1967

Record of Decision — Revised January 15, 1968

DRAFT

MEMORANDUM FOR THE PRESIDENT

SUBJECT: Strategic Offensive and Defensive Forces (U)

I have reviewed our Strategic Offensive and Defensive Forces for FY 69-73. The tables on pages 3 and 4 summarize our force goals. For the FY 69 budget, I recommend that we:

1. Maintain a force of 1,000 Minuteman missiles. Plan on a Minuteman II force of 500 missiles in FY 69, but replace Minuteman Is and IIs used in follow-on-tests (FOTs) with Minuteman IIIs/ , leading to a force of Minuteman IIIs by end-FY 73. Delay the Initial Operational Capability (IOC) of Minuteman III from December, 1969 to July, 1970.

Develop an option to deploy Minuteman III in very hard silos or supplement the present Minuteman deployment at a cost of $40 million in FY 69 and a total cost of $212 million in FY 69-73. Continue the previously approved programs for buying for Minuteman missiles, and for Minuteman III.

With all the above changes, the Minuteman force will cost $147 million less in FY 69-73 than the previously programmed Minuteman force.

2. Maintain the JCS-recommended Titan force structure by buying four missiles in FY 69 for $12.6 million and five in FY 70 for $13.6 million and reducing the FOT rate to four per year.

3. Continue development of Poseidon, and procure missiles in FY 69 at a total FY 69 investment cost of $329 million. Plan on an IOC of November, 1970, based on a (the same as Polaris re-order lead time). Build up to a force of 384 on-line Poseidon by FY 75, for a total FY 69-73 investment cost of $4,998 million. Develop a and plan on a force of 31 Poseidon submarines carrying an average of per deployed missile. Procure MK-3s in FY 69, in FY 70, and a total of in FY 69-73. Against expected threats, this Poseidon force will have the same effectiveness as the previously programmed force with per missile, but will cost $84 million less in FY 69 and $394 million less in FY 69-73.

4. Defer indefinitely the JCS recommendation to deploy at a cost of $200 million in FY 69 and a total cost of $220 million in FY 69-73.

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5. Disapprove the JCS recommendation to start Contract Definition of an Advanced ICBM at a cost of $79 million in FY 69. Instead, continue Advanced Development at a cost of $10 million in FY 69. Development, deployment, and operation of the JCS-recommended force of 350 Advanced ICBMs would cost from $7 to $10 billion in FY 69-75, depending on the basing.

6. Disapprove the JCS recommendation to procure a prototype Ballistic Missile Ship for $120 million in FY 69. Ten-year costs of ten Ballistic Missile Ships would be about $1.6 billion.

7. Approve the Air Force recommendation not to reduce the current base program for the bomber force.

Additional SRAMs for B-52s would cost $68 million in FY 69 and a total of $251 million in FY 69-73. As a special force for suppressing anti-bomber defenses, modify UE B-52s to carry some of the previously approved SRAMs at a FY 69 cost of $54 million and a total cost of $56 million in FY 69-73.

8. Disapprove the JCS recommendation for Contract Definition and full-scale development of the Advanced Manned Strategic Aircraft (AMSA) in FY 69. Development, deployment, and five-year operating costs for 150 AMSA would be $7.3 billion. Approve instead further development of aircraft technology, as well as a program to develop bomber penetration aids.

9. Approve procurement of Sentinel, a Chinese-oriented area ABM system which also provides an option for the defense of Minuteman. The total Sentinel system investment cost will be $4.9 billion in FY 69-73.

10.

11. Disapprove the JCS recommendation to deploy a Nike-X defense of U.S. cities against attack by the USSR. (Not a FY 69 issue; the JCS consider the FY 69 budget for Sentinel an adequate first step toward the defense they recommend.)

12. Disapprove the JCS recommendation to produce and deploy twelve UE F-12 interceptors for continental air defense at a FY 69-73 cost of $800 million. Approve instead the Air Force recommended plan for a modernized continental air defense force that includes: (a) development and deployment of 198 improved F-106X aircraft; (b) if the Overland Radar Technology program is successful, engineering development of the Airborne Warning and Control System (AWACS) on a schedule that permits a system demonstration before substantial production funds must be committed; (c) development of the Over-the-Horizon (OTH) radar, addressing production release in September, 1970;

FYDP TABLE 100--U.S. STRATEGIC OFFENSIVE FORCES

(Not subject to force controls of DOD Directive 7045.7. See detail tables for those forces subject to controls)

