[redacted]
ATOMIC ENERGY ACT

~~TOP SECRET~~
SPECIAL HANDLING REQUIRED
NOT RELEASABLE TO FOREIGN NATIONALS

1965

JOINT STRATEGIC OBJECTIVES PLAN (JSOP)

JOINT STRATEGIC OBJECTIVES PLAN
FOR FY 1970-1974 (JSOP-70)(U)

The provisions of JCS Memorandum of Policy No. 74 are applicable to this document. Accordingly, a semi-annual report as of 1 January and 1 July, of the sighting of this document is required and will be forwarded within 30 days after the "as of" date to the Secretary, Joint Chiefs of Staff (ATTENTION: Chief, Documents Division)

PART VI

FORCE TABULATIONS AND ANALYSIS

THE JOINT CHIEFS OF STAFF
WASHINGTON 20301, D.C.

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.

VOLUME 85

1965

DEPARTMENT OF ENERGY DECLASSIFICATION REVIEW
REVIEW-DATE: 12/16/02
AUTH: DD
REVIEW-DATE: 03/20/03
AUTH: DD

DDS&P
NMIC DIV

OATSD(PA)DFOISR
TOP SECRET CONTROL
Copy No. R-1
Case No. 98-F-0347
S. No. 94-TS-330
Document No. 1

161 pages

JCS FORM 18 JUN 64 62 B

~~TOP SECRET~~
SPECIAL HANDLING REQUIRED
NOT RELEASABLE TO FOREIGN NATIONALS

[redacted]
ATOMIC ENERGY ACT

1965

025A20I000010
JOINT CHIEFS OF STAFF
OFFICIAL FILE COPY
JCS DOCD

TOP SECRET

COPY NO. _____ 05

1 February 1965

DISTRIBUTION B

VOLUME I

JSOP-70 PART VI FORCE TABS

Section A - Strategic Retaliatory Forces and Continental Air and Missile Defense Forces

Appendix A - US Strategic Retaliatory Force

Appendix B - US Continental Air and Missile Defense Forces and US Target List

Appendix C - Soviet Bloc Strategic Offensive Forces and Target Lists

Appendix D - Weapon Application Summaries

Appendix E - FYFS&FP Tables 4 and 5

Tab A - Views of the Chief of Staff, US Army

Tab B - Views of the Chief of Naval Operations

Tab C - Views of the Chief of Staff, US Air Force

Tab D - Views of the Commandant of the Marine Corps

GROUP 1
EXCLUDED FROM AUTOMATIC
DOWNGRADING AND DECLASSIFICATION

~~TOP SECRET~~

JOINT STRATEGIC OBJECTIVES PLAN - 1970

PART VI
SECTION A

STRATEGIC RETALIATORY FORCES AND CONTINENTAL AIR AND MISSILE DEFENSE FORCES

~~TOP SECRET~~

LIST OF TABULATIONS

1. Basic Considerations Used in Analysis

a. Purpose. To develop effective balanced forces which are modern, flexible and considered both essential and reasonably attainable in the mid-range period in order to support US policies. Specifically, the analysis will develop: the levels of strategic retaliatory forces and continental air and missile defense forces recommended for the years 1967 through 1974 with primary emphasis upon those forces which must be supported by the FY 1967 budget and the impact upon future programming actions. Recommended systems development and objective force levels are provided and reflect the period end FY 1965 through FY 1974.

b. Basis of Offensive and Defensive Force Requirements

(1) US force level objectives have been derived to support the strategy and accomplish the objectives stated in Parts I-V of JSOP-70.

(2) The Program I and II analysis has considered the Joint Chiefs of Staff, Service and other agency studies and, in part, is based on the CJCS SSG study of Alternative General Nuclear War Postures (AGNWP),* as revised in targeting methodology and by recent changes in Soviet Intelligence estimates and revisions in weapon system performance for both US and Soviet systems. Studies of this nature are considered to be useful devices for examining the critical areas in force compositions. However, since the conclusions of such studies are particularly sensitive to the assumptions upon which they are based, they cannot

* JCS 2280/28

in themselves be considered in isolation nor can they be directly converted to force level determinations. The analysis that follows is intended to be illustrative in order to provide a background for the force levels recommendations contained in JSOP-70. These force levels have been determined on the basis of military judgment and in the view of the Joint Chiefs of Staff constitute requirements necessary to achieve a balanced US offensive/defensive force mix.

(3) The more significant changes in US offensive weapon system performances are represented by a three to five percent lower probability of arrival for POLARIS and MINUTEMAN, and the introduction of the POLARIS B-3 by the 1974 time period as a follow-on to the A-2, A-3. The desirability of employing a multiple warhead configuration for TITAN II in the 1974 time period was recognized. [redacted] (b)(1) [redacted] DOE b(3) For the purposes of this analysis NIKE-HERCULES was attributed a [redacted] NIKE-X deployment was examined for 47 complexes. In addition, a significant HIP/HAWK deployment in CONUS was examined for the 1974 period. US Programs I and II system deployments, operational factors and models, submitted by the Services and examined in force interactions of JSOP-70 are indicated in Appendix A and Appendix B, respectively. The US Target List is indicated in TABLE B-2, Appendix B.

TOP SECRET

c. Sino-Soviet Strategic Posture

(1) Offensive Forces. Intelligence estimates obtained from the current JIEP* primarily differ from those in AGNWP in that there is a major reduction in the number of 100 MT missiles for the entire period and a reduced long range bomber threat for the latter period (1974). The Soviet bomber threat is maximized for purposes of analysis, by employing the Soviet medium bombers against the United States target systems on one-way missions. TABLE C-1, Appendix C, shows a comparison of the Soviet threat used in the AGNWP study with that contained in the current JIEP and used in this analysis. It is assumed that Communist China will develop a limited nuclear delivery capability for the period examined. [redacted]

(b)(1)

[redacted] TABLES C-4 and C-5 show comparisons of the Soviet [redacted] target lists used in AGNWP with that used in the JSOP-70 analysis. It will be noted that there is a reduction in the number of ABM defended Soviet cities for the earlier period (1969).

(2) Soviet Threat Model. The Soviet missile multiple warhead/decoy configurations to be employed against a ballistic missile defense are as prescribed by DDR&E.

* For complete intelligence, see current JIEP, 1964.

(3) Soviet Operational Factors. Soviet weapon system performance estimates contained in the JIEP are degraded from those used in AGNWP. SS-9 and SS-7 alert rate is five percent lower. [redacted] Air-to-surface missile on-launch and in-flight reliabilities are five and ten percent lower, respectively. [redacted] On the other hand, bombing accuracy is increased for JSOP-70 from a 3,000 ft. CEP to 2,000 ft. CEP. The Soviet ABM model kill probability is likewise degraded from .85 (for each arriving warhead) to .80 in JSOP-70. Soviet weapon system operational factors are tabulated in TABLES C-2 and C-3.

DoE b(3)

DoE b(3)

(4) Soviet Civil Defense. DIA estimates that a Soviet fallout shelter program of 25-28 million spaces for the urban population could be in effect by 1969-1970, together with continued emphasis on rural do-it-yourself fallout protection. This level comparatively is between two alternative US civil defense programs developed by OCD, and designated in the AGNWP study as Shelter Posture 1 (no formal program) and Shelter Posture 2 (continuing fallout shelter program - 90 million shelter spaces). Examination of

US "Assured Destruction" force variations has, therefore, been based upon a Soviet posture equivalent to US Posture 2, although this is somewhat in excess of the DIA estimate.

2. Assumptions and Procedures

a. Assumptions. The basic assumptions employed in the JSOP-70 analysis are:

(1) Soviet Long-Range Aviation

(a) All strike aircraft of the Soviet Long-Range Aviation were committed to attack of the North American continent. A detailed breakdown of aircraft types and weapon loadings is contained in TABLE C-3, Appendix C.

(b) Prepositioning of Soviet medium bombers was limited to the 300 aircraft staging base capacities indicated in the JIEP. With the exception of ANADYR, all 11 staging bases were assumed to be available for three hours (after the initial Soviet bomber launch) for staging purposes when the USSR initiated.

(c) In the Soviet initiative case, it was assumed that all ready Soviet bombers were launched prior to impact of the United States retaliatory missile attack. [redacted] it was assumed that the ready Soviet bombers located on home and dispersal bases were launched on BMEWs type warning. Due to the location of the Arctic staging bases, it was assumed that there would be insufficient warning time for the launch of bombers from these bases prior to impact of US missiles.

(b) (1)

(d) In order to obtain adequate target coverage, BISON, BADGER and BLINDER aircraft were used on one-way missions. BEAR aircraft were launched on one and two-way missions.

(2) Soviet Missile Submarines

(a) All of the in-commission Soviet ballistic missile submarines and one-half of the "E" class cruise missile submarines were allocated to the attack of the United States. The remainder of the cruise missile submarines were assumed to be employed against naval forces or targets outside of CONUS. In accordance with the DIA estimate, 85 percent of the missile submarines were assumed to be in-commission.

(b) Eight ballistic missile submarines were maintained on-station off the United States coasts and committed to the attack of SAC bomber bases. For this analysis, it was postulated that this number of on-station submarines would be below the United States alarm threshold and would not result in an increased defense readiness posture or hostile ASW attacks prior to war outbreak. The remainder of the in-commission missile submarines were at sea and assumed to be outside the range of CONUS ASW forces [redacted] In the initiative cases, these submarines departed port just prior to "E" hour.

(c) With the exception of the on-station SLBMs, all at sea submarine missiles were targeted against US urban complexes.

(3) US Bombers

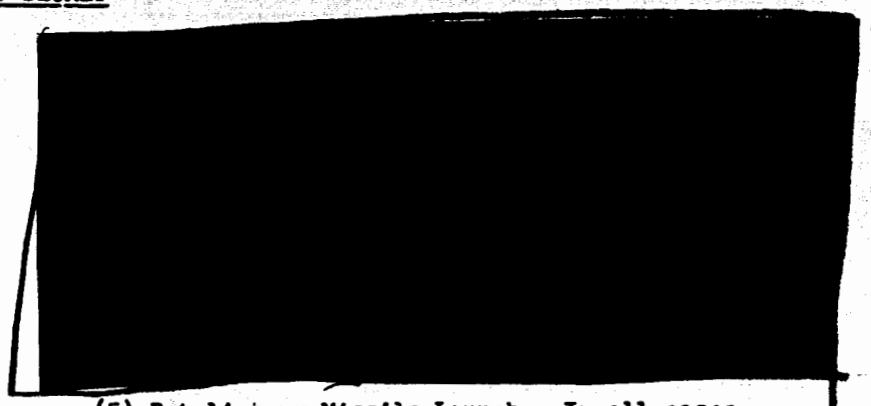
(a) The United States bomber force was in a normal state of alert in Soviet initiation and in a fully generated posture [redacted] In the normal state of alert, all bombers were located on 43 home bases. In the fully generated posture, these aircraft were located on 43 home bases and 56 dispersal fields. Non-ready aircraft were on home bases.

(b) All ready bomber aircraft were launched under positive control on BMEWs warning of the ICBM attack, however, it was assumed that there would be insufficient warning time of an SLBM attack. Therefore, the bombers located on the bases targeted with submarine missiles suffered the full impact of the SLBM attack. Those alert aircraft escaping damage from the SLBM attack were launched prior to arrival of ICBMs.

(4) POLARIS Submarines

[redacted] The remainder of the SSBNs which were in port received the full impact of the Soviet attack on US submarine facilities. In view of DIA judgments as to limited prospects for Soviet development of an effective open-sea ASW capability, and in accordance with the Navy input to the study, it was assumed that there would be no Soviet ASW attrition of the POLARIS SSBNs at sea prior to launch of all missiles.

(b)(1)



(5) Retaliatory Missile Launch. In all cases, except for MINUTEMAN forces which were not attacked in this analysis, the retaliating ICBM forces suffered the full measure of prelaunch attrition from the enemy missile attack prior to retaliatory missile launch. It was assumed that neither side would launch on a BMEWs type warning.

b. Methodology

(1) Results of the JSOP-70 analysis, when measured in terms of fatalities and industrial damage, are generally consistent with those contained in the AGNWP study except that damage to the United States is less as a result of wider terminal defense deployments and of the decreased Soviet threat. Because of the similarity in results, it was not considered necessary to repeat the large number of war games associated with each of the possible strategies. Two scenarios have been selected for detailed examination in order to illustrate the general range of damage which might be expected in the periods 1969 and 1974. A Soviet initiative attack with combined military

~~TOP SECRET~~

and immediate urban targeting has been selected as representative of the higher levels of attack options which might be expected. The lower levels of the spectrum of possible attacks is represented in JSOP-70 by Soviet retaliation [redacted]

(b)(1)

(2) Forces in this analysis were developed under the following conditions: [redacted]

(b)(1)

Offensive forces required for achievement of this task are affected by the shelter posture assumed for the Soviet Union. Offensive force requirements are based on a Soviet program which equates to the United States "Continuing Shelter Program" and would be greater if the Soviets should elect to develop a full fallout shelter program. Conversely, weapon requirements would not be reduced, although fatalities would be increased if the Soviets had a lesser shelter program [redacted]

(b)(1)

(3) [redacted]

(b)(1)

[redacted] TOP SECRET
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

(1)(1)

[redacted]

(b)(1)

Contributions of allied and theater forces have been considered in the development of the Strategic Target List for Soviet Russia [redacted]

(5) Continental air and missile defense systems currently deployed and those proposed by the Services for limiting damage to the United States are those required for ballistic missile, submarine launched missile, area bomber, and terminal bomber defenses. Complementing these Program II forces are anti-submarine warfare forces, a counter-military force b(1) adequate for [redacted] retaliatory options, plus a civil defense full fallout shelter program.

(6) Service-proposed deployments of defensive forces examined in the later period (FY 1974) are not numerically the same as those examined in the AGNWP except for ASW forces. This analysis illustrates employment of proposed new systems but does not address the effect of variations in deployment numbers of each proposed new system. Rather, the methodology was intended to determine the development and initial deployment of a system conceived to fulfill a requirement.

Therefore, in order to determine the damage limiting capabilities of existing and proposed defensive systems, and alternative mixes of these systems, four different defensive force options were employed in the 1974 Soviet initiative exchanges. These deployments are intended to be illustrative to show the damage limiting capabilities of the respective defensive systems and are described as follows.

(a) FORCE A. A basic force consisting of the programmed defensive forces for FY 1969 in the DOD Five-Year Force Structure and Financial Program. These programmed defensive forces have been employed in the 1969 force interactions as well as constituting one alternative mix for the 1974 nuclear exchanges.

(b) FORCE B. The basic force, with the 1974 Air Force-proposed area bomber defenses substituted for the currently programmed area defenses.

(c) FORCE C. The basic force plus deployment of a NIKE-X ballistic missile defense at 47 metropolitan complexes.

(d) FORCE D. Deployment of NIKE-X with the 1974 Army-proposed terminal bomber defense and the 1974 Air Force-proposed area bomber defense.

(7) In order to compare results of force interactions, blast equivalent and gross megatonnage curves were developed from selected AGNWP war games. These curves were used to estimate US damage and fatalities. In addition, the NMCSSC provided machine run damage

and fatality data for TABLE 1 and 2 (Damage and Fatality Summaries, pages 19-20) which generally validated all data derived from the blast equivalent and gross megatonnage curves. To develop the offensive force requirement for meeting the assured destruction criteria of this analysis in the Soviet Union, one of the AGNWP force variations in US Retaliation to Soviet Initiation was selected which obtained [redacted] percent Soviet fatalities under Shelter Code 2 and [redacted] percent damage to Soviet MVA. A JSOP-70 [redacted] force which delivered the identical total blast equivalent was then developed for FY 1969 and FY 1974. The force requirements to meet the alternative [redacted] levels [redacted] were similarly developed.

b(1)

3. Force Interactions

a. General. Interactions between the United States offensive and defensive forces and the Soviet Median Force were examined under the two conditions of war outbreak selected for analysis. These forces are described in Appendix A and B, respectively.

b. Pattern of Attacks. Targeting philosophies and the pattern of attacks employed by the USSR and the United States are similar to those used in the AGNWP, except in the adjustment of some Soviet targeting to US defensive postures. Weapon application summaries of the more significant cases are contained in Appendix D. A brief description follows:

(1) Soviet Initiative. All Soviet initiative attacks involved concurrent attacks on US urban and military targets with US forces in a normal alert posture and

Soviet forces generated and in a high state of readiness. The Soviet counter-force attacks were principally against the soft military targets; e.g., SAC airfields, submarine/naval bases, command and control targets and defense suppression targets.

(a) Soviet Military Attacks

1. SAC bases were targeted by ICBMs and by on-station SLBMs. SAC alert bombers located on the bases targeted with SLBMs were assumed to suffer the full measure of attrition from the SLBM attack prior to launch. However, those alert bombers surviving the SLBM attack were assumed to have launched prior to arrival of ICBMs, based upon BMEWs warning.

2. Naval bases, offensive controls and defense suppression targets were attacked with ICBMs, as were the TITAN II hard missile sites. MINUTEMAN sites were not attacked. Soviet bombers were programmed against nuclear storage and production targets.

3. The military attack in paragraph (1) (a), above, was employed in all of the Soviet initiative attacks with but one variation. In FY 1969, and for the Soviet attacks in FY 1974 not involving US deployment of NIKE-X, TITAN II sites were attacked; for those in FY 1974 involving NIKE-X deployments at urban complexes, weapons employed on TITAN II were diverted to the urban attack.

(b) Soviet Urban Attacks. Soviet urban attacks have been optimized against each US defensive array in order to maximize fatalities. Since those in the FY 1974 time period are of special interest, they will be discussed in greater detail in paragraph 5 dealing with Defensive Forces.

(c) US Retaliation. In retaliating from normal alert, the strategic retaliatory forces generally followed an attack pattern on military targets [redacted] Missiles were followed by bombers. To meet the assured damage criteria in the Soviet Union [redacted] an [redacted] ttack force was developed as outlined in paragraph 2. The United States force was constituted with alert or at-sea weapons. [redacted]

(b)(1)

(b)(1)

DOE (b)(3)

* See paragraph 4. a. (5), page A-22.

TOP SECRET

(b)(1)

[redacted]

DoE b(3)

1/ See CSA view, Tab A, Appendix E.

The FY 1974 force shown above is based upon attack of [redacted] and no preferential targeting of TITAN II. Should the Soviets deploy [redacted] or should a military attack on the TITAN II system be made, the [redacted] attack force requirements would be higher.

b(1)

(2) [redacted]

(a) [redacted] in a period of tension, both sides are generated and are in a high state of readiness. Nuclear threat targets were preferentially targeted by alert weapons so as to limit damage to the United States and our allies. [redacted]

(b)(1)

[redacted] Other nuclear threat targets were attacked with at least one reliable missile. Offensive controls and defense suppression targets were likewise taken under missile attack. These missiles were followed by bomber

TOP SECRET

delivered weapons. [redacted]

(b) [redacted] For each time period, [redacted] force was developed which met the specified damage and fatality criteria for the assured destruction task. However, execution of attack by this force was withheld until after the Soviets retaliated. In view of the fact that the Soviet bomber and missile force had suffered heavy prelaunch attrition [redacted] counterforce attack and Soviet retaliatory effort was programmed against the US urban-industrial base, no attrition was suffered by the US retaliatory force. Composition of the alert or at-sea force for attack of the Soviet Union was as follows:

[redacted]

DOE (b)(3)

Ready force requirements for [redacted] were the same as in the Soviet Initiative case.

(c) Soviet Retaliation. All Soviet weapons surviving the US missile strike were programmed against US urban targets. This type of response is illustrated because it represents one of the possible options available to the USSR if their command and control system is sufficiently responsive and survivable to execute such an attack. Only the alert heavy bomber force escaped the US ICBM attack, assuming a BMEWs type warning, virtually all aircraft prepositioned at the primary staging bases were destroyed. The surviving 1969 ICBM force was targeted together with the SLBMs and SLCMs on the major US cities. The generation of the US ASW force raised the rate of Soviet submarine attrition from 25 to 75 percent. Surviving bombers were generally targeted on cities having a population of at least 150,000 people. Retaliation by the 1974 Soviet force was examined only against the best US defensive mix. Because of the overall US defensive capability, the surviving Soviet weapons were generally targeted against US cities not having an ABM defense. This interaction and the results are described in greater detail in paragraph 5.

c. War Outcomes

(1) A summary comparison of the industrial damage and fatalities in the United States and Soviet Union, which resulted from the various force interactions,

are shown for ease in reference in the tables immediately following. Fatality results have been estimated for blast only, and for combined blast and fallout under each of the three civil defense fallout shelter postures for both the United States and the Soviet Union. All results are expressed in percentages of the national population and industry destroyed.

(2) It will be noted that damage and fatalities in the Soviet Union have been held relatively constant [redacted]

b(1)

~~TOP SECRET~~

TABLE 1

DAMAGE AND FATALITY SUMMARY
FY 1969 - SOVIET INITIATION WITH MEDIAN FORCE
COMBINED MILITARY AND URBAN ATTACK BY BOTH SIDES

[redacted]

UNITED STATES				
Fatalities (%)				MVA Destr (%)
Blast	CD 1	CD 2	CD 3	
47	77	62	51	55

VIET ALL-URBAN RETALIATION.
TIL AFTER SOVIET RESPONSE.

UNITED STATES				
Fatalities (%)				MVA Destr (%)
Blast	CD 1	CD 2	CD 3	
21	37	27	22	23

TH SERVICE PROPOSED FY 1974
SOVIET ALL-URBAN RETALIATION
FY 1974 DEFENSIVE FORCES.

UNITED STATES				
Fatalities (%)				MVA Destr (%)
Blast	CD 1	CD 2	CD 3	
less than 10	13	less than 10	less than 10	less than 10

[redacted]

TABLE 2

DAMAGE AND FATALITY SUMMARY

FY 1974 - SOVIET INITIATION WITH MEDIAN FORCE. COMBINED MILITARY AND URBAN ATTACK BY BOTH SIDES

[redacted] b(1)

UNITED STATES						
MVA Destr %	US Defensive Force Mix	Fatalities (%) Blast	CD 1	CD 2	CD 3	MVA Destr %
54	A. Basic Force; i.e., FY 1969 programmed area and terminal defense forces, including ASW.	46	73	59	49	52
54	B. Basic force, adjusted to substitute 1974 USAF proposed area defense.	43	70	55	45	49
54	C. Basic force with 1974 US Army proposed ABM defense added (less SAM D). a/ 1/	37	61	45	39	40
54	D. Basic force replaced by 1974 US Army ABM and terminal bomber defense, and USAF area bomber defense. Includes ASW.	27	44	34	30	31

a/ An excursion was made employing the proposed Army deployment of SAM D forces for FY 74 with Force C, interlocking terminal defense with the NIKE X deployment. Results indicated that the SAM D would have the effect of [redacted] b(1)

In another excursion, the USAF proposed FY 74 area defense force was deployed with Force C. Although the Advanced Manned Interceptor was not applied against submarine launched cruise missiles, the kill probability indicates that the results would have been similar to those for the SAM D, had the deployment been optimized along the coasts. 1/2/3/

1/ See CSA view, Tab A, Appendix E
2/ See CNO view, Tab B, Appendix E
3/ See CSAF view, Tab C, Appendix E

4. Strategic Offensive Systems

a. Introduction

(1) There are three major issues involved with respect to strategic offensive systems. First is the size of the MINUTEMAN force. The second issue is which manned bomber should be developed and/or deployed in the later JSOP time period. The third is the number of POLARIS B-3 (POSEIDON) that should be deployed in the later time period.

(2) Requirements for strategic offensive forces are affected most by alterations in the Soviet target list (particularly missile targets), deployment and performance of a Soviet antimissile system, qualitative improvements in Soviet missiles, such as improved accuracy and deployment of Soviet "Multiple Independent Re-entry Vehicles" (MIRV), and the improved capabilities of US strategic offensive systems. In the interim, there is planned development for increased accuracy, yield and MIRV for MINUTEMAN and POLARIS B-3 which might also dictate changes in the ballistic missile force for periods as late as 1974.

(3) With respect to a new bomber development, the point at issue is whether existing aircraft such as the B-52 and/or a strategic bomber version of the F-111 can be made to serve the purpose in the later JSOP time period without development of a new bomber. Because of the long development time associated with an aircraft such as AMSA (Advanced Manned Strategic Aircraft), it is considered necessary to make certain development

decisions as early as possible. Determination of the ultimate bomber force size for 1974 and beyond might well be influenced by future Soviet developments in missile defense, bomber defense and submarine defense.

(4) Strategic offensive forces developed in this analysis contain a mix of ICBMs, submarine launched missiles and aircraft. The utility of such a mix for both damage limiting and [redacted] is illustrated in recent studies. It is estimated that at present the Soviets have about 400,000 men assigned to air defense. It is estimated also that they are allocating the equivalent of about $4-5 billion annually on air defense. The significance of a Soviet expenditure of such magnitude can be appreciated by comparing it with planned US offensive and defensive budgets for the next five years. For example, the projected average FYPS&PP annual budget for all US strategic offensive forces during the next five years is about $4.1 billion, or about equal to what the Soviets are spending on bomber defense alone. By contrast, the projected average FYPS&PP annual budget for all US continental defense forces for the next five years is about $1.6 billion or approximately one-third of that being spent by the Soviets on bomber defense.

(5) For reasons of mathematical simplicity in calculating missile requirements, POLARIS missiles have been programmed predominantly against [redacted] while MINUTEMAN has been programmed predominantly against [redacted] The desirability of using a

mix of these two systems against [redacted] targets is recognized and one system can be substituted for the other against appropriate targets without significantly affecting total missile requirements.

b. Forces for Attack of USSR [redacted]

(1) Offensive force requirements for the attack of USSR [redacted] have been developed with the same priority as those offensive forces required for damage limiting. Both types of forces are based on estimates of weapon systems performance as provided by the applicable Services.

b(1)

(2) The size and compositions of the [redacted] is influenced by the objective damage level, assumed or estimated shelter effectiveness, estimated numbers of defended urban complexes and the estimated quality of such defenses. Downward revisions in some of these factors, to which the offensive force is sensitive, have resulted in an [redacted] which is noticeably smaller than that developed in the AGNWP study. Although the objective level of destruction has remained at [redacted] the earlier study was based on an assumption that the Soviet Union would develop a full fallout shelter program while this analysis assumes a Soviet shelter program more nearly comparable with that of the "Continuing Shelter Program" in the United States. Offensive force requirements have also been decreased by a revised DIA estimate which increases the

penetration rate of US missiles against the Soviet ABM from [redacted] per cent to [redacted] per cent. The number of ABM defended complexes is assumed by DIA to increase from [redacted] in the period 1969 to perhaps as many as [redacted] in the 1974 period. A single [redacted] was used in the force interactions for this analysis and in the AGNWP study. The chart below shows the effect on offensive force requirements of increasing the [redacted] between the two periods of interest in this analysis. The postulated Soviet ABM is, in both cases, inferior to the United States ZEUS system and in no way comparable with the estimated capability of NIKE-X. Requirement calculations are based on no prelaunch damage to US ICBMs. Should the Soviets selectively target US ICBMs, particularly the TITAN IIs, the urban targeting capability of Soviet ICBMs would be substantially reduced by the diversion to attack of missiles.

[redacted]

US Force Inventory Requirements 1/

POLARIS A-3	328	TITAN II	54
POLARIS A-2	105	POLARIS B-3	146
MINUTEMAN I	32	POLARIS A-3	303
MINUTEMAN II	48	B-52	28
B-52	28		
TOTAL delivery vehicles	541		531

1/ See CSA view, Tab A, Appendix E

The above chart indicates that total offensive delivery vehicle requirements are approximately the same for the different time periods, even though the number of defended complexes has increased from [redacted] This is made possible by the use of TITAN II in a multiple warhead configuration and the introduction of the POLARIS B-3 missile between the period 1969 and 1974. [redacted] additional A-3 weapons would be required to replace the [redacted] in the force. Should the Soviets deploy an ABM with NIKE-X capabilities, however, an increase of [redacted] defended cities would create a requirement for a significantly large increase in the total number of delivery vehicles. Should they elect to target the TITAN element of the 1974 force and should they achieve [redacted] per cent destruction before launch, the remainder of the POLARIS force plus [redacted] MINUTEMAN would have to be withdrawn from [redacted] in order to achieve the same [redacted]

(3) The [redacted] attack forces shown in the chart above represent a reasonable requirement unless the number of ABM defended cities is significantly less than estimated. It seems clear that development of improved missile penetration capabilities is essential if the Soviets develop a significant ABM deployment. [redacted] forces were designed to achieve [redacted] with the shelter program assumed for the Soviets. Should the Soviets

develop a full fallout shelter program, the same attacks would achieve [redacted] Conversely, weapon requirements would not be reduced, although fatalities would be increased if the Soviets had a lesser shelter program, due to the objective of [redacted]

(b)(1)

[redacted]

(b)(1)

[redacted]

(b)(1)

[redacted]

(b)(1)

[redacted]

TOP SECRET

d. Damage Limiting Offensive Forces

(1) On the same priority with the requirement for forces necessary to assure destruction of the USSR [redacted] is the requirement for damage limiting offensive forces. The utility of offensive missile and bomber forces in this role has been considered in the most recent damage limiting studies by the DDR&E and the CJCS Special Studies Group.* 1/ Although missile requirements are often calculated in different ways, there is agreement that [redacted] The chart below shows the number of military targets which were attacked by missiles in both 1969 and 1974. [redacted]

* "A Summary Study of Strategic Offensive and Defensive Forces of the US & USSR," dated 8 Sept 1964 - Prepared for the Director of Defense Research and Engineering "Alternative General Nuclear War Postures" dated 15 Sept 1964 prepared by the CJCS Special Studies Group.

1/ See CSAF view, Tab C, Appendix E

[redacted]

Should the POLARIS A-3 surface ship MLF be introduced, this force could be programmed to contribute to the total requirement. Successful development of MIRV capability in MINUTEMAN and POLARIS B-3 should also increase the target programming capacity in the alert force.

1/ See CSA view, Tab A, Appendix E

TOP SECRET

e. Mid-Range Ballistic Missiles. Neither of the two previous calculations have taken into account the possibility or probability of deploying offensive forces such as land-based MRBMs, extended range PERSHING, or a sea-based multilateral force. [redacted] However, funding for the MRBM has been limited to development of command and control and guidance sub-systems, among other reasons, because the system is not politically acceptable at this time for the United States.

f. POLARIS B-3 (POSEIDON) Development

(1) Development of the POLARIS B-3 (POSEIDON) missile can significantly improve the capability of the strategic offensive force in the later JSOP time period. In addition to having twice the payload of the present A-3, it is estimated that the POLARIS B-3 (POSEIDON) against a missile defense will have the capability to: [redacted]

(2) The B-3 (POSEIDON), with its increased yield and improved accuracy, should also have a significantly greater capability against hard targets than the A-2. Moreover, assuming US development of a successful MIRV, the POLARIS B-3 (POSEIDON) would carry multiple re-entry vehicles.

(3) The actual extent of retrofit with B-3 (POSEIDON) will depend on the extent of the antimissile deployment in the USSR, the Soviet threat and the success of the United States MIRV development.

g. Advanced Manned Strategic Aircraft Development

(1) The utility of manned strategic aircraft is illustrated by a DDR&E study,* which stated "a mixed force of ballistic missiles and aircraft can exploit weaknesses in enemy defenses and errors in defense allocations, allows accommodation to an unexpected strength in one element of the defense system, and forces the enemy to divert resources to multiple types of defense." Other recent strategic studies support these basic points.

(2) One of the signficant observations in the DDR&E study with respect to the assured destruction task is that a mixed force of aircraft and ballistic missiles -- as distinct from a pure missile force -- could increase the enemy expenditures on terminal defenses by about 12 per cent to 25 per cent. Soviet costs in this case were based on a SAM D type terminal bomber defense. These costs would increase by 25 per cent to 60 per cent if the Soviets attempted to maintain a comparable capability with a less effective terminal bomber defense.

* The Utility of Future Manned Strategic Aircraft - Prepared for the Director of Defense Research and Engineering, dated 9 October 1964.

(3) With respect to damage limiting forces, the DDR&E study suggests that, in general, a mixture of one reliable missile per target followed by reconnaissance strike aircraft shows a cost-utility advantage when relatively high damage expectancies are desired. For moderate ICBM and SRAM kill probabilities ($P_k = 0.6$) destruction of enemy targets is significantly less expensive with reconnaissance-strike aircraft than with missiles.

(4) In the DDR&E study a cost effectiveness comparison of different reconnaissance-strike aircraft indicates that in most applications AMSA is somewhat more effective than an RS-111, and an RS-52 has a cost advantage relative to AMSA. For damage limiting purposes, however, it is necessary for the B-52, when converted to an RS-52, to be equipped with the necessary avionics to provide [redacted]

(5) Perhaps the most important consideration with respect to AMSA development is the structural life expectancy of the B-52 force. The most recent study of B-52 life expectancy (prepared by OASD and ODDR&E) concluded, inter alia, that further major structural modifications have been identified for each series which, if effected, would provide reasonable assurance of structural life extension through 1975. An important

consideration with respect to the B-52 is that aircraft structural life cannot be predicted with any degree of accuracy. As stated in the OSD study "our ability to predict the fatigue life of a particular airplane structure is poor."

(6) Considering the uncertainties regarding extension of the life of the B-52 until FY 1975 or beyond, and the time required to develop and deploy a replacement aircraft, it appears desirable to complete the Project Definition Phase for AMSA as soon as possible so that the Joint Chiefs of Staff can decide whether AMSA or another manned strategic aircraft should be developed.

h. Reduced US Bomber CEP. Subsequent to completion of the JSOP analysis, JSTPS advised that the United States B-52 and B-58 bomber CEP was being reduced from [redacted] A review of the weapon applications was made to determine what effect the CEP reduction by JSTPS would have on this analysis, and it was determined that there was no appreciable difference.

5. Defensive Systems

a. Introduction

(1) In order to discuss the effects of the various defensive systems, a series of calculations has been made to show comparative war outcomes for both the United States and USSR. Since fatalities and industrial damage are affected in a major way by the conditions of

war outbreak and targeting philosophy of both sides, the comparative war outcomes are shown for certain scenarios in addition to those basically examined. The types of exchanges illustrated include a spectrum of possible attacks and probably represent an extreme in urban targeting at the higher fatality levels. There is little evidence on which to base a judgment of Soviet targeting philosophy; therefore, the possible consequences of a large urban attack should at least be recognized.

(2) Comparative war outcomes for FY 1969 and FY 1974 will be shown separately in subsequent charts. The deployment of improved defensive systems for CONUS cannot, for the most part, be completed until well after 1969, the base year with which JSOP-70 is primarily concerned. Nevertheless, that budget year at which JSOP-70 is aimed will be concerned with certain development and procurement decisions. Consequently, Soviet - US nuclear exchanges with improved US defenses were conducted for the FY 1974 time frame in order to illustrate the damage limiting capability of such systems. The nuclear exchanges were conducted to assist in evaluating defensive deployment levels, and to shed light on development and early deployment decisions.

b. Relative War Outcomes, FY 1969

(1) The following chart shows relative war outcomes for FY 1969. Defensive system improvements in this time period, even if decisions were made soon, could be

expected to include only a fallout shelter program and perhaps a very limited improvement in air defenses. For this reason, the FY 1969 calculations include fatalities only for two US shelter programs (no shelter and full fallout shelter) and four scenarios. Soviet fatalities are shown for three shelter programs equivalent to US programs.

PERCENT NATIONAL FATALITIES - FY 1969

		US Fatalities (Shelter as Indicated)
Case I[a]	All Urban (Soviet initiation. No US shelter)	85
Case II[a]	All urban (Soviet initiation. US full fallout shelter)	62
Case III	Soviet All Urban US Combined Retal. (US full fallout shelter)	55
Case IV	Soviet Combined Initiation-US Combined Retal. (US full fallout shelter)	48
Case V	[redacted] (US [redacted] shelter)	26

[redacted]

a/ [redacted]

(1)

(2) Case I illustrates the high level of fatalities which might conceivably occur without improved defenses. No shelter program for the United States is assumed in this case. Even though a shelter program has been supported by the Secretary of Defense and the Joint Chiefs of Staff, the probability of attainment by 1969 is becoming increasingly more doubtful.

(3) Case II shows the effect, in terms of reduced US fatalities, which might be achieved by a full fallout shelter program. Weapon applications are identical with those of Case I. The net result is a US fatality reduction of about 23 per cent for a five-year investment of about $5 billion. All of the remaining cases include a full fallout shelter program for the United States.

(4) Case III adds to the U/I attack the effect of using a portion of the United States offensive forces against Soviet nuclear threat forces. Destruction of Soviet residual weapons in this case reduces US fatalities about seven per cent even though all Soviet weapons are programmed against urban targets. Soviet fatalities are reduced about 17 per cent by the changed targeting.

(5) Case IV shows comparative war outcomes which result from a Soviet initative attack which includes combined military and immediate urban targeting. Military targeting in this case includes attack of all soft nuclear threat targets in the United States as well as the 54 hardened TITAN II sites. This case, or variations thereof, with either more or less weapons applied to military targets, represents the most probable case of war initiation. Compared with Case III, b(1) a Soviet attack on all of the soft [redacted] and TITAN II reduces US fatalities by about seven per cent.

(6) Case V shows the results of a [redacted] which is followed by Soviet retaliation with weapons which survive the United States missile attack applied to US cities. The US urban attack is executed following Soviet retaliation. US fatalities in this type attack can be reduced another 22 percent or to a level of about 25 - 30 percent.

(7) Two points might be made from this series of FY 1969 nuclear exchanges. The first point is that a full fallout shelter program can result in significant fatality reductions even in the most severe type of urban attack. It would appear that increased effort should be made to complete this program prior to FY 1969, as a first step in the achievement of a balanced damage limiting force for the mid-1970s. The second point to be made is that a portion of the offensive force can contribute to damage limiting irrespective of the conditions of war outbreak.

c. Relative War Outcome, FY 1974

(1) The following chart shows relative war outcomes for FY 1974. Assuming that timely decisions are made and that weapon deployments follow, soon after each new weapon system demonstration, FY 1974 represents very nearly the earliest time period in which the United States could achieve a balanced damage limiting posture. Shelter assumptions for both the United States and USSR are identical with those indicated for FY 1969.

PERCENT NATIONAL FATALITIES - FY 1974

		US Fatalities (Shelter as Indicate
Case I[a]	All Urban (Soviet initiation.. No US shelter)	84
Case II[a]	All Urban (Soviet initiation..US full fallout shelter)	61
Case III	Soviet All Urban (US Combined Retal. and full fallout shelter)	54
Case IV	Soviet Combined Initiation (FY 1969 Approved US Def. Force and full fallout shelter)	51
Case V	Case IV / NIKE-X at 47 cities	38
Case VI	Case IV / NIKE-X at 47 cities and Improved Air Def. Forces	32
Case VII	[redacted] with Case VI Forces	Less tha 10

[redacted]

(1)

(2) Fatalities for Cases I through III in 1974 are almost identical with those for 1969. US fatalities in each of the three cases are about one percent lower in 1974 primarily due to a smaller bomber threat estimated for the later time period.

(3) Case IV shows the result of a Soviet initiative attack which includes an immediate attack on urban areas in combination with an attack on all soft military

targets. A comparison of US fatalities for Cases III and IV indicates that the Soviet weapons required for attack of all soft military targets would, if retargeted to urban areas, destroy about four percent more of our population (both assume a US full fallout shelter program but no other defense improvement). TITAN II missiles were not attacked in this case, which might be considered somewhat unrealistic in view of the large urban destruction capability of this large payload, limited deployment system. For this illustration, targeting has been treated in this manner in order to keep the urban attack force constant with improved defenses, thereby providing a more meaningful measurement of NIKE-X capability. Should the TITANs be attacked, a force of 80 inventory SS-9s would be required and US fatalities would be decreased by about three percent.

(4) Case V shows the effect of adding a 47 city NIKE-X deployment (about 14,000 SPRINT interceptors) to the FY 1969 defensive forces of Case IV. It can be seen that an antimissile defense of this type would be expected to reduce US fatalities by about 13 percent.

(5) Case VI shows the effect of adding an improved bomber defense and NIKE-X deployment of Case V. With the Soviet bomber and sub-launched missile threats currently postulated for the FY 1974 time period, the fatality results indicated here might reasonably be achieved by the deployment combination of SAM D, advanced manned interceptors, including AWACS, and improved ASW forces including Phase II SOSUS. Should

there be any significant improvement in the threat in terms of speed or ASM capability, the combination of improved air defense and ASW systems would undoubtedly provide distinct advantages. The chart indicates that with the estimated threat, an improved combination of terminal and area bomber defense and ASW forces can reduce US fatalities by an additional six percent.

(6) Case VII shows the result of a [redacted] attack with the United States having a fully deployed and balanced damage limiting force. In this case, all Soviet weapons surviving the United States missile attack were programmed against urban targets. The calculations indicated on the chart suggest that in this type attack, US fatalities might be reduced to a level of less than ten percent with a balanced damage limiting posture. The contribution of improved active defenses at this lower end of the spectrum can be measured by comparing the 1969 results (26 percent US fatalities TABLE, page 34), with the 1974 results (less than ten percent fatalities TABLE, page 37). This case might also be fairly representative of certain other scenarios involving relatively low order urban attacks. For example, a Soviet first strike, but with urban attacks delayed, might result in fatalities no greater than indicated above. It is also possible that the Soviets might employ a significant portion of their ICBMs against hard US missile sites in which case fatality levels should be lower than those of the Soviet

initiative attack cases above. Other examples could consider the possibility of controlled urban attacks in which only a limited number of key cities would be hit. Improved defenses would be particularly meaningful in this type attack, or in a similar attack of limited size by an emerging nuclear power in future years.

(7) Several points might be made from this series of 1974 exchanges which are in addition to those already mentioned with respect to the 1969 games. The first point is that without improved US active defenses, Soviet war outcomes are always substantially better than those of the United States [redacted] This relationship holds true even when it is assumed that the United States has a full fallout shelter program and the Soviets have only an intermediate shelter program. Adverse war outcomes for the United States result in large part from the greater concentration and vulnerability of US population and can only be overcome by greater investment in damage limiting forces and civil defense.

(8) The second point is that deployment of a balanced damage limiting force (including a full fallout shelter program) will reduce US fatalities substantially, as shown on the chart, page 37.

d. Defense Against Submarine-Launched Missiles

(1) Naval ASW forces used to counter the submarine-launched missile threat and employed in the analysis are the same as those provided in the Navy input to

the AGNWP study. These forces are included under Program III, General Purpose Forces.

(2) The effectiveness of ASW forces in reducing US fatalities is particularly sensitive to the targeting of submarine-launched missiles. Further, it is extremely difficult to measure the contribution of any area defense in an urban attack employing many different systems. For example, the recent DIA b(1) estimates adding [redacted] to the Soviet inventory of ICBMs have resulted in postulation of a more formidable capability to destroy the United States industrial base. In exercising the Soviet force in aggregated war games, the higher yield weapons were targeted on the more heavily populated urban areas, with the result that the Soviet missile submarine force with its lower yield weapons was targeted against cities next in priority. When NIKE-X was deployed in the FY 1974 period, only the cruise missiles had a real capability against these cities, but this capability was countered by the deployment of the SAM D. Although not employed in this role in this analysis, the advanced manned interceptor also could have been employed against cruise missiles.[1/] Therefore, except in selected cases, submarine launched ballistic missiles were targeted on the intermediate cities because of their capability to penetrate the HAWK and HERCULES defenses. This method of employment for weapons targeted against urban areas was considered to provide the highest return in US fatalities for Soviet SLBM capability.

1/ See CSA view, Tab A, Appendix E.

(3) To gain a better appreciation of the submarine potential, it should be recognized that another Soviet targeting philosophy might be considered which employs the ICBMs and bomber delivered weapons against the United States nuclear threat and associated command and control installations and the submarine-launched weapons on the major urban areas within range. Such a philosophy might be characteristic of a Soviet 1969 military attack option with a delayed, rather than a combined, urban attack. Using all 67 Soviet submarines at sea in the urban attack role and not considering attrition by ASW forces, the combined total of 292 missiles could obtain the following industrial damage and fatalities for each of the three civil defense postures expressed in a percentage of the national total:

Fatalities (%)			MVA Destroyed (%)
CD 1	CD 2	CD 3	
48	36	26	23

(4) Using the Program III ASW forces which normally would be engaged in CONUS defense at the time of a Soviet surprise attack, attrition of 25 percent Soviet missiles was assumed in the analysis. On the other hand, in a period of crisis with ASW forces fully generated and positioned to best advantage, the attrition of Soviet missiles was assumed to be 75 percent. Results of the Soviet attack under these ASW postures are tabulated below and compared with the preceding case of no attrition:

TOP SECRET

Attrition	Fatalities (%)			MVA Destroyed (%)
	CD 1	CD 2	CD 3	
0	48	36	26	23
25	45	33	24	22
75	35	24	16	15

(5) It may be seen from the above that although the Soviet missile submarine force may not possess the weight of effort of the strategic rocket force, it still represents a formidable capability to damage the United States. It also shows that even with 75 percent of the at-sea weapons destroyed, a few weapons penetrating the defenses and impacting in the large cities can inflict as high as 35 percent national fatalities with no fallout shelter posture. This estimated performance of the ASW forces is creditable, but a requirement to attain a greater capability is still of prime importance. The Navy's capability against the submarine-launched missile force employed against the CONUS could be improved by increasing the effectiveness of ASW forces assigned to the CONUS defense role. Unless additional ASW forces were authorized, this would necessarily be at the expense of other tasks. In addition, improvement of current ASW weapon systems and increased research and development in the ASW field, should be supported in order to increase effectiveness against this threat.1/

(6) The SOSUS system with Phase II completed was essential to obtaining the attrition factors employed in this analysis. In turn, these factors were based

1/ See CSAF view, Tab C, Appendix E

upon results of the Navy's CYCLOPS II study and Damage Limiting Study, which evaluated the effectiveness of SOSUS against reduced Soviet submarine noise levels, and based on localization and detection capabilities which were derived from actual system performance. These studies concluded that with Phase I, [redacted] (b)(1) (b)(3) A reduction in the estimated number of submarine-launched missiles located and destroyed in force interactions would be anticipated if Phase II is not completed; with correspondingly larger damage and fatalities to the United States.1/

(7) In summary, under the targeting philosophy assumed and conditions examined, submarine launched missiles constituted a relatively small portion of the total destructive capability of the Soviet Union as long as the United States had no defense systems for use against ICBMs with their higher payloads and limited capability against bombers. As the latter two threats were countered by deployment of FY 1974 area and terminal defenses, the submarine-launched missile threat became relatively more significant. In the

1/ See CSAF view, Tab C, Appendix E

FY 1974 force analysis, SLBMs were applied against undefended cities, except that those on station at initiation of attack were applied against US bomber bases and resulted in a reduction of US bomber capability. The threat of such employment exists today and will exist in the future unless effectively countered by ASW forces and missile defenses.1/

e. Advanced Defensive Systems

(1) Antiballistic Missile Defense

(a) The NIKE-X deployed at 47 major complexes in the analysis represents one variant of a LO-MAR deployment concept. Multifunction-Array Radars (MAR) were deployed at 16 (of the 47) high-value urban complexes. The number of SPRINT defensive missiles distributed at each of the 16 complexes is indicated in Tab F to Appendix B. At the remaining 31 complexes, Missile Site Radars (MSR) only were deployed; these defenses excluded MARs. At each of the latter 31 cities, an inventory of 160 SPRINT missiles were assigned; this inventory was selected based on the SS-9 threat model of 61 re-entry objects. Such an inventory permits engagement of warheads and decoys from two arriving SS-9 payloads, forcing the USSR to allocate over three ready SS-9 missiles in order to obtain a high assurance of exhausting the inventories.

1/ See CSAF view, Tab C, Appendix E

[redacted]
AS DEFINED BY ATOMIC ENERGY ACT OF 1954
TOP SECRET

(b) In the various Soviet attacks against any given urban complex, it was assumed that the USSR programmed a quantity of multiple warhead/decoy missiles (SS-9 or SS-7) adequate to provide a 90 per cent assurance of exhausting the known defense inventory at that complex. It was also assumed that the Soviets knew the ABM system performance and firing doctrine. Following the probable exhaustion of defense missiles at an urban complex, high-yield missiles were launched for destruction of the complexes.

b(1) [redacted] b3 b(3)

The number of complexes which could be attacked with high assurances in this manner by ICBMs varied from 14-22.

(c) Unlike submarine-launched cruise missiles, it was assumed that the submarine-launched ballistic missiles could not profitably be programmed against ABM defended cities. The penetrational capabilities of the latter against the ballistic missile defense were inferior to that of the high payload multiple warhead ICBMs and their use against non-exhausted defenses was considered impractical. Likewise, their use against cities, following exhaustion attacks by ICBMs, did not appear suitably remunerative in that the cost of exhaustion

in terms of offensive missiles was such that ICBMs with higher yield warheads were called for to exploit the situation rapidly and to produce damage commensurate with offensive expenditures.

(d) Throughout this study, it has been assumed that the NIKE-X system cannot discriminate the Soviet decoys from the multiple-warheads. This assumption represents a judgment by DDR&E that decoys of the type and weight used in this analysis will not be distinguishable from small warheads and will, therefore, have to be taken under attack by NIKE-X. The prospects for discrimination of low cross-section decoys is, however, not yet determined; there are competent adherents to both views as to the feasibility of discrimination of such decoys as were used herein. Because there are uncertainties with respect to decoy discrimination, an excursion was conducted to ascertain the effects of such a capability on war outcomes for the United States. These results are tabulated below for the case of Soviet Initiation with a combined military and immediate urban attack. A balanced damage limiting force with a full fallout shelter program is included for both cases.

	NATIONAL FATALITIES (%)	MVA (% DESTR.)
NIKE-X (No Discrimination Cap.)	32	33
NIKE-X (With Discrimination Cap.)*	less than 10	less than 10

From these data, and from corresponding excursions of the AGNWP, it can be observed that a discrimination capability, if attained, would result in a significant reduction of national damage.

(e) It may be possible to approach these lower levels (associated above with the discrimination capability) in the defended cities even without assuming a discrimination capability. Only a single firing doctrine was employed in this study. It is probable that various alternative firing doctrines would be available in the NIKE-X computer, each to be adopted in accordance with the type of attack seen by the NIKE-X radars, and with changes in firing doctrine to occur as the missile attack progresses. As the inventories reach predetermined levels of expenditure, an alternative firing doctrine might be adopted such that the defense would cease to fire SPRINT missiles reprogrammed for "late aborts." At some higher level of expenditure, perhaps the defense would

* The excursion assumes that the Soviet decoys are substantially identified as such, and are therefore not engaged by NIKE-X. It follows that the SPRINT inventories at the respective defended complexes would not be exhausted [redacted]

b(1) DOE b13)

fire a single unreprogrammed SPRINT missile at each undiscriminated object. Each such shift in firing doctrine conserves these missiles at the expense of more "objects" penetrating the defense.

[redacted] b(1) DOE b13

The resultant fatality and damage figures in such a case (without assumption of a discrimination capability) would be at some point intermediate between those tabulated for the discrimination case and those based on no discrimination.

(f) There are, of course, many major and minor areas of sensitivity involved in developing studies of future force requirements. Discussed below are some of the areas of uncertainty which have an important bearing on the effectiveness of the NIKE-X system.

1. There is no urgency for the USSR to develop and test multiple warhead/decoy payloads for ICBMs until a US ABM is in the offing.1/ This may account for the lack of intelligence evidence on which to base Soviet threat models. For this reason, the Soviet multiple-warhead configurations

1/ See CSAF view, Tab C, Appendix E

employed on ICBMs, tabulated below, were developed by DDR&E based on judgments as to US state-of-the-art in the 1970s. This state-of-the-art was then applied to intelligence estimates of Soviet missile payloads as follows:

	Decoys
SS-9	50
SS-7	22

(b)(1) DOE (b)(3)

The DDR&E judgment that led to these threat models, in conjunction with his judgment that the NIKE-X cannot discriminate the Soviet decoys from the multiple warheads, significantly effects the fatality and damage results of the cases involving NIKE-X deployments. The bulk of the damage in these cases results from ICBM attacks following exhaustion of the ABM defenses. Should either or both of these judgments used in the calculation of this study (as to threat model configurations or ABM discrimination capability) prove faulty, the Soviet capability, the fatality and damage percentages would be subject to change.

2. In the development of these nuclear exchanges involving missile defenses, SS-9 and SS-7 missiles using the above threat models, have been programmed to

obtain a 90 percent probability of exhaustion at each complex attacked. It should be recognized that these calculations are based on exact knowledge of US defensive missile inventory and distribution, US ABM performance factors and defensive firing doctrines. It is certain that exact programming for exhaustion is not practically attainable. If penetration by means of defensive inventory exhaustion is desired, overprogramming must be carried out to obtain an actual high assurance of achieving the fatality and damage levels presented herein for the cases involving NIKE-X. The offense must overprogram to some degree to protect against uncertain knowledge of his own offensive missile performance, and to a further extent to account for a probable lack of knowledge of defensive firing doctrine (as discussed above). If he fails to overprogram to accommodate these variables, he runs the risk of an actual underprogrammed attack and little damage would result from an already large expenditure of missile forces. If he overprograms, however, he cannot attack as many major complexes as were attacked on a purely mathematical basis in the calculated force interactions herein.

(g) In summary, if any of the foregoing uncertainties concerning discrimination, alternate firing doctrines, overprogramming, and poorer Soviet threat models occur, meaningful reductions in US damage and fatality figures would result. If they occur in combination, the reduction would indeed be significant.1/

(h) The NIKE-X system has been designed to permit deployment in a modular or building block approach. The specific deployment alternative need not be selected at this time. Deployment decisions are keyed to phases and can be made at essentially yearly intervals. At this time, a decision is required to preserve the option to deploy NIKE-X at the earliest initial operational capability (IOC) date for the first defense complex.

(2) Bomber Defenses

(a) Both terminal and area bomber defenses have been examined in this analysis. In order to gain a better appreciation of the US defense, a Soviet 1974 targeting excursion was examined which, because of the NIKE-X deployment at the 47 most important US cities, applied ICBMs and SLBMs to the military attack, and only the bomber delivered weapons and submarine launched cruise missiles to the attack of the metropolitan areas defended by NIKE-X. This might also approximate the situation in an all-urban attack if the uncertainties concerning

1/ See CSAF views, Tab C, Appendix E

NIKE-X work in favor of the United States. The interaction of this force with various combinations of area and terminal defenses is shown in the chart below in terms of percentage of national MVA destroyed and fatalities under the three US fallout shelter postures.

DAMAGE AND FATALITIES WITH 47 METROPOLITAN COMPLEXES DEFENDED BY NIKE-X, FY 1974

DEFENSIVE MIX	NATIONAL FATALITIES % CD 1	CD 2	CD 3	NATIONAL MVA % DESTR
Case I NIKE-X plus FY 69 Air and ASW Area Defenses Only (less terminal defense)	55	42	32	28
Case II NIKE-X plus FY 69 Air and ASW Area Defenses plus NIKE-HERCULES Terminal Defense at 24 Cities	46	34	25	22
Case III* NIKE-X plus FY 74 ASW Area Defense plus FY 74 Air Force Area Defense (less terminal defense)	40	28	20	18
Case IV* NIKE-X plus FY 74 Air Force and ASW Area Defense plus SAM D at 47 Cities	less than 25%	less than 15%	less than 10%	less than 10%

Referring to the chart above:

1. Case I. Indicates damage and fatalities in the 47 NIKE-X defended complexes resulting from penetration of the FY 1969 programmed area defenses. For illustrative purposes

* In Cases III and IV the F-12 was not programmed against SLCMs.

and although required, no terminal defenses have been considered in targeting Soviet weapons or in computing damage. This case provides the base force necessary to evaluate the NIKE HERCULES contribution in reducing fatalities shown in Case II.

2. Case II. Indicates that NIKE HERCULES terminal defenses are deployed around the 24 most important of these urban areas, which also contain between four and five times as much population and industry as the balance of the 47 urban areas. Weight of Soviet effort has been programmed to consider not only terminal defenses but target importance. This provides a measure of effectiveness of 1969 terminal defense, which amounts to about seven percent reduction in fatalities under a full fallout shelter.

3. Case III. The substitution of an Advanced Manned Interceptor for programmed FY 1969 interceptor forces virtually eliminates the manned bomber and ASM threat. Fatalities and damage can be attributed almost entirely to the submarine-launched cruise missiles. In this instance the AMI deployment reduced fatalities 12 percent in a full fallout shelter posture when compared with Case I. For illustrative purposes, no terminal bomber defense forces were deployed.

4. Case IV. This case shows the effect of the FY 1974 proposed air, missile and ASW defense forces in reducing US fatalities. In a full fallout shelter posture, fatalities and industrial damage are lowered below ten percent by the deployment of the SAM D.

(b) The above cases illustrate that the best defense is achieved by a combination of both area and terminal defenses. The HIP/HAWK deployment proposed by the Army for 1974 as a terminal defense for the 175 US cities of over 30,000 population was not exercised in the Case III example. Had a portion of the bomber-delivered weapons and cruise missiles been programmed against HAWK defended cities, virtually the same force interaction as in Case IV deploying SAM D would have resulted with somewhat lower damage and fatality figures. Terminal and area defenses are discussed specifically in the following paragraphs.

(3) Terminal Bomber Defense[1/]

(a) The NIKE HERCULES is the principal terminal defense system currently deployed in the CONUS. Changing offensive tactics has caused this system to lose a large measure of its original effectiveness and changes in the Soviet threat and weapon systems has made many of the deployments obsolete. There will, however, remain a serious deficiency in low level terminal defense irrespective of the eventual

1/ See CSAF view, Tab C, Appendix E

decisions on the redeployment of HERCULES. The HAWK missile system was designed to redress degraded capabilities of NIKE HERCULES at low altitudes in the theaters, but has not been generally deployed in that manner in CONUS. It has limited high altitude capabilities, however, and must be deployed in combination with HERCULES. It has a capability against cruise missiles and other air supported threats but no capability against submarine-launched ballistic missiles with the range capabilities postulated.

(b) The advanced terminal defense system considered in this analysis is the SAM D which could provide a relatively high capacity defense against bombers and cruise missiles as well as a defense against ballistic missiles of medium to short ranges. The latter capability would include terminal defense against the Soviet SLBM systems of currently estimated characteristics. The system would be designed for defense against low altitude, as well as high altitude air-supported threats and would serve to supplant both the NIKE HERCULES and the HAWK systems. For this analysis it was deployed and interlocked with NIKE-X at 47 major urban complexes in the United States. In addition, the next 175 largest cities were defended by the HIP/HAWK. The HAWK defenses considered for this deployment represent a redeployment in the 1970s of 84 HAWK batteries currently programmed for theater defenses (plus a small number

of battery equipment sets from other sources). It was assumed for this purpose that more advanced air defense requirements in the theater would be met by theater deployment of SAM D thereby releasing the mobile HAWK units for use in CONUS. This deployment of HAWK involves employment of single platoon defenses at intermediate cities.

(c) If successful in development and test the SAM D system offers prospects for a significantly improved terminal defense capability against current and more advanced threats, including multiple target threats. Introduction of the phased array radar would permit a single defense to take under attack up to 24 simultaneously arriving vehicles in contrast to the HAWK capability of defending against a single object at any given time. The SAM D would also offer a significantly improved terminal capability for defense of CONUS if the future Soviet bomber threat should include such weapons as short-range attack missiles (SRAM). Developed as a mobile system, the SAM D should have world-wide application for a number of years in the future.

(d) While addition of HAWK to the HERCULES deployments might be desirable on an interim basis against the currently estimated Soviet threat to CONUS, the SAM D combat performance would be a far superior follow-on capability and would avoid early obsolescence of newly deployed defensive systems.

(4) Area Bomber Defense

(a) The principal area bomber defense of CONUS currently consists of Century series interceptors and BOMARC missiles. Both have a limited capability against low penetrating vehicles. The CONUS defense force has been reduced from 56 active Air Defense Squadrons or about 1,200 interceptors in 1959 to 39 squadrons or 838 aircraft today. Currently, the Air National Guard interceptor force totals 22 squadrons or 481 aircraft. Some of the reductions were proposed by the Air Force on the assumption that a more effective interceptor would be introduced into the inventory concurrently with phase-out of the obsolescing interceptors. Reductions to the forces were approved without the corresponding deployment of a new manned interceptor.

(b) The USAF "Continental Air Defense" and "Blue Dart" studies show that of the two Advanced Manned Interceptors under current consideration, both significantly improve our damage limiting capability. The choice is between the F-12 and an interceptor version of the F-111. The "Blue Dart" study concludes that:

> "The TFX and IMI are highly competitive against a small-unimproved subsonic threat. A qualitative improvement of the Soviet threat by introduction of standoff ASMs would cause a substantial reduction of the TFX capability. The TFX and IMI are competitive against a large subsonic threat (such as the DIA/OIEP), but the IMI has

an advantage. The IMI is significantly more effective than the TFX against a subsonic threat employing ASMs. The IMI is markedly superior to the TFX against an advanced supersonic bomber threat such as the AMSA."

A comparison of aircraft performance indicates that the F-12 is superior to the F-111 in certain characteristics significant in Air Defense. Speed is one of the most important characteristics and the F-12 is [redacted] percent or almost [redacted] nm per hour faster (MACH 3.2 VS [redacted]. The F-12 can sustain MACH 3.2 in excess of 70,000 feet for its entire mission and reach altitudes approaching 100,000 feet. [redacted]

b(1)

[redacted] In terms of mission performance, the F-12 can make an intercept at 1,300 nm and return to departure base in 1:45 hours [redacted]

With this type of performance, greater flexibility in time and place of intercept and in number of sorties is provided with the F-12. In addition, the F-12 will carry twice as many missiles internally as the F-111. A choice based on combat capability as well as cost effectiveness, will have to be made between the two manned interceptors.1/

1/ See CNO views, Tab B, Appendix E.

(c) In summation, the point to be made with respect to area bomber defense is that an early decision between the F-12 and F-111 is necessary, if a balanced damage limiting force is to be achieved by 1974, to preclude prohibitively high annual budgets in the later JSOP time period.

6. Consideration of Requirements of Unified and Specified Commands

a. General

(1) Force requirements of the various major commands have been considered in the development of JSOP-70 force levels. The absence of a recommendation to develop certain advanced systems is not intended to prejudge the utility or future requirement for these weapons. In some cases, final decisions cannot be made at this time, in others it has been found necessary to restrict the number of new weapon developments in order to remain within reasonable budget levels for strategic offensive and defensive forces.

(2) The [redacted] target lists in Appendix C are believed to include all the [redacted] The following comments pertain to specific weapon systems which have not been included in this analysis for early development.

(b)(1)

[redacted] TOP SECRET
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

b. Mobile MINUTEMAN

(1) MINUTEMAN in the mobile configuration is not recommended at this time due to higher system costs and estimated high survival probability for the hard and dispersed MINUTEMAN in the JSOP-70 time period. Five-year system costs for the rail mobile version of MINUTEMAN are estimated to be about 1.8 times the cost of the same system in the hard and dispersed configuration. So long as the United States retains numerical superiority in ICBMs it might reasonably be expected that each added US missile will survive. A comparison of the current Soviet missile force with the large target list represented by MINUTEMAN suggests that the CINCSAC estimate of 90-100 percent prelaunch survival for hardened MINUTEMAN is reasonable and is supported by the 95 percent factor used in SIOP planning. Should intelligence confirm that the Soviets intend to develop a significant MIRV capability, it may be desirable or necessary to deploy either additional sea-based missiles, a mobile version of MINUTEMAN, or other versions of mobile missile systems. The size of such a force, if it were developed, would be influenced by the missile force capability, US success with MIRV development and Soviet target developments.

c. ICBM-X

(1) The increased capability of a large payload MINUTEMAN to penetrate a sophisticated antimissile system is recognized. However, it is not possible

at the present time to predict either the qualitative characteristics or quantitative deployments of future Soviet antimissile systems. It would appear that the time required to make a significant deployment of a Soviet defensive system like NIKE-X would be sufficient to allow the United States to deploy an improved capability ICBM, POLARIS B-3 or both. With anticipated improvements in CEP and yield for MINUTEMAN II, the ICBM-X in a unitary warhead version would provide little additional improvement in hard target damage expectancies. A successful MIRV development in combination with the increased payload capability of ICBM-X would make a large improvement in the military targeting capability of the US missile force. Development decision for ICBM-X need not be made pending further intelligence regarding Soviet weapon developments and development of new US weapons.1/

d. Airborne Alert Weapon System

(1) The AAWS is not recommended for early development. High development costs for advanced strategic aircraft makes the concurrent development of two such systems almost cost prohibitive. A recommendation has been made by the Air Force in favor of the AMSA. There are a number of features which tend to support this recommendation:

(a) The look-shoot capability of the AMSA permits target discrimination and the achievement of high damage expectancies on residual forces.

1/ See CSAF views, Tab C, Appendix E.

(b) AMSA provides an inherent reconnaissance capability which is not available with the AAWS standoff launches.

(c) The AMSA-launched SRAM would have a better penetration capability against improved air defense such as SAM D or HIP/HAWK.

e. Additional B-58s

(1) Structural problems associated with retention of the B-52 fleet into the 1970s are recognized. In view of B-58 production termination, however, a bomber version of the F-111 is considered a better hedge against catastrophic failure of the B-52 force. Further study will be required to determine whether or not an F-111 version should be procured.

f. CINCONAD Interceptor Force

(1) CINCONAD's submission of an interceptor force structure for FY 1969 and FY 1974, consisted primarily of 198 and 216 IMIs, respectively. However, for the purposes of this analysis in the FY 1974 time period, the Air Force proposed force level of 144 F-12s was used to develop force interactions.

7. Key Uncertainties

a. Described hereafter are major uncertainties in the assumptions, in context of which the JSOP-70 analysis should be viewed. Only those which affect the results adversely for the United States are mentioned in detail.

(1) If the Soviets deploy a combination of improved defenses; e.g., achieve a missile defense similar to NIKE-X, area bomber defenses similar to

TOP SECRET

the Advanced Manned Interceptor or Terminal Defenses similar to SAM D and HAWK, or a major breakthrough in ASW capability, US strategic offensive forces as now envisioned would be inadequate.

(2) One of the principal uncertainties affecting US offensive forces in future years is the possibility of Soviet development of a MIRV capability. Survivability of US land-based systems has been largely assured through hardening of missile sites and numerical superiority in delivery systems which constitute a target list of such size that only a fraction can be targeted with the smaller inventory of Soviet weapons. If the Soviets develop a MIRV capability on their larger payload missiles, it could require the United States to take additional action to increase ICBM survivability.1/ However, the number of SS-9s required to attack the entire nuclear threat list in the United States would be large even with a MIRV capability; and, for any given Soviet missile force, might well reduce the number of missiles employed on urban targets.

(3) One of the uncertainties affecting a US defensive force in future years is the possibility of Soviet development of improved aerodynamic systems.

(4) JSOP-70 analysis results are predicated on the assumptions that operational capabilities for US weapon systems will be within the state-of-the art. This becomes especially important in the

1/ See CSAF view, Tab C, Appendix E.

1974 period. System performance may be degraded by certain effects found from past nuclear testing to be associated with a nuclear environment. Among these are interference with electronic systems and communications through ionization, electromagnetic pulse, radar blackout, etc., as well as possible effects about which nothing will be known so long as the atomic test ban treaty is in force. In this latter category are those associated with extremely high yields.

8. Summary of Recommendations. Considering requirements to obtain a balanced program of strategic offensive and defensive forces, recommendations concerning major systems examined in the foregoing analysis are summarized below:

a. Offensive Systems 1/

(1) Advanced Manned Strategic Aircraft (AMSA). Engine development, advanced avionics development, and the AMSA project definition phase should proceed as recommended in the Air Force PCPs to assure that a timely decision can be made on the development of a follow-on manned strategic aircraft.

(2) B-52. The currently approved B-52 modification program includes three major structural modifications (ECPs 1124, 1128 and 1185). ECPs 1124 and 1128 are estimated to extend the life of series C through H aircraft to FY 1969-1972. ECP 1185 was approved only for G and H aircraft and is estimated to extend their life to end FY 1975.

1/ See CMC views, Tab D, Appendix E.

Further major modification or phasedown of the B-52 fleet should be dependent upon the actual structural life of the aircraft and the decision on development and deployment of a follow-on manned strategic aircraft.

(3) MINUTEMAN.1/ JSOP-69, this analysis and the recent studies which have addressed the Strategic Retaliatory Force requirements provide appropriate data, rationale and judgments which fully support a 1200 MINUTEMAN force. This 1200 MINUTEMAN force level is in consonance with the attainment of a balanced offensive and defensive force structure and funds should be allocated in the FY 1967 budget to ensure attainment of this level by end FY 1970.

(4) B-3 POLARIS Missile (POSEIDON). Funding should be provided in FY 1967 to support the continued development of the B-3 missile in recognition of the need for replacement missiles for the A-2 and A-3 missiles, achievement of the MIRV capability, and increased missile penetration capability to counter improvements in ballistic missile defenses which may develop.

b. Defensive Systems 2/3/

(1) NIKE-X. An effective ABM deployment is considered a critical item for attainment of a balanced strategic posture and it is particularly important that no avoidable slippage be permitted. The Joint Chiefs of Staff, less the Chief of Staff, US Air Force, support the development and deployment of NIKE-X; they defer decision on scope of deployment pending determination of a specific deployment configuration; they consider that required funding should be provided in the FY 1967 budget to insure ICC in FY 1970 and,

1/ See CSAF view, Tab C, Appendix E.
2/ See CNC views, Tab B, Appendix E.
3/ See CNC views, Tab D, Appendix E.

accordingly, force levels beyond IOC are for planning purposes. The Chief of Staff, US Air Force, believes that the required funding should be provided in the FY 1967 budget to prevent slippage of IOC; final decision for production should be subject to JCS review of NIKE-X development and testing progress, and determination of specific deployment concept.

(2) Advanced Surface-to-Air Missile System. 1/ Funds for engineering development of SAM D should be provided in FY 1967, to permit an uninterrupted development for this advanced terminal bomber defense system.

(3) Current Manned Interceptors. 2/ It is recommended that interceptor force levels be retained essentially at the current levels until advanced intercept systems are deployed operationally; or, until the threat has decreased proportionately.

(4) Advanced Manned Interceptor. 1/ 2/ 3/ The need for an advanced interceptor is also integral to the concept of a balanced defense. It is necessary to modernize our defense forces as we attain a balanced offensive/defensive force, with a weapon system which takes full advantage of the state-of-the-art. The F-12 aircraft is recommended for this role and should provide a significant increase in our defensive capability and deterrent posture. The required funding for production should be allocated to protect the option for deployment and earliest initial operational capability (IOC).

1/ See CSAF view, Tab C, Appendix E.
2/ See CSA view, Tab A, Appendix E.
3/ See CNO view, Tab B, Appendix E.

(5) Airborne Warning and Control System (AWACS). Funds for the development of AWACS should be provided in the FY 1967 budget to permit an uninterrupted development for this system.

(6) The HAWK Improvement Program.1/ An improved HAWK system should be developed, with funding adequate to permit operational deployment without delay if the development program achieves its objective.

c. Civil Defense. This analysis and other studies indicate that a full fallout shelter program is vital in a balanced posture of offense and defense and should be fully supported in future budget actions for completion in the early 1970 period.

1/ See CSAF view, Tab C, Appendix E.

TOP SECRET

APPENDIX A

US STRATEGIC RETALIATORY FORCE

1. The basic US strategic retaliatory forces employed against the Soviet Bloc [redacted] in this study are tabulated in Table A-1 herein.

2. FY 1969 forces approximate levels recommended by the Joint Chiefs of Staff. FY 1974 forces reflect submissions by the proponent Service.

3. Operational factors used in the analysis are tabulated in Table A-2.

TABLE A-1

JSOP-70 BASIC US STRATEGIC RETALIATORY FORCES USED IN FORCE INTERACTIONS

SYSTEM	END FY 1969	END FY 1974
AIRCRAFT		
B-52	585	360
B-58	70	60
AMSA	--	81
TOTAL	655	501
AIR LAUNCHED MISSILES		
HOUND DOG	483	483
SURFACE-TO-SURFACE MISSILES		
TITAN	54	54
MINUTEMAN I	400	--
MINUTEMAN II	800	1,200
POLARIS A-2	208	--
POLARIS A-3	448	448
POLARIS B-3	--	208
TOTAL ICBM/FBM	1,910	1,910

THIS PAGE
WAS
DENIED IN
FULL

APPENDIX B

US CONTINENTAL AIR AND MISSILE DEFENSE FORCES AND US TARGET LIST

1. A summary of the US Continental Air and Missile Defense Forces employed in this study are tabulated in Table B-1 below. FY 1969 forces approximate Program Package II levels recommended by the Joint Chiefs of Staff. FY 1974 levels represent projections and submissions by the Service having budgeting responsibility. Program Package III ASW forces employed are not listed herein but are the same as those gamed in the CJCS SSG Alternative General Nuclear War Postures (AGNWP) study.

2. The US Target List is contained in Table B-2. This list is the same for FY 1969 and FY 1974 except in the number of ADM defended and undefended complexes.

3. The following paragraphs contain a brief discussion of the source of the operational factors or system models employed for defense of CONUS in JSOP-70. In essentially all cases, this source was the Alternative General Nuclear War Postures study. Details of operational concepts and employment, not addressed herein for brevity reasons, may be found in Appendix D of that study. Paragraphs pertaining to these systems are Tabbed as follows:

A. PROGRAMMED AIR DEFENSE FORCES, FY 1969 MODEL

B. NIKE-HERCULES DEFENSE SYSTEM MODEL

C. ANTISUBMARINE WARFARE ATTRITION MODEL

D. HIP/HAWK SYSTEM MODEL

E. ADVANCED MANNED INTERCEPTOR MODEL

F. NIKE-X SYSTEM MODEL

G. SAM-D SYSTEM MODEL

H. AIRBORNE WARNING AND CONTROL SYSTEM (AWACS)

I. CIVIL DEFENSE POSTURE MODEL

4. Operational factors used in the analysis are tabulated in this appendix.

TABLE B-1

JSOP-70 BASIC US CONTINENTAL AIR AND MISSILE DEFENSE FORCES USED IN FORCE INTERACTIONS

SYSTEM	END FY 1969	END FY 1974
MANNED INTERCEPTORS		
Air Force		
F-101	270	90
F-102	196	--
F-104	24	--
F-106	204	90
Advanced	- -	144
Air National Guard		
F-89	200	--
F-101	- -	162
F-102	336	72
F-106	- -	108
TOTAL INTERCEPTORS	1,230	666
SURFACE-TO-AIR MISSILES		
BOMARC	188	--
NIKE-HERCULES (Reg)	1,548	396
NIKE-HERCULES (NG)	972	108
NIKE-X[a]	(- -	(SPRINT 14,152
	(- -	(ZEUS 490
HAWK (Reg)	576	(HIP/HAWK) 450
HIP/HAWK (ARNG)	- -	3,240
SAM-D [a]	- -	2,176
SOSUS ARRAYS	35	52

a/ Forty-seven complexes defended by mid-FY 1974

Appendix D - Section A
Part VI, JSOP-70

TOP SECRET

TABLE B-2
US TARGET LIST

CATEGORY	VN	NUMBER
Bomber Home Airfields	[redacted]	43
Dispersal Airfields		58
ICBM Sites:		
TITAN II		54
MINUTEMAN		1200
Submarine/Naval Bases		10
Offensive Controls		6
VLF Radio Facilities		2
Defense Suppression:		
Air Defense		80
SOSUS		19
ASW Airfields (4 CONUS)		10
Space System Facilities		8
Nuclear Storage		20
Nuclear Production		10
Total Military		1518
Hard Alternate Govt/Mil Controls		5
Urban/Industrial Complexes:		
	FY1969	FY1974
ABM Defended	0	47
Undefended	226	179

TAB A TO APPENDIX B

PROGRAMMED AIR DEFENSE FORCES, FY 1969 MODEL

1. The air defense forces programmed for FY 1969 employed in JSOP-70 force interactions were gamed in the same manner as in the AGNWP. Attrition factors were adjusted with assistance of CONAD representatives and were based upon the following parameters:

a. [redacted]

b. BMEWS warning available (15 minutes).

c. Soviet bomber attack is spread over three - four hours in [redacted]

d. Attrition in NW US is based on at least 80 percent of the Soviet bomber force employed against hard missile sites or targets short of Ellsworth Air Force Base.

e. Air defense suppression attacks were given a 90 percent probability of target destruction.

f. Heavy bomber combat attrition is generally lower than medium bombers due to longer low altitude profile.

g. Combat attrition against bombers attacking hard missiles in NW US is low due to limited time bomber force remains in air defense contiguous cover.

h. Combat attrition on "other" targets is higher due to larger air defense forces and smaller bomber force considered.

1. An ECM degradation factor of 25 percent was considered.

j. Factors are based on extensive wargames of programmed forces conducted by NORAD and represent average situations.

k. Suppression factors are based on 20-35 targets in NW US and 50 targets in other areas as listed by type.

l. Terminal defenses have not been considered in this model.

2. The chart below depicts attrition factors in Soviet initiation which were based on Soviet suppression of US air defenses. In Soviet retaliation to [redacted] the factors reflect the inability of the USSR to conduct any defense suppression with her limited surviving forces; additionally, the US defense forces are fully generated in [redacted]

DEFENSE ATTRITION OF SOVIET BOMBERS

WAR CONDITION	TARGETS IN NORTHWEST US	TARGETS ELSEWHERE
Soviet Initiation		
Medium	.10	.25
Heavy	.10	.20
[redacted]		
Medium	.43	.85
Heavy	.35	.75

TAB B TO APPENDIX B

NIKE-HERCULES DEFENSE SYSTEM MODEL

1. The NIKE-HERCULES is the only terminal air defense system deployed in the earlier period (1969) of JSOP-70. By FY 1969, it is deployed at 24 of the 47 major metropolitan complexes listed in the 1974 force model, plus two intermediate-size complexes for which HAWK is proposed in 1974.

2. For the purposes of this analysis, the system is credited by FY 1969 with improvements that will provide some capability against low altitude (approximately 1000 feet) bombers and submarine-launched cruise missiles.

3. Operational factors employed are as follows:

TYPE TARGET	PROBABILITY OF DETECTION AND ACQUISITION	ALLOWED INTERCEPTS PER BATTERY
Bombers	.90	3-4
Bombers (low altitude)	.50	1
SSN-3	.50	1
AS-3	.90	4
AS-4	.90	1

On-launch reliability - .95
In-flight reliability - .86
Terminal kill probability - .99

TAB C TO APPENDIX B

ANTISUBMARINE WARFARE ATTRITION MODEL

1. Naval ASW forces employed in JSOP-70 were the same as those FY 1969 forces provided by the Navy for CONUS defense in the AGNWP study. Eighty-five percent of the Soviet missile launching submarines were assumed to be at sea, of which eight ballistic missile nuclear submarines were considered to be "on-station" in international waters off the US coasts. These "on-station" submarines were committed to the attack of SAC bomber bases, and all other threat and war gaming assumptions used in the AGNWP ASW interactions were employed for JSOP-70. Improvements in Soviet submarine operation between 1969 and 1974 were assumed countered by increased US capability in ASW warfare.

2. Based on the above, ASW attrition factors employed against the 1969 and 1974 Soviet submarine threat were:

WAR CONDITION	ON-STATION SUBMARINES	FOLLOW-ON SUBMARINES
Soviet Initiation	.13	.25
[redacted]	.72	.75

TOP SECRET

TAB D TO APPENDIX B

HIP/HAWK SYSTEM MODEL

1. The HIP/HAWK air defense system was not exercised in AGNWP nor in the early (1969) time frame of JSOP-70. For FY 1974, the Army proposes to redeploy the HIP/HAWK forces, now overseas, in defense of CONUS as they are replaced with SAM-D. For FY 1974 force interactions, the proposed CONUS deployment of HIP/HAWK encompasses 179 intermediate-size complexes containing 15.7 percent of the total national population.

2. Operational factors employed in action against bombers, submarine-launched cruise missiles, and air-to-surface missiles are tabulated below:

Detection probability (urban defense)	-.95
Reliability	
On-launch	-.95
In-flight (includes terminal kill probability)	-.85

Assumes up to three missiles launched per target per fire unit.

TOP SECRET

TAB E TO APPENDIX B

ADVANCED MANNED INTERCEPTOR MODEL

1. For purposes of evaluating area bomber defense capabilities in the 1974 period, the USAF advised that the factors and kill probabilities used in the AGNWP for the F-12 (IMI) were appropriate for use in JSOP-70. This AGNWP model was identical with that used in the USAF Continental Air Defense Study (CADS) 1963.

2. Employing the AGNWP study operational concept, factors, and tables, the proposed F-12 force of 144 inventory aircraft destroys about 98 percent of the bomber threat in a Soviet initiated attack, while damage expectancy on US air defense facilities was 84 percent. Up to three sorties per alert aircraft were assumed possible for those aircraft not aborting. [redacted] or in other cases of no defense suppression, this force destroys essentially all of the bomber threat.

3. This model does not include consideration of the Century series aircraft. It is assumed that these aircraft would be deployed in such a manner as to provide concentration or to fill gaps in the air defense.

TAB F TO APPENDIX B

NIKE-X SYSTEM MODEL

1. The JSOP-70 NIKE-X deployment provided by the Army (with some adjustments in the SPRINT inventory) defends 47 complexes, deploying 17 Multi-function Array Radars (MAR), 160 Missile Site Radars (MSR), 14,152 SPRINT and 490 ZEUS Interceptors. These complexes are listed, following paragraph 3.

2. The NIKE-X performance data are classified BRIEF ECHO and are contained in Volume III of the AGNWP study.

3. Methodology for attack of NIKE-X defended cities is the same as that described in Appendix D of AGNWP.

47 COMPLEX NIKE-X DEPLOYMENT

COMPLEX	NO. DGZ[a]	NO. MAR	NO. MSR	MISSILE INVENTORY ZEUS	MISSILE INVENTORY SPRINT
New York	17	2	18	100	2,400
Chicago	11	1	8	50	1,250
Los Angeles	8	1	11	60	940
Phila/Camden	6	1	5	40	675
Detroit	10	1	4	40	750
San Francisco	5	1	6	40	344
Boston	8	1	4	20	380
St. Louis	4	1	2	20	356
Washington, D. C.	6	1	2	20	160
Pittsburgh	6	1	2	20	388
Cleveland	6	1	2	20	380
Baltimore	1	1	2	20	283

47 COMPLEX NIKE-X DEPLOYMENT (Cont'd)

COMPLEX	NO. DGZ[a/]	NO. MAR	NO. MSR	MISSILE INVENTORY ZEUS	MISSILE INVENTORY SPRINT
Minn./St. Paul	5	1	2	10	189
Milwaukee	3	1	1	10	230
Buffalo/Niagara	3	1	1	10	248
Cincinnati	4	1	2	10	219
Dallas	5	0	3	0	160
Kansas City	4	0	2	0	160
Seattle	3	0	3	0	160
Houston	5	0	3	0	160
Atlanta	2	0	3	0	160
San Diego	3	0	3	0	160
Miami	3	0	3	0	160
Providence	2	0	3	0	160
Norfolk/Newport