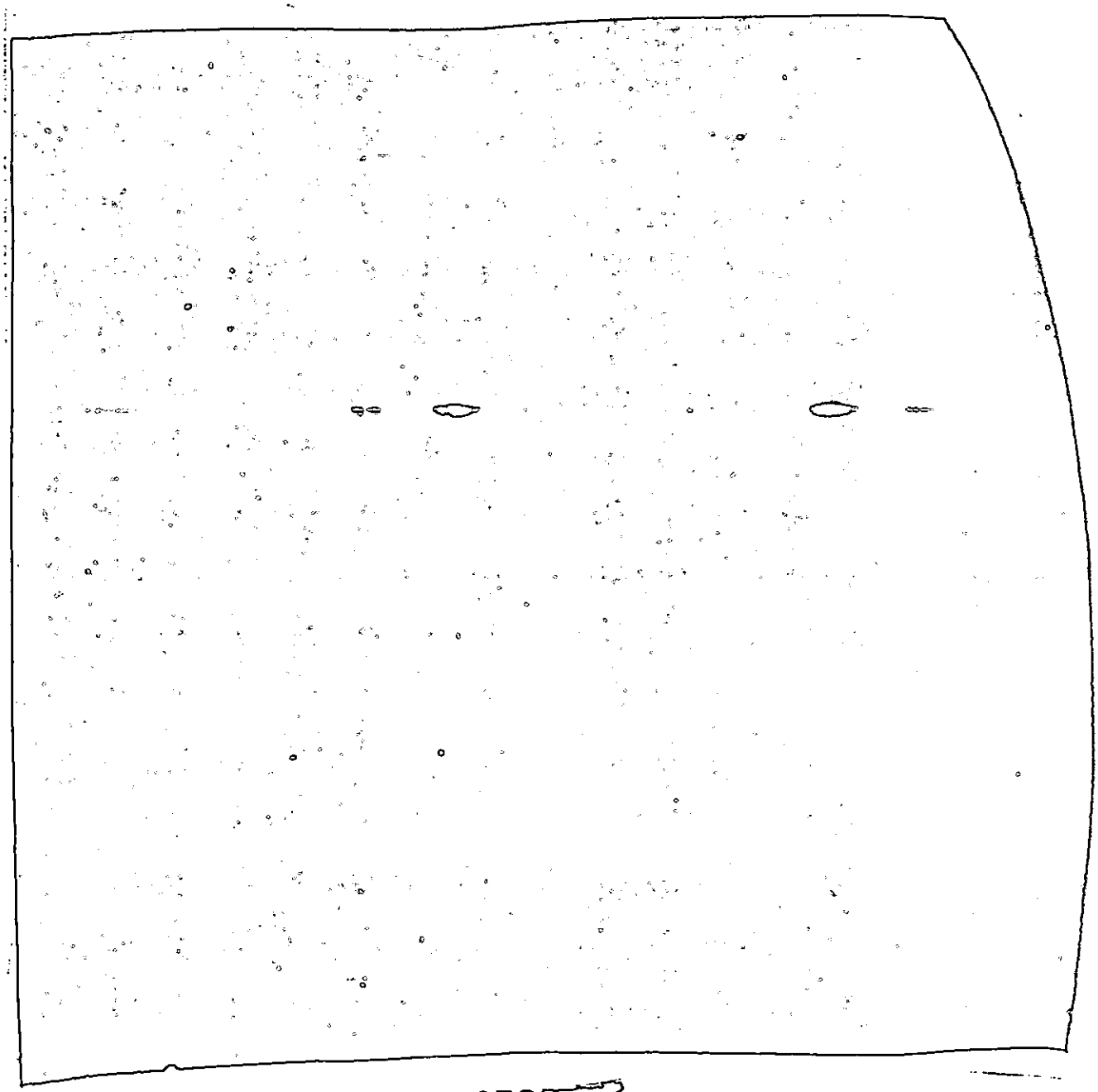
ICBMs is shown in Chart 1-2. The vulnerability of MINUTEMAN silos certainly does not mean that the United States deterrent as a whole would no longer be effective. However, the matter is clearly serious enough to warrant action.

Chart 1-2



A useful way to assess the impact of increased ICBM vulnerability is to consider the capability of the strategic forces after a surprise Soviet attack. ICBMs have been assigned to the whole spectrum of targets [redacted] Very low survivability of ICBMs in the early 1980's will leave us with very little effective quick-response hard target kill capability unless we were to adopt a launch-under-attack policy; however, the introduction of air-launched cruise missiles will provide an extensive slow response capability even against very hard targets. Our capability against non-silo targets, moreover, will become more effective in the late 80's [redacted] The deployment of TRIDENT I missiles in some POSEIDON submarines in October 1979, the deployment of new TRIDENT submarines beginning in August 1981, and the deployment of Air Launched Cruise Missiles (ALCM) in December 1982 provide the increased capability [redacted] even before survivable ICBMs are deployed in numbers.

The ICBM force has played a very important role in determining the objective military capability of our strategic forces. Moreover, the attributes of the ICBM force are emphasized in Soviet doctrinal writings and in many public discussions of the strategic balance. [redacted] shows a qualitative comparison of current ICBMs with current SLBMs and bombers/ALCMs. The table shows that ICBMs have at present a number of advantages over SLBMs and bombers. It would probably be possible to incorporate some of these capabilities into the SLBM force, but I have considerable doubt that SLBM command, communications and control (C^3), responsiveness and accuracy can ever be made as reliable as a CONUS-based ICBM force, especially while maintaining the requirement for enduring survivability of the SLBMs.



Current Strategic Force Characteristics

	ICBMs	SLBMs	Bombers/ALCMs
Secure and Reliable C^3	yes	?**	?
Flexibility/Responsiveness	yes	?**	no
Assured Penetration	yes	yes	?
Prompt Counterforce Capability	yes	?**	no
Sovereign Basing	yes	no	yes
Enduring Survivability	*	yes	?
Survives Without Tactical Warning	*	yes	no

---

* May be "yes" with Multiple Protective Structures (MPS) and some other survivable basing modes.

** Would require new programs and/or changes to SSBN operational practices.

Another characteristic of the ICBM force is that it has been, over the past decade, the most powerful retaliatory leg of the TRIAD in SIOP targeting because of its high alert rate, relatively large warheads, and pre-launch survivability. Given the past importance of our ICBM force and the traditional emphasis of the Soviets (and of many military observers throughout the world) on ICBMs, it can be argued that a decision not to modernize the ICBM force would be perceived by the Soviets, and perhaps by others, as demonstrating U.S. willingness to accept inferiority, or at least as evidence that we were not competitive in a major (indeed, what the Soviets have chosen as the major) area of strategic power. Others could argue, however, that such a decision could be viewed as playing to U.S. strengths in SLBMs and cruise missiles rather than investing in an inherently less survivable element of our strategic forces. My own judgment lies between these alternatives, but closer to the former view.

In the course of the past year, we have examined, in detail, the relative cost of alternative force postures, with and without ICBM modernization, under a SALT II agreement. We have concluded from this study that TRIADs with ICBM modernization are no more costly than DYADs of bombers/ALCMs and SLBMs of comparable levels of capability. When factors such as force diversity, dilution of the Soviet threat, and overall confidence are considered, I am persuaded that our best policy choice is to maintain the TRIAD by modernizing our ICBM forces. This will require the development of a new missile and a new survivable basing system.

Although recent studies indicate that a multiple protective structure (MPS) would provide a highly survivable base for a new ICBM, there are important questions which require careful consideration before we make a final commitment to it. These include: ability to bound the threat in terms of number of accurate Soviet RVs available to attack MPS, adequate verification if the Soviets deployed a similar sytem (we must ensure that the number of launchers can be verified by national technical means without requiring unrealistic levels of cooperation); credibility and effectiveness of concealment; environmental aspects; and costs, including effect on costs of any potential Soviet responses.

We will continue our resolution of these questions, but in the meantime we will also continue with a detailed exploration of alternatives to the MPS concept. Following the M-X DSARC held in December 1978, I instructed the Air Force to conduct an intensive study which would lead to a high confidence assessment of the feasibility, schedule, and costs of a survivable air mobile system. The particular air mobile concept being studied involves a missile that could be launched from a STOL-type cargo aircraft. The aircraft would ordinarily be based at austere airfields in the north central U.S. to allow maximum escape time from an SLBM attack. On either strategic or tactical warning -- or on a judgment that we could not count on adequate warning (for example, loss of function of our infrared satellites or forward deployment of enough Soviet SLBM warheads for a barrage attack on our aircraft and the areas around the airfields), the aircraft would leave their base [redacted] If a launch command was not received within a few hours, each aircraft could either return to its own base, or, because of its STOL (short take off and landing) properties, could land at any of several thousand small airstrips, including perhaps unpaved ones, located throughout the U.S. If the alert were to continue for a long period of time, the aircraft could be moved from one airfield to another at appropriate intervals to deny knowledge of its location.

Designing a missile is much simpler than providing survivable basing for it. The missile design we have aimed at is flexible enough to be used either with an MPS, an air mobile system or a MINUTEMAN silo -- or a land mobile or underwater barge-mounted system.

We expect that the missile will be 83" in diameter, and use a high energy solid propellant. The design envisions a three-stage version [redacted] and a two-stage version [redacted] The two-stage version would be sized to fit a TRIDENT launch tube. This commonality in missile design between the M-X and TRIDENT programs could save one to two billion dollars in development costs on the TRIDENT II missile.

The final decision on missile design will be made in conjunction with the decision on basing which we expect to make in the spring of 1979. At that time we plan to proceed with the full-scale development of the missile using funds requested in the FY 1979 supplemental.

		FY 1978 Actual Funding	FY 1979 Planned Funding	FY 1980 Prop'd Funding	FY 1981 Prop'd for Authorization
Advanced ICBM Technology (including M-X in FY 78/79)	Development: $ Millions	134.4	233.2	5.7	8.0
M-X Engineering Development	Development: $ Millions	-	190.0	670.0	1,321.1
MINUTEMAN improvements (silo upgrade, MK-12A warhead to increase yield, and improved communications)	Development: $ Millions	56.4	53.3	30.3	46.8
	Procurement: $ Millions	267.0	68.7	105.1	137.7

2. Maintaining the High Survivability and Effectiveness of the SLBM Force as POLARIS/POSEIDON Submarines Reach the End of their Planned Service Life

Strategic submarines continue to provide a unique mix of capabilities for our strategic forces. The ability to patrol, virtually unchallenged, in the vast ocean areas presents a multi-azimuth and so far untargetable retaliatory capability. The existence of a survivable at-sea ballistic missile force decreases any incentives for large scale attacks on U.S. soil, since such attacks would not eliminate our ability to retaliate. The problem is how to provide a cost-effective transition from a submarine force designed in the 1950's to a force that will continue to provide high confidence sea-based deterrence into the 21st century.

The 41 POLARIS/POSEIDON SSBNs in service were constructed in the late 1950s and early 1960s. The ten oldest SSBNs operate in the Pacific with 16 POLARIS (A-3) Multiple Reentry Vehicle (MRV) missiles per submarine. The remaining 31 operational SSBNs have been converted to carry 16 POSEIDON missiles each having Multiple Independently Targetable reentry vehicles (MIRV). Seven TRIDENT submarines have been authorized for construction and are under contract to the Electric Boat Division of

General Dynamics. Deployment of these highly capable submarines will begin in the Pacific in 1981 from a new base at Bangor, Washington. POLARIS submarines will be withdrawn from service as TRIDENT deploys.

[redacted]

The current estimate for the delivery of the first TRIDENT submarine, USS OHIO (SSBN-726), is November 1980. Extensive management changes and the maturation of the expanded work force at the Electric Boat Division of General Dynamics appear to have solved the TRIDENT construction problems. However, cost escalation caused by extremely high inflation in the shipbuilding industry continues to be a problem. There is one new TRIDENT submarine authorization included in the FY 1980 budget, and an authorization rate of slightly more than one per year is programmed through 1984 for a total of 13 ships authorized or programmed by the end of the FYDP period. It is planned to resume the previously programmed building rate of three ships every two years [redacted] the total number of TRIDENTs to be built has not yet been finally determined.

The TRIDENT I missile was designed to be compatible with both TRIDENT and POSEIDON submarines. So far, the TRIDENT I (C-4) missile has experienced 14 successes in 17 launches, even better than POLARIS and POSEIDON at comparable phases of their development. Shipboard launch tests will commence this spring from USS FRANCIS SCOTT KEY (SSBN-654). This SSBN will deploy in October 1979 as the first of 12 POSEIDON submarines to be retrofitted with the TRIDENT I missile. The capability of the TRIDENT I missile will help to offset the reduction in SLBM launchers that will result from POLARIS/POSEIDON retirement, by increasing the effectiveness of the remaining submarines. These submarines will operate from a refit site at Kings Bay, Georgia that will be activated with the planned withdrawal from the POSEIDON refit site at Rota, Spain in the spring of 1979.

The TRIDENT II missile, to be developed in parallel with but later than the M-X, could double the SLBM throw-weight by utilizing all of the volume of the TRIDENT launch tube. The potential for developmental cost savings exists by, at the least, using the stages of the Air Force missile design as components of the TRIDENT II, linking the early missile design efforts of Navy and Air Force teams.

Alternative submarine designs potentially less expensive than TRIDENT are under study. If a promising alternative develops, it could influence SSBN procurement in the FY 1982 budget. This study has several goals: (1) to provide a less expensive submarine than TRIDENT; (2) to bring competition into the SSBN acquisition process; and (3) to provide the option for an expanded SSBN building program should the need arise.

		FY 1978 Actual Funding	FY 1979 Planned Funding	FY 1980 Prop'd Funding	FY 1981 Prop'd for Authorization
Acquisition of TRIDENT Submarine	$ Millions	1,872.9	647.9	1,478.9	1,337.8
Acquisition of TRIDENT I Missile	$ Millions	1,467.8	1,090.2	824.1	712.8
Research and Development of TRIDENT II Missile	$ Millions	5.0	25.0	40.6	129.3

3. Maintaining High Reliability and Penetration for Weapons Assigned to the Air-Breathing Leg of the TRIAD

a. Cruise Missile Program

The air-launched cruise missile program is proceeding on schedule toward completion of the competitive flyoff between the Boeing AGM-86B and the General Dynamics AGM-109. This competition was initiated in February 1978, with the passage of the FY 1978 Supplemental appropriation. Ten flights of each missile are planned between June and November 1979, leading to source selection in January 1980 preliminary to a DSARC III production decision in February 1980. In addition, it is planned to have competitors for a second source of engine and navigation/guidance subsystem components. The overall purpose of these competitions is to provide a more cost-effective ALCM for the B-52G.

Because of the important role the ALCM is projected to assume in the air-breathing leg of the TRIAD when it is loaded on all B-52G bombers, I have initiated a survivability assessment of the cruise missile. Between January and September 1978, seven flight tests [redacted] were conducted with the TOMAHAWK as a representative missile. The data resulting from these tests are being evaluated. Follow-on testing may include real-life target acquisition and kill attempts by air-to-air missiles, surface-to-air missiles, and automatic anti-aircraft guns. So far I have seen nothing to change my view that our successive generations of cruise missile capabilities will be able to penetrate the Soviet defenses as they evolve over time.

To make this ALCM program consistent with the usual definition of initial operational capability (IOC), we have changed the date of the IOC from September 1981 with one aircraft loaded with cruise

missiles to December 1982 with one squadron of B-52s (16 U.E.) loaded with external cruise missiles. This change does not represent a slip in the program, only a change in what is defined as the IOC.

b. Cruise Missile Carrier Aircraft

I have mentioned previously that I consider the cruise missile carrier aircraft to offer a prudent option for rapid growth in our strategic capability should it be needed. On this basis, the Air Force is completing concept/system definition studies based on the consideration of both military and civilian aircraft. These aircraft include existing wide-bodied transport aircraft as well as the B-1 design, Advanced Medium STOL Transport (AMST), C-141, C-5A and other candidates.

Upon completion of these studies in July of this year, two aircraft will be selected for follow-on advanced design/development and flight demonstration. The concept feasibility flight demonstration of these two aircraft will occur not later than the Spring of 1981 to allow, if needed, a full scale engineering development decision in July of 1981.

c. B-1 R&D

We are continuing the testing of the B-1 bomber design so that the technical base will be available, in the very unlikely event that, because alternative strategic systems run into difficulty we decide to reconsider B-1 deployment. This program will evaluate the penetration effectiveness of the B-1; provide information on current and future applications of the B-1 defensive avionics and engine design; and measure the B-1's resistance -- specially designed into the aircraft -- to nuclear effects.

The fourth and last B-1 aircraft is scheduled for delivery this February with both the offensive and defensive avionics installed. The data from this aircraft's flight test program will help in the design of future strategic penetrating aircraft, as well as provide a measure of the B-1's capability as a cruise missile carrier.

d. New Manned Bomber

We are continuing to examine the requirements for a new penetrating bomber in the late 1980s to early 1990 time frame as a follow-on to our aging B-52 force. By the end of FY 1988, our newest B-52s, the B-52Hs, will, on the average, be more than 25 years old. To meet the increasingly sophisticated Soviet air defense threat during that period, should we decide to continue to have penetrating bombers

indefinitely as a major component of our strategic forces, it is only prudent to start long-range planning and development for a possible follow-on aircraft now. The FY 1980 budget request will provide for definition and selection of alternative concepts and technology.

e. Aerial Tanker

The current KC-135A force supports all of today's peacetime aerial refueling requirements. However, competing wartime requirements of a simultaneous execution of the Single Integrated Operational Plan (SIOP) and a major contingency action, i.e., NATO, Persian Gulf, Korea, etc., could demand more refueling assets than available. If wartime decision makers chose to support significant NATO deployment/employment with aerial refueling assets, SIOP war-fighting capability would be reduced when, potentially, it is most needed.

Development of an engine for possible KC-135 reengining, and the KC-10A, are two ongoing programs that are being pursued that might provide added capability in this area. The first two KC-10As have been procured. Research and development is continuing on the KC-135 reengining program. (See Mobility Forces, Chapter 6 for KC-10A data.)

		FY 1978 Actual Funding	FY 1979 Planned Funding	FY 1980 Prop'd Funding	FY 1981 Prop'd for Authorization
Air-Launched Cruise Missile Program	Development: $ Millions	276.9	336.9	90.0	20.0
Cruise Missile Carrier Aircraft	Development: $ Millions	15.0	20.6	30.0	60.0
Modification of B-52 Strategic Bomber	Development: $ Millions	45.0	105.9	94.3	112.0
Research and development of B-1 bomber and other Bomber Studies	Development: $ Millions	443.4	55.0	54.9	30.4
Research and development of KC-135 Reengined prototype.	Development: $ Millions	3.8	10.5	11.0	28.4
B-52 Defensive Systems	Development: $ Millions	15.5	29.6	38.9	70.1

II. STRATEGIC DEFENSIVE FORCES

A. Program Basis

Strategic defense is an integral part of our strategy of deterrence. In particular, timely and reliable warning and assessment of an attack is an essential element in maintaining the credible retaliatory capability of our offensive forces. We recognize that the cost of attempting to construct a complete defense against a massive Soviet nuclear attack would be prohibitive. And cost aside, we are restricted in Anti-Ballistic Missile (ABM) deployment by the ABM Treaty of 1972 and the 1974 Protocol. Our current programs for active defense reflect these constraints and the emphasis that we place on offensive force deterrence and forward defense. A major part of the strategic defense program costs are related to warning and attack assessment since these functions are a key element in the maintenance of our strategic retaliatory capability.

We need to maintain vigorous programs to provide warning and assessment of missile or bomber attack on North America and U.S. space systems, permit controls over our sovereign airspace, serve as an R&D hedge against future defense requirements, and enhance the survivability of our population in the event of a major nuclear war. These key objectives are addressed within the four elements of our strategic defense program: Ballistic Missile Defense (BMD) and warning, Air Defense, Space Defense, and Civil Defense.

B. Program Status and Description

1. Defense Against Ballistic Missiles

a. Tactical Warning and Attack Assessment

We plan to improve our dual system of sensors (sensing different phenomena) to warn of strategic missile attack. We will continue to rely on [redacted] satellites for early warning of ICBM and SLBM attack. Our ground based radar systems provide a second type of warning for confirmation, and additional information to help characterize the attack.

For the northern approaches, the Ballistic Missile Early Warning System (BMEWS) provides ICBM attack confirmation and assessment. Our planned BMEWS radar enhancement program will improve system reliability and capability. The Perimeter Acquisition Radar Characterization System (PARCS), a converted asset of the SAFEGUARD anti-ballistic missile system, acts as a backup for a large part of the BMEWS coverage area and can also provide additional ICBM attack assessment.

For the coastal SLBM approaches, we will continue to operate the FPS-85 radar in Florida and will complete deployment of the two coastal-based phased-array radars (PAVE PAWS) in FY 1980. All but one of the six obsolescent FSS-7 SLBM warning radars can be phased out as the two PAVE PAWS radars become operational. [redacted]

In addition to the improvements in the warning radar systems, we are developing evolutionary improvements to the [redacted] sensors and have begun efforts to increase the survivability and operational flexibility of the ground-based [redacted] equipment. We also plan to pursue R&D that is applicable to a more capable new generation of spaceborne missile surveillance sensors.

We are continuing development work on the Integrated Operational Nuclear Detection System (IONDS) for deployment aboard the NAVSTAR Global Positioning Satellites (GPS). IONDS will provide world-wide nuclear trans-and post-attack damage assessment information to the NCA [redacted]

b. Ballistic Missile Defense (BMD) R&D

The lead we enjoyed in BMD technology at the time of agreement on the Anti-Ballistic Missile (ABM) treaty has substantially diminished. It is therefore important for us to pursue an aggressive R&D program to guard against a Soviet breakthrough in the field and to encourage their compliance with the treaty. Accordingly, in the coming year, we will continue with two complementary R&D efforts: an Advanced Technology Program and a Systems Technology Program.

The Advanced Technology Program is a broad research effort on the technology of all BMD components and functions. The principal program objectives are to maintain a technological lead over the Soviet Union and to develop new technologies to reduce the cost and complexity of BMD. In addition, the program provides the technological basis for judging Soviet developments in BMD and for assisting in the evaluation of the penetration capabilities of our strategic offensive forces. Program objectives are achieved through key field experiments in missile discrimination, data processing, radar and optics technologies, and a continuing search for revolutionary concepts and ideas. A broad effort is continuing to develop the technologies needed to achieve short range, non-nuclear intercept and destruction of reentry vehicles within the atmosphere.

The Systems Technology Program is a hedge against future strategic uncertainties. By drawing on the accomplishments from the Advanced Technology Program, this program maintains a capability to develop the most critical aspects of BMD technology -- the integration of components and the testing of key systems concepts. Our major thrust continues to be to demonstrate the capability of new sensors and guidance techniques to support the interception of reentry vehicles with sufficient accuracy to destroy them by non-nuclear means. The first test is scheduled for late 1981.

2. Air-Defense

a. Interceptor Forces

Active and Air National Guard (ANG) squadrons provide our 327 interceptors dedicated to CONUS/North American Air Defense. The CONUS interceptor forces, along with Tactical Air Command (TAC) F-15 and F-4 augmentation forces (described below), maintain peacetime alert at 26 sites around the periphery of the 48 contiguous states.

The interceptor forces are supplemented by Army-operated surface-to-air missile (SAM) batteries. Three NIKE-Hercules batteries are located in Alaska; four NIKE-Hercules batteries and eight HAWK batteries are located in Florida.

The Air Force, Navy, and Marines are tasked to provide additional interceptors in a crisis. This augmentation force includes 160 F-4s, F-15s, and F-14s. Moreover, by using some of the F-15s already procured or programmed for TAC, we can provide a newer, more capable interceptor -- at least as an initial modernization effort -- without the high cost of adding dedicated aircraft to the air defense force.

b. Surveillance and Command and Control Systems

The CONUS-based network of airspace surveillance radar sites formerly operated and maintained by the Air Force duplicated, around much of the periphery, the Federal Aviation Administration (FAA) air traffic control system. In 1973, under an agreement with FAA, we began to phase out most of the Air Force surveillance radars in favor of a Joint Surveillance System (JSS).

The North American radar network of 83 radar sites will support the air space surveillance mission. Of these, 24 sites will be located in Canada and 45 sites will be located around the periphery of the CONUS. Thirty-six of the CONUS sites will be operated

and maintained by FAA, but the radar data will be jointly used by FAA and the Air Force. Nine of the CONUS sites will be under military control since FAA has no present need for air traffic control in some of the low traffic areas. The remaining 14 sites will be in Alaska (12 Air Force sites, one jointly-used Air Force site, and one jointly-used FAA site).

The command and control element of the JSS will consist of seven Regional Operations Control Centers (ROCCs). Four ROCCs are to be located in CONUS, one will be in Alaska, and the Canadians plan to modernize their North American Air Defense (NORAD) air surveillance and control by deploying two ROCCs. These ROCCs will replace the seven high-cost, outdated Semi-Automatic Ground Environment (SAGE) and Back-up Intercept Control (BUIC) centers in CONUS and Canada and the manual control center in Alaska. Savings (which include the release of more than 5,000 personnel to other Air Force missions) of more than $100 million per year are expected when these obsolete SAGE/BUIC centers are phased out. Activation of the CONUS and Canadian ROCCs is planned by 1981. The Alaskan ROCC will be ready by 1983.

Since the Joint Surveillance System is designed for air sovereignty control at low cost and is non-survivable, crisis Air Defense depends upon the E-3A AWACS. A total of 34 AWACS are tentatively planned for operation by TAC; at present six of these are earmarked for North American employment in peacetime. In a crisis, these six earmarked for North America could be further augmented from the general purpose AWACS force.

c. Bomber Warning

We are continuing the CONUS Over-the-Horizon BACKSCATTER (OTH-B) radar R&D program. Technical feasibility testing will be completed by the end of 1980. We will then decide if system deployment would help satisfy our bomber warning needs along the coastal air approaches to the United States.

Since a northern-looking OTH-B radar is not feasible because of auroral effects, in FY 1980 we are also continuing R&D for improvements to the Distant Early Warning (DEW) Line; and, as a long-term goal, pursuing a capability to detect bombers from space (DARPA's TEAL RUBY experiment). Current NORAD planning, which is proceeding in consultation with Canada, envisions replacing the existing DEW radars with modern systems that would provide improved warning coverage particularly at low altitude against possible attack over the northern approaches to North America and do so at lower maintenance and operating cost.

The cost of maintaining our existing bomber warning capability and the airspace surveillance and control forces in FY 1980 totals about $577 million. This total is attributable to the CONUS interceptors ($271 million), the radar sites ($239 million), and the control centers ($67 million).

3. Space Defense

Our policy is to abide by the agreements limiting the use of space to nonaggressive purposes. We see developing Soviet space capabilities that could directly threaten our terrestrial forces and some of our critical satellites. The Soviets are operating satellite systems that could perform [redacted] targeting of U.S. naval and land-based forces and they have tested an anti-satellite (ASAT) system. In addition to their orbital ASAT interceptor, they are working on other technology programs that appear to be ASAT related. These Soviet activities could threaten our access to space.

The President has stated our preference for an adequately verifiable ban on ASAT systems and our opposition to a space weapons race. We have begun discussions with the Soviets on these subjects. However, in the absence of an agreement and in the face of the potential threat, we will have to continue working to defend our satellites, and to develop an equivalent capability to destroy Soviet satellites if necessary. Consequently, our space defense programs take several forms to achieve a balance of operational capabilities in the 1980s. They range from measures to improve satellite tracking and satellite ground control survivability, to ASAT development programs against the Soviet satellite systems that could threaten our forces.

Our progress in ASAT R&D is of special interest in light of the recently initiated discussions on an ASAT ban. Our studies of the threat and the potential means to counter it will continue this year [redacted]

4. Civil Defense (CD)

The purpose of the U.S. civil defense program is to enhance, in the event of a nuclear war, the survivability of the American people and its leadership, thereby improving the basis for eventual national recovery. The primary focus of the program is to study and develop a capability for relocating our people to low-risk areas in a crisis over a period of days or weeks, so as to reduce significantly their vulnerability to a major Soviet nuclear attack.

In addition, the U.S. civil defense program should contribute both to perceptions of the overall U.S.-Soviet strategic balance and to crisis stability, and also reduce the possibility that the Soviets could coerce us in time of crisis. It can be a factor in avoiding major asymmetries in population fatalities.

This program does not suggest any change in the U.S. policy of continuing reliance on strategic offensive nuclear forces as the preponderant factor in maintaining deterrence, nor does it require civil defense programs similar or equivalent to the civil defense programs of the Soviets.

This nuclear attack oriented civil defense program can also help deal with natural disasters and other national emergencies. The integration of national emergency related programs into the newly created Federal Emergency Management Agency (FEMA) will help to further this coordination.

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 the time to relocate 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 localities near our strategic offensive forces. 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 included in our civil defense program for attaining these complementary capabilities are: development of crisis relocation plans using the highly developed private transportation system and the existing distribution of housing outside urban areas, 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.

		FY 1978 Actual Funding	FY 1979 Planned Funding	FY 1980 Prop'd Funding	FY 1981 Prop'd for Authorization
Continued improvements in the Early Warning Satellite	$ Millions	36.9	36.1	42.1	56.0
Modernization of BMEWS (Ballistic Missile Early Warning System)	$ Millions	4.4	11.0	9.0	5.5
Development and acquisition of the SLBM Phased Array Radar Warning System	$ Millions	8.5	3.7	4.2	1.0
Integrated Operational Nuclear Detection System (IONDS)	$ Millions	7.7	9.1	11.9	11.9
Development of Ballistic Missile Defense Advanced Technology	$ Millions	107.3	113.5	113.7	127.5
Development of Systems Technology (formerly Site Defense)	$ Millions	106.2	114.0	114.8	128.1
R&D and procurement of the Joint Surveillance System	$ Millions	11.2	43.5	78.2	9.6
Continued development of the Over-the-Horizon (OTH) BACKSCATTER Radar.	$ Millions	4.0	10.9	11.9	8.2
Development of Enhanced Distant Early Warning Line Radars	$ Millions	1.0	5.0	5.0	11.0

		FY 1978 Actual Funding	FY 1979 Planned Funding	FY 1980 Prop'd Funding	FY 1981 Prop'd for Authorization
Development and Improvement of Space Defense Systems	$ Millions	41.6	73.0	80.5	108.6
Civil Defense (funds are not included in DoD totals. Effective April 1979 Civil Defense funding will be administered by FEMA.)	$ Millions	91.6	97.9	108.6	-

III. STRATEGIC COMMAND, CONTROL AND COMMUNICATIONS

A. Program Basis

The purpose of the strategic command, control, and communications (C^3) system is to enable the President to have flexible operational control of the strategic forces during all levels of conflict. He must, as a minimum, have access to a survivable C^3 system for execution and termination of nuclear strikes. A complementary need is the maintenance of constant communications with the leadership of potential adversaries.

B. World-Wide Military Command and Control System (WWMCCS)

To permit strategic nuclear retaliation even after the C^3 system itself has been attacked, we have developed a number of command centers, both fixed and mobile, with redundant lines of communication from the President, to the strategic offensive forces.

The National Military Command System (NMCS) is the central component of the WWMCCS. It consists of the National Military Command Center (NMCC, a soft facility) in the Pentagon, the Alternate National Military Command Center (ANMCC, a moderately hard facility), and the National Emergency Airborne Command Post (NEACP). Of the three, only the airborne command post assets can be expected to survive a nuclear attack directed at our C^3 systems. In addition to the NMCS, four commanders (CINCSAC, CINCEUR, CINCLANT, and CINCPAC) have both fixed and airborne command posts capable of communicating with the nuclear forces. Only CINCSAC maintains a continuous, survivable airborne alert.