	FISCAL YEARS															
	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
Bombers: Authorized Active Inventory (AAI)																
B-47/RB-47	990	891	644	495	248											
B-52C-F a/	413	413	413	413	413	380	330	281	214	115	50					
B-52G-H	198	264	281	281	281	281	281	281	281	281	281	281	281	281	281	281
B-58	44	88	88	88	88	88	86	84	81	79						
FB-111A	-	-	-	-	-	-	-	-	-	43	183	253	253	253	253	253
Total Bombers (AAI)	1645	1656	1426	1277	1030	749	697	646	576	558	513	534	534	534	534	534
Air-Launched Missiles (UE)																
HOUND DOG A and B	216	460	580	580	560	540	480	340	340	340	340	340	340	340	340	340
Short-Range Attack Missile (SRAM)	-	-	-	-	-	-	-	-	-	150	450	525	525	525	525	525
Total Air-Launched Missiles (UE)	216	460	580	580	560	540	480	340	340	490	790	865	865	865	865	865
Ballistic Missile Launchers																
Missile Launchers On-Line b/																
ATLAS	28	57	126	113												
TITAN	-	21	67	108	54	54	54	54	54	54	54	54	54	45	45	36
MINUTEMAN	-	-	160	600	800	800	657	570	500	447	297	147	27			
MINUTEMAN	-	-	-	-	-	80	300	394	494	484	464	444	424	404	384	364
MINUTEMAN	-	-	-	-	-	-	-	-	-	10	180	350	520	590	610	630
POLARIS	48	96	144	224	400	432	512	528	528	464	336	256	176	160	128	128
POSEIDON	-	-	-	-	-	-	-	-	-	-	112	208	320	352	384	384
Subtotal Missile Launchers On-Line	76	174	497	1045	1254	1366	1523	1546	1576	1459	1443	1459	1521	1551	1551	1542
Independently-Targetable Missile Warheads On-Line (non-add)	76	174	497	1045	1254	1366	1523	1546	1576	1474	2721	3856	5181	5604	5922	5943
ICBM Launchers in Modernization/494L	-	-	-	-	-	-	43	36	6	59	59	59	29	6	6	6
SLBM Launchers in Conversion/ Overhaul/Shakedown	32	48	48	112	64	160	144	128	128	192	208	192	160	144	144	144
Total Ballistic Missile Launchers	108	222	545	1157	1318	1526	1710	1710	1710	1710	1710	1710	1710	1701	1701	1692
Other Forces (AAI)																
QUAIL (UE)	224	392	392	392	392	390	390	390	390	390	390	390	390	390	390	390
EC-97/EC-135	1100	1122	924	902	814	682	682	677	677	677	677	677	677	677	677	677
RB-47/RC-135	99	50	33	33	30	16	11	11	11	11	11	11	11	11	11	11
SR-71	-	-	-	-	6	18	28	26	27	26	25	25	24	23	23	22
PACCS (Post Attack Command and Control System)(B-47/EC-135)	-	20	59	60	26	30	30	35	35	35	35	35	35	35	35	35
REGULUS (UE)	17	17	17	7												
TACAMO (C-130)	-	-	-	-	-	-	4	4	12	12	12	12	12	12	12	12
Other Tactical Support Aircraft	99	99	99	99	99	99	99	128	128	121	99	99	99	99	99	99
Ballistic Missile Submarines (SSBNs)																
On-Line	3	6	9	14	25	27	32	33	33	29	28	29	31	32	32	32
In Conversion/overhaul/nonmodern	2	3	3	7	6	10	9	8	8	12	13	12	10	9	9	9
Total Forces g/																
Weapons																
Megatons																
1 Megaton Equivalents d/																
Alert Forces																
Weapons																
Megatons																
1 Megaton Equivalents d/																

a/ Does not include aircraft in Active Storage. B-52C-F aircraft in Active Storage total eight in FY 67, 45 in FY 68, and 111 in FY 69. It is not possible to estimate totals past FY 69 because of the uncertainty of flying hours generated in Southeast Asia.

b/ Each missile type shown with the number of independently targetable warheads per missile/yield per warhead in megatons (MT)/CEP of last version shown in nautical miles (NM).

c/ To be comparable with Soviet force loadings in Table 100b, force loadings reflect only those weapons which would be loaded for initial strikes by AAI aircraft, ICBM launchers on-line plus those in modernization which could be loaded with missiles during a protracted crisis, and on-line SLBM launchers. Thus, total force loadings represent our emergency combat capability in a protracted crisis. Weapons reserved for re-strike and weapons on inactive status are not included. (Thus, for example, this table does not show that in FY 61 there were more than [illegible] non-laydown bombs with a total yield of about [illegible] megatons, not loaded in the force and scheduled for phase-out in FY 62.)

d/ Equivalent yield is calculated by taking yield to the one-half power for weapons greater than one megaton and to the two-thirds power for weapons less than one megaton.

FYDP TABLE 110—U.S. STRATEGIC DEFENSIVE FORCES

(Not subject to force controls of DPT Directive 7045.7. See detail tables for those forces subject to controls.)

	FISCAL YEARS															
	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
Air Defense Systems																
Aircraft (Authorized Active Inventory)																
Interceptors a/																
Air Force																
F-101	435	344	343	361	318	318	318	278	160	134	134	134	134	134		
F-102	322	322	281	259	259	94	37	29	29							
F-104	-	-	46	46	40	40	37	26	26	26	26	26	26	26		
F-106	304	307	264	281	274	272	257	251	251	238	238	238	219			
F-106X	-	-	-	-	-	-	-	-	-	-	-	-	19	238	238	238
Subtotal Air Force	1061	973	934	947	891	724	649	584	466	398	398	398	398	398	238	238
Air National Guard (ANG)																
F-86	275	220	165	110												
F-89	275	275	248	248	180	100	40	40	40							
F-100	66	67	72	42												
F-102	130	127	152	191	208	344	404	404	404	285	285	285	285	107	28	28
F-104	61															
Subtotal ANG	807	689	637	591	388	444	444	444	444	285	285	285	285	107	28	28
Navy																
F-6	28	30														
Total Interceptors	1896	1692	1571	1538	1279	1168	1093	1028	890	683	683	683	683	505	266	266
Tactical Support for F-106X (C-130) a/	-	-	-	-	-	-	-	-	-	-	-	-	20	73	73	73
Other Tactical Support Aircraft	160	169	156	152	166	176	173	175	175	153	153	153	153	153	153	153
Target Aircraft	243	432	420	407	420	365	330	308	265	262	255	255	254	254	254	254
Surface-to-Air Missile Launchers b/																
BOMARC	238	307	383	200	180	180	172	164	156	148	140	132	124			
NIKE (HERCULES and AJAX) c/: Army	1884	1372	1208	1009	859	656	656	656	656	552	552	552	552	552	552	552
ANG	608	552	428	357	473	473	473	473	473	429	429	429	429	429	429	429
HAWK (Regular) d/	-	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Total SAM Launchers	2730	2279	2067	1614	1560	1357	1349	1341	1333	1177	1169	1161	1153	1029	1029	1029
Control & Surveillance Systems e/																
NORAD Combat Operations Center	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SAGE Combat Centers	8	8	8	7	7	6	6	6	5	1	1	1	1	1	1	1
SAGE Direction Centers	20	21	18	16	16	14	14	14	13	11	11	11	6	6		
BUIC II Control Centers	-	-	-	-	-	13	13	9								
BUIC III Control Centers	-	-	-	-	-	-	-	-	12	15	15	15	15	15	15	10
Search Radars	182	179	169	168	162	158	154	141	128	128	128	128	128	128	80	80
ANG Search Radars	6	6	6	6	6	6	3	3	3	3	3	3	3	3	3	3
Gap Filler Radars	-	-	-	-	-	-	91	17	17	17	17	17	17	17		
Distant Early Warning (DEW) Radars	67	67	67	39	39	39	39	39	39	39	39	39	39	39		
Over-the-Horizon (OTH) Radar (aaaa-beamter)	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2	2
Surface-to-Air Missile (SAM) Fire Coordination Centers	10	28	28	26	25	19	22	22	22	22	22	22	22	22	22	22
[illegible]	41	32	22	22	19											
Surveillance & Warning Aircraft g/																
EC-121: Air Force	77	76	85	85	83	80	80	80	80	80	80	80	80	44		
Navy	55	49	49	47	22											
Airborne Warning and Control System (AWACS)	-	-	-	-	-	-	-	-	-	-	-	-	-	13	46	46
Total Surveillance/Warning Acft	132	125	134	132	105	80	80	80	80	80	80	80	80	57	46	46
Missile & Space Defense Systems																
Ballistic Missile Early Warning System (BMEWS) (474L)	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3
OTH Radar (Transmit/Receive)	-	-	-	-	2/4	2/5	2/5	3/5	4/5	4/5	4/5	4/5	4/5	4/5	4/5	4/5
Other	-	-	-	9	14	14	14	15	15	15	15	15	15	15	15	15
SENTINEL																
SPARTAN	-	-	-	-	-	-	-	-	-	-	-	-				
SPRINT	-	-	-	-	-	-	-	-	-	-	-	-	-	140	192	192
Missile Sites Radar (MSR)	-	-	-	-	-	-	-	-	-	-	-	-	5	13	17	17
Perimeter Acquisition Radars (PAR)	-	-	-	-	-	-	-	-	-	-	-	-	3	6	6	6
Batteries	-	-	-	-	-	-	-	-	-	-	-	-	5	13	17	17

a/ Tentative air defense plan. Force levels after FY 69 to be resolved in 1968.
b/ Equivalent to deployed, operational missiles. Excludes training launchers.
c/ The precise number and location of HERCULES batteries to be phased out in FY 70-71 will be determined later this year.
d/ The number of deployed operational missiles is three times the number of launchers.
e/ Includes CONUS, Alaska, Hawaii, Puerto Rico, Canada, Greenland, and Iceland.

(d) examining the possibility of augmenting our air defense force during periods of high tension with at least 300 fighters from Tactical Air Command (TAC), Navy, and Marine Corps training units plus carrier-based aircraft as available; and (e) selective phase-down of the current Century interceptor force and portions of the SAGE/BUIC system, the National Air Space Surveillance System, and Nike-Hercules radars.

13. Extend the civil defense program at a FY 69 cost of $77.6 million.

14. Disapprove the JCS recommendation for $191 million for military survival measures. Continue instead the approved program at a cost of $47 million for FY 68-73.

I. THE GENERAL NUCLEAR WAR PROBLEM

The main objective of our nuclear forces is to deter nuclear attacks on the U.S. Our ability to strike back and destroy Soviet society makes a Soviet decision to strike the U.S. highly unlikely. By choosing to develop and deploy harder-to-attack forces, we can reduce even more the likelihood of such an attack. Unable to destroy most of our nuclear striking power, the Soviets would gain little by striking first.

Although the U.S. and the USSR are strongly deterred from nuclear attacks on each other, a nuclear war anywhere in the world could lead to a war -- and most likely a nuclear war -- between the two countries. Thus to avoid a nuclear war with the USSR, we try to make all nuclear wars unlikely. This objective includes:

1. Reducing any possible loss of control of forces in a crisis.
2. Deterring nuclear attacks or intimidation of allied or neutral countries.
3. Discouraging additional countries from acquiring nuclear weapons.
4. Emphasizing and maintaining the firebreak between conventional and nuclear weapons.

Like us, to deter a first-strike nuclear attack, the Soviets maintain the ability to strike back and destroy our society. When they take steps to reduce the damage that we can inflict (e.g., by deploying ABMs), we react to offset these steps. I believe that the Soviets would react in the same way to similar U.S. steps to limit damage to ourselves.

Our analysis shows that the Soviets can protect their second strike capability against any threat we might pose. Since a second strike capability is vital to the USSR, I believe they will insure the survival of this capability. Convinced that the Soviets would counter a major U.S. attempt to take away their second strike capability, we have chosen not to start a major Damage Limiting program against the USSR.

These considerations lead us to depend upon deterrence to keep the USSR from attacking us. Against China, conversely, we can buy an effective defense of CONUS as insurance against a failure of deterrence. China's more primitive technology and poorer economy allow us to develop an effective defense against her nuclear attack capability into the 1980s.

What if deterrence fails and a nuclear war with the USSR occurs? If the war began with an all-out Soviet attack, including our cities, we would reply in kind. If the war started with less than an all-out attack, we would want to carry out plans for the controlled and deliberate use of our nuclear power to get the best possible outcome. The lack of such nuclear war plans is one of the main weaknesses in our posture today.

II. SOVIET AND CHINESE STRATEGIC FORCES

The following table compares U.S. and Soviet intercontinental forces in terms of total megatons, launchers, and bombers.

U.S. VS. SOVIET STRATEGIC NUCLEAR FORCES a/

	1968		1970		1972	
	U.S.	USSR	U.S.	USSR	U.S.	USSR
Ballistic Missile Launchers						
Soft ICBMs	-		-		-	
Hard ICBMs	1054		1054		1054	
FOBS	-		-		-	
Mobile ICBMs (non-add)	-		-		-	
SLBMs	656		656		656	
TOTAL LAUNCHERS	1710		1710		1710	
Intercontinental Bombers	646		558		534	
Total Force Loadings						
Weapons						
Megatons (MT)						
1 MT Equivalents						
Alert Force Loadings						
Weapons						
Megatons						
1 MT Equivalents						

a/ U.S. programmed vs. National Intelligence Estimates (NIE) for USSR.

Numbers of missile launchers and bombers are a poor measure of the relative capabilities of U.S. and Soviet strategic forces; total megatons are worse. Yet these measures are frequently used in drawing comparisons

between U.S. and Soviet nuclear capabilities. The important question is not total megatons or numbers of delivery systems, but whether our forces can effectively carry out their missions -- Assured Destruction and attacks on Soviet forces to limit damage. Factors such as accuracy, reliability, survivability, and control are decisive in evaluating the effectiveness of our forces. Our missiles appear to be more reliable than Soviet missiles; they are more than twice as accurate. In 1972, programmed U.S. missile forces could destroy some hardened targets. The expected Soviet ICBM force could destroy only some such targets.

We are buying large numbers of smaller, accurate weapons because they better meet our strategic objectives -- even while reducing total U.S. megatons. The following table compares the number of targets destroyed by programmed for Poseidon, with a single weapon, As the table shows, the of the Poseidon — with only the yield of the weapon -- can destroy up to times as many targets.

EFFECTIVENESS OF ALTERNATIVE, EQUAL-WEIGHT PAYLOADS a/

Number of airfields	
Number of hard silos b/	
Number of small cities	(100,000)
Number of medium cities	(500,000)
Number of large cities	(2,000,000)
Number of defensive interceptors needed to counter c/	
Total megatons	

a/ Reliability equals , Circular Probable Error (CEP) equals

Such calculations have convinced me and the Services of the superiority of Multiple Independently-targetable Re-entry Vehicles (MIRVs) over single, large megaton weapons for attacking cities or military targets, defended or otherwise. Therefore, the best way to increase the effectiveness of our forces is by putting MIRVs on Minuteman and Poseidon.

During 1964-65, the USSR maintained small silo ICBM construction starts at the rate of about launchers per year. It this rate during the first half of 1966, then . The deployment appears to have stopped except for filling out groups already under construction.

The Soviets have continued to test Fractional Orbit Ballistic Systems (FOBS), which would be useful in an attempt to deny warning to our strategic bombers, if we took no counter actions.

A recent re-evaluation of the present Soviet submarine force indicates about operational Soviet ballistic missile submarines than previous intelligence estimates. The USSR is, however, now making operational a new class of large, nuclear-powered, ballistic missile submarines to carry sixteen 1,000 to 2,000 nautical mile (NM) missiles. Intelligence estimates project of these ships in service by mid-1971 and by 1976. Diesel-powered Sea-Launched Ballistic Missile (SLBM) submarines no longer are estimated to be part of the Soviet threat to the U.S.

The Soviets also appear to be pursuing two advanced defensive programs: (1) a long-range anti-ICBM system around Moscow with about launchers, and (2) a system across European USSR

We expect both systems to become partially

The Chinese were expected to begin operational deployment of a Medium Range Ballistic Missile (MRBM) with a in 1967, but did not do so. China also has under development a much larger and more complex missile system, possibly an ICBM. They were expected to complete a large facility for large launchers late in 1967, but did not do this either. It appears that they are about the ICBM schedule that we had previously estimated, which would still allow an initial operational ICBM deployment in the early 1970s.

III. ASSURED DESTRUCTION

We deter a rational enemy from launching a first strike against us by maintaining a strong and secure ability to retaliate under any circumstances. We measure our second strike ability in terms of Assured Destruction -- the capability to inflict unacceptable damage, calculated under extremely conservative assumptions, on the USSR, even after sustaining a surprise Soviet first strike. I believe that our ability to kill from one-fifth to one-fourth of the Soviet people, including at least two-thirds of the people and industry in their large cities, is enough to deter the USSR from launching a first strike against the U.S., even in extreme situations.

However, our Assured Destruction capability does not indicate how we would use our forces in a nuclear war. We must design our forces to cope with many situations, including a war which neither side intended. We reduce the likelihood of such a war by keeping tight control over U.S. forces under all circumstances; by maintaining communications at all times with our forces, the governments of our Allies, and, as appropriate, our enemies; and by retaining options in selecting appropriate responses. If we failed to deter nuclear war, we would want to be able to follow a policy of limiting our retaliatory strikes to the enemy's military targets and not attacking his cities if he refrained from attacking ours. In most situations we would have many missiles surviving to attack Soviet military targets, while withholding enough for Assured Destruction. For this task, ICBM accuracy is very worthwhile.

A. Against the Expected Soviet Threat

Against the expected Soviet threat, our strategic forces can survive a well-executed Soviet surprise attack and carry out an effective second strike. Even after a surprise Soviet first strike with the strongest Soviet forces in our NIE, we could launch more than with a yield of more than , against the USSR in 1976.

How much damage the surviving weapons could cause depends on the effectiveness of Soviet defenses. The next table shows that even against the high NIE-estimated threat, the U.S. Assured Destruction capability is much greater than the 20 to 25% which I believe is needed for deterrence against a Soviet first strike.

CAPABILITIES OF U.S. PROGRAMMED FORCE FOR ASSURED DESTRUCTION
(Percent of Soviet Population Killed)

	FY 69	FY 72	FY 76
Against High NIE Threat			
Against Low NIE Threat			

If we could be sure that Soviet forces would stay within the range of the NIE -- both in quality and numbers -- we could consider smaller strategic forces.

B. Against China

While China may be able to threaten her neighbors and U.S. bases in Asia by 1972, she will not pose a threat to the U.S. second strike capability. If the U.S. attacked China with nuclear weapons it would be solely in retaliation for some lesser act of aggression, probably involving Chinese nuclear weapons. Rather than calling for the destruction of China, such an act would call for selective attacks on government, military, or industrial targets. Missiles would be needed only for attacking time-sensitive Chinese nuclear targets. Bombers could cover other targets.

[redacted] one megaton warheads detonated over Chinese cities would destroy half of China's urban population and more than half of its industry. The recommended strategic forces are sufficient to inflict this destruction on China while still maintaining our Assured Destruction capability against the Soviet Union.

C. Against Greater-Than-Expected Soviet Threats

The following table compares the 1976 balanced greater-than-expected threat, used in the following analyses, with the High NIE threat.

	High NIE	Greater-Than-Expected
Independently-targetable missile warheads on-line		
Air Defenses		
Look-down fighters a/		
Low-altitude SAM Launchers		
ABM Launchers		
Area		
Terminal b/		

Programs required to support such an effort should prove technically difficult, expensive, and, since we have clearly indicated we would respond, hold little hope of providing the Soviets with a net gain in effective first strike capability. Nevertheless, to insure that these threats remain unlikely, and to maintain our deterrent should they appear, we make sure that we have available the options needed to counter them.

If the USSR replaces or improves the accuracy of its and adds it could destroy Minuteman missiles in their silos. Even if the Soviets could destroy [redacted] they would not eliminate our Assured Destruction capability. Our remaining SLBM's and alert bomber force can penetrate the NIE-estimated Soviet defenses and kill at least [redacted] of the Soviet people through 1976. Similarly, at least through 1976, a very extensive Soviet ABM system and air defense, without greater-than-expected ICBM's, would still let the U.S. programmed

force maintain an Assured Destruction capability of [redacted] Our programmed force can cope with a greater-than-expected ABM because we already have programmed ABM hedges -- Poseidon
Minuteman.

The next table shows that the U.S. programmed force can keep its Assured Destruction capability through FY 75 by putting on each Poseidon missile, even if the Soviets deploy greater-than-expected balanced missile and bomber defenses. Short-Range Attack Missiles (SRAM's), SRAM decoys, and an air-to-air missile to protect the bombers against advanced interceptors would keep our Assured Destruction capability against this threat [redacted] through 1976.

U.S. ASSURED DESTRUCTION AGAINST GREATER-THAN-EXPECTED BALANCED DEFENSES
(Percent of Soviet Population Killed)

	FY 69	FY 70	FY 71	FY 72	FY 73	FY 74	FY 75	FY 76
U.S. Programmed Force								
U.S. Programmed Force plus on Poseidon								

a/ The first percentage shows fatalities if we are required to kill at least two-thirds of the people in defended cities. The second percentage shows fatalities without this restriction.

Only against a combined greater-than-expected Soviet ABM, air defense, and accurate ICBM force, costing the Soviets $20 to $30 billion abo the high NIE, would our retaliatory forces need major new additions. Becaus of high cost and little return, the Soviets probably will not attempt to att such a posture. Moreover, because of uncertainties about performance and co we should not deploy new systems as replacements for existing systems until threat appears which cannot be economically met by improving the existing systems. We should develop new systems only as options which would restore our Assured Destruction capability should the greater-than-expected threat occur, realizing that it is not likely to occur. Thus, we should select options with small initial costs. If the threat actually materializes, we can, by later investment, develop these options fully. (No augmentation is needed for FY 69-72. Hence, I am recommending against the deployment of the JCS-proposed for Polaris A-3s, which improve their capability against ABM only in that time period.)

The following table shows the effect of the combined greater-than-expected Soviet offensive and defensive threat on our Assured Destruction capability. It indicates the U.S. programmed force capability and the effects of buying SRAMs, SRAM decoys, an advanced bomber decoy, and an air-to-air missile to protect bombers against an advanced interceptor.

U.S. ASSURED DESTRUCTION AGAINST GREATER-THAN-EXPECTED SOVIET BALANCED OFFENSES AND DEFENSES
(Percent of Soviet Population Killed)

	FY 69	FY 70	FY 71	FY 72	FY 73	FY 74	FY 75	FY 76
Programmed Forces								

a/ The first percentage shows fatalities if we are required to kill at least two-thirds of the people in defended cities. The second percentage shows fatalities without this restriction.

This table shows that even if the bomber defense missile works, the greater-than-expected threat would call for a more effective U.S. Assured Destruction capability by FY 76. In addition, for Assured Destruction we do not want to rely primarily upon bombers which depend upon tactical warning for survival. Therefore, our alternative is to provide our missile forces with added protection. The degree of this protection depends upon how much and for how long we are willing to rely on bombers in the interim.
on Poseidon and
when added to the above bomber options, result in 30% Soviet fatalities in 1976.) In any event, we should not take steps -- such as reducing the number of bomber bases -- that lessen our confidence in the bombers' survival.

D. Options to Protect Our Assured Destruction Capability

1. Increased Warheads on Poseidon

We are providing the production base so that by FY 74 we could put up to on each Poseidon missile as a hedge against a heavy Soviet ABM or an increased threat to Minuteman.

2. Improve Our Bomber Force

Against improved terminal bomber defenses we can put SRAMs on B-52s in addition to the SRAMs on FB-111s. By initiating procurement in FY 70, the B-52s could be equipped with SRAMs by FY 72.

If Soviet air defenses improved, but their ABM did not, no increase in the size or expense of our strategic forces would be called for. However, for the cost of the present B-52 program we could improve our effectiveness by putting SRAMs on 195 B-52s and phasing out the other sixty.

If Soviet air defenses improved as part of a balanced Damage Limiting program, SRAMs plus penetration aids for the whole bomber force would prove worthwhile and would total about $2.7 billion in ten-year systems costs above the present program.

3. Improvements to Minuteman Missiles

As a hedge against a heavy Soviet ABM system we could replace all the Minuteman II by Minuteman III/MIRV at a cost of $1.9 billion over the present program. As a hedge against the failure of our penetration aids, at a cost of $6.2 billion we could convert to 1,000 Minuteman III missiles and buy for each missile. We could have an all Minuteman III force by FY 76. We could develop for Minuteman as possible replacements for the present , or provide for additional Minuteman IIIs as an alternative to a new ICBM (item #6 below) if we should want more payload. This would cost about $200 million in research and development ($40 million in FY 69) for an IOC in FY 73. Procurement costs would be , of which could be built per year.

4. Defense of Minuteman

Deployment of the light defense of Minuteman, shown below, might dissuade the Soviets from developing and deploying systems which otherwise could destroy Minuteman. In any event, it would provide a useful defense of Minuteman against the expected Soviet ICBM force without accurate MIRVs and furnish a base for developing a stronger defense against a Soviet force equipped with MIRVs. The median defense of Minuteman would protect against less . Finally, the heavy defense of Minuteman would guard against the very sophisticated counterforce threat assumed in the greater-than-expected threat for 1975 and 1976. The following table summarizes these three defenses.

LEVELS OF MINUTEMAN DEFENSE

	Sprints	Spartans	Investment Cost a/ ($ Millions)	Annual Costs ($ Millions)
Light Defense of Minuteman			$400	$10
Median Defense of Minuteman			1400	40
Heavy Defense of Minuteman			3600	160

a/ Defense of Minuteman is considered an add-on to the Sentinel anti-Chinese defense.

5. More Poseidon Submarines

We could order more Poseidon submarines which require a $280 million investment per ship and a four-year lead time. By initiating procurement in FY 70 we could have ten new Poseidon submarines by the end of FY 75 and twenty by the end of FY 76. The more Poseidon missiles we have the less we would have to rely upon Minuteman.

If we chose to deploy additional Poseidon instead of defending or hardening Minuteman, and if Soviet ICBM accuracy improved markedly Minuteman would become very vulnerable and invite rather than deter an attack. In this case, we should phase it out. Thus, choosing Poseidon might result in upsetting the balance of our forces. It would be undesirable to be without a land-based missile force as part of our offensive posture because we would become potentially more sensitive to unexpected Soviet advances in anti-submarine warfare.

6. New ICBM

Contract Definition begun in January 1968 would permit an IOC by FY 75. We could deploy this new missile in new silos as part of a defended or undefended fixed land-based system. Conversely, we could deploy it as a land-mobile or ship-based system or base it in a new class of submarines. In order to develop a new ICBM, we would require a $2 to $3 billion research and development program. The ten-year cost of buying a new ICBM totals some $11 to $20 billion.

The following table compares the costs of these alternatives against the greater-than-expected Soviet threat. The costs shown are over and above the cost of presently programmed forces. All options provide an Assured Destruction capability of 20% by missiles alone against the greater-than-expected Soviet threat in 1976.

COSTS OF VARIOUS MISSILE OPTIONS TO PROTECT ASSURED DESTRUCTION AGAINST GREATER-THAN-EXPECTED THREAT
($ Billions)

	R&D	Program Costs (FY 68-76)

If the Soviets do not react by developing and deploying small MIRVs, we can defend Minuteman at less cost than we could procure Poseidons. If they develop a small MIRV threat, the cost of Minuteman defense would about equal the cost of acquiring Poseidons. for Minuteman are not competitive with a light Minuteman defense, but they offer an alternative to heavier Minuteman defenses against the small-MIRV threat. A posture combining defense (calling for small-MIRVs) (calling would be very difficult to attack. None of the new ICBMs enjoys a clear cost advantage over defending Minuteman, putting Minuteman in super-hard silos, or acquiring Poseidons until the Soviet ABM becomes much stronger than the greater-than-expected threat.*

If we choose to buy more Poseidon, we would have to order them in FY 70 and FY 71, before we could see the extent of the Soviet threat. If we develop we would not have to decide to deploy them until FY 73.

A defense of Minuteman can be bought in stages and is likely to hold down the total cost of hedging our Assured Destruction capability. To deploy the heavy defense of Minuteman by FY 76, we would have to decide on the light defense by FY 70, the median defense by FY 71, and the heavy defense by FY 73. Other hedges, such as more Poseidon submarines or the Ballistic Missile Surface Ship, are unnecessary. can be built in response to the threat and they are competitive with the defense of Minuteman. The choice between of Minuteman depends on the direction the Soviet threat takes. To preserve the option to go either way, we should develop them both.

E. Advanced Manned Strategic Aircraft (AMSA)

Recent studies have reviewed the value of a mixed ballistic missile/bomber force against reasonable projections of Soviet defenses into the 1970s. They show the bombers add some measure of assurance against greater-than-expected Soviet threats and induce the USSR to divert resources to their anti-bomber defenses. A mixed offensive force enjoys certain advantages against terminal defenses. By attacking some cities with missiles only, and others with bombers only, we force the Soviets to use more resources to protect all defended cities with both bomber and missile defenses. In order to accomplish this objective, however, we do not need large bomber forces.

The previous section discussed the hedges to our programmed strategic offensive forces, especially to their missile components. Since we intend to keep the missile force well-hedged, the issue is whether we <u>also</u> want to hedge our bomber force with an AMSA.

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* This might happen sometime after 1976. Thus, in order to provide a basis for more total missile payload against a possible heavy ABM sometime after this date, continuing Advanced Development of a new ICBM is still desirable. Furthermore, the submarine-carried Advanced ICBM has some promise of eventually replacing Poseidon, in the 1980s, on an equal-cost basis.

Is an AMSA a good hedge? It is not. Against the NIE range of threats our programmed forces are adequate. Since the strategic forces are already well-hedged, we can keep an Assured Destruction capability against greater-than-expected threats without the AMSA.

To counter a Soviet greater-than-expected threat, under most circumstances, including the most probable ones, U.S. offensive forces equipped with AMSA cost more than forces with equivalent effectiveness but without the advanced bomber.

What does AMSA cost as a hedge? To answer this question we must compare the cost of bomber forces needed to cope with various levels of Soviet threat. The following two tables make this comparison.

COSTS OF ALTERNATIVE FB-111/B-52 FORCES
($ Billions)

Bomber Force	Program Costs (FY 68-82) a/
A. 210 FB-111s	$ 7.2
B. 210 FB-111s and 255 B-52s without SRAMs	12.4
C. 210 FB-111s and 255 B-52s with per B-52	15.3

a/ AMSA IOC in FY 76.

Force B represents the programmed force and would cope with the higher range of the NIE-projected Soviet strategic forces. It would also let us expand to meet a greater-than-expected Soviet threat. Force A, costing $5.2 billion less, would be appropriate for the lower range of NIE threats. Force C adds SRAMs to the B-52s, providing the expansion needed to meet the greater-than-expected threat. This option would cost $2.9 billion more than Force B.

The next table compares the cost of hedging against the greater-than-expected threat.

COSTS OF ALTERNATIVE STRONG BOMBER FORCES OF EQUAL EFFECTIVENESS
($ Billions)

Bomber Force	Program Costs (FY 68-82)
C. 210 FB-111s and 255 B-52s with per B-52	$15.3
D. 210 FB-111s and 68 AMSAs	15.3
E. 138 AMSAs	16.6

Both Force D and E are about equal in effectiveness to the programmed force plus SRAMs against the greater-than-expected threat, provided B-52 penetration aids work. Force D represents the smallest

AMSA force which we can use as a hedge. It costs $2.9 billion more than the programmed forces. The all-AMSA Force E costs considerably more than either Force A or C, $9.4 and $1.3 billion respectively.

Considerations other than costs make the Force D option less attractive than Force C. First, developing AMSA requires a longer lead time than deploying SRAMs on B-52s, and imposes a substantial initial investment before we could determine that an increased Soviet threat has occurred. Conversely, since the SRAM option has a shorter lead time, we can delay the decision to deploy this missile until the increased threat begins to appear. Secondly, if we decide to proceed with AMSA now and the greater-than-expected threat does not appear, we will have wasted $3 to $10 billion.

In sum, to achieve equal effectiveness, AMSA contributes only marginally at great cost. Thus, Engineering Development is not called for now. However, we should proceed with Advanced Development to provide aircraft technology and to keep open the option of replacing the B-52s.

IV. STRATEGIC DEFENSE

A. Damage Limiting Against the Soviet Threat

Our Assured Destruction capability makes any kind of nuclear war with the Soviets unlikely. Therefore, we first buy enough forces to give us high confidence in our deterrent. As insurance in the unlikely event deterrence fails, we then consider adding forces that might reduce damage to our population and industry. Damage Limiting forces, unlike those for Assured Destruction, cannot and need not work perfectly under all conditions. They should insure against the more probable risks, such as wars growing out of a deep crisis, or threats posed by the growth of Chinese nuclear forces. The basic Damage Limiting question is whether we should deploy Nike-X in defense of our cities.

A defensive system to save U.S. cities from a Soviet nuclear attack must attempt to keep ahead of the Soviet threat, including their reactions to our deployment. In this analysis we use two stages in such a deployment. The first, "Posture A", represents a light defense of cities. It has an area defense of the entire CONUS, providing overlapping coverage of key targets. It has a relatively low-density Sprint defense of cities. It is estimated that initially it would cost about $9 billion in investment and $600 million a year to operate. The second, "Posture B", is a heavier defense with a higher density Sprint defense of cities. It is estimated that initially it would cost $18 billion and $1.1 billion a year to operate. Because of probable Soviet reaction, with Posture B we would also need improved air and civil defense forces at a cost of $4 to $5 billion in investment. Moreover, experience convinces me that the pursuit of effective defenses would eventually lead us to spend about $40 billion.

The U.S. can justify the cost of a major defense only if it could take away the ability of the Soviets to kill Americans. The following table illustrates the effects of these defenses if Nike-X works as designed and if the Soviets do not react to the U.S. ABM. The USSR's estimate of its ability to strike back after a U.S. first strike on its forces might prove lower than shown if the Soviets judge the uncertain factors pessimistically, as we do in making our own Assured Destruction calculations.

U.S. KILLED IN ALL-OUT STRATEGIC EXCHANGE IN 1976
ASSUMES NO SOVIET REACTION TO U.S. ABM
(In Millions)

U.S. Programs	Soviets Strike First		U.S. Strikes First Soviets Retaliate	
	U.S. Fatalities	Soviet Fat.	U.S. Fatalities	Soviet Fat.b/
Approved Program (Sentinel)				
Posture A a/				
Posture B				

a/ The JCS currently recommend this deployment.
b/ Enough forces are withheld from the U.S. first strike after their retaliation.

This table shows that if the Soviets do not respond, they lose their deterrent. They would be forced to react to increase the ability of their forces to survive and strike back. They could do so in several different ways: (1) by stepping up deployment of SS-9s and SS-11s now in production; (2) by defending their present missile force; (3) (4) by deploying a new, large ICBM (either mobile or defended); or (5) by deploying a new submarine-launched missile like our Poseidon. They have the technical capability to do any of these things by the mid-1970s.

If the Soviets choose to respond to our ABM

A larger Soviet response could raise probable U.S. fatalities still higher.

U.S. KILLED IN ALL-OUT STRATEGIC EXCHANGE IN 1976
ASSUMING SOVIETS RESPOND TO U.S. ABM
(In Millions)

U.S. Programs	Soviets Strike First		U.S. Strikes First Soviets Retaliate	
	U.S. Fatalities	Soviet Fat.	U.S. Fatalities	Soviet Fat.
Approved (Sentinel)				
Posture A				
Posture B				

As part of their response, the Soviets could add large numbers of offensive missiles that would threaten our Assured Destruction capability. We, in turn, would have to react. Viewing each other's buildup in forces as an increased threat, each side would undertake counteracting steps, thereby increasing the costs to both with no gain in security. Therefore, I believe deploying the Nike-X system to protect American cities would be neither wise nor effective.

B. Protection Against Small Urban Attacks

A light U.S. ABM system would protect against a Chinese ICBM attack. By protecting the U.S. against such a threat, it probably would enhance our ability to deter Chinese nuclear intimidation of other Asian countries. Much as a light Soviet ABM system reduces the chances that France could draw the U.S. and the Soviet Union into a nuclear war, a light U.S. ABM system lessens China's ability to do so. The area defense of CONUS would give us a realistic Damage Limiting capability against China for the mid-1970s, as shown in the next table.

U.S. FATALITIES IN A SMALL-SCALE ATTACK a/
(In Millions)

	U.S. Strikes First			China Strikes First		
Number of ICBMs	10	25	75	10	25	75
No Defense	0	1	3	5	10	20
Light ABM	0	b/	b/	b/	b/	1

a/ Assumes three megaton ICBMs, 40% reliability.
b/ Fewer than one million U.S. dead, with some probability of no deaths.

C. Civil Defense

Civil Defense provides low cost insurance for our people in the unlikely event of a nuclear attack. As a by-product it has also proven to be a significant aid in natural disasters. This program should be pursued. More effort is needed to identify useful shelters in home basements. This can fill a large part of the current shelter deficit at a very low cost -- about $0.45 per space added.

D. Continental Air Defense

The number of lives which would be saved by air defense if the Soviets were to attack the U.S. depends on our ballistic missile defense. With only a light missile defense, even a very strong air defense could not save many lives. The Soviets could simply target cities with their missiles. A Soviet first strike, with missiles only, could kill 120 million people;

their bombers could then add less than ten million fatalities even if we had no air defense at all. A force of either 200 improved F-106 interceptors with AWACS (ten-year cost $9.9 billion) or 54 F-12s with AWACS (ten-year cost $11.6 billion) would reduce these fatalities by less than five to eight million

However, there are other objectives of continental air defense which must also be considered. These include defense against countries other than the Soviet Union, defense against bomber attacks on those strategic forces that we withhold in a controlled nuclear war, peacetime patrolling of our air space, discouraging Soviet bomber aspirations, and the use of continental air defense forces in missions outside the U.S. We can achieve these objectives with a modern, more effective air defense force that costs less over the next twelve years than our present force. This modern force will consist of 200 improved F-106 fighters (the F-106X), 42 AWACS, two OTH radars, and the Federal Aviation Agency National Air Space system for back-up command and control. The cost through 1979 for the modern force is $13.7 billion compared with $13.9 billion for the current force. However, the lower operating costs of the modern force will result in substantial savings over the present force after FY 79.

Surveillance is presently the weakest part of our air defense system. Therefore, we should proceed with engineering development of AWACS (if the Overland Radar Technology program is successful) and with development of back-scatter OTH radars. We should also develop, and deploy on the F-106, advanced air-to-air missiles and an advanced fire control system. With these improvements to the F-106, there is little to be gained from the high performance characteristics of the F-12. Thus, we can avoid the additional $1.7 billion cost of an F-12 force and still meet our air defense objectives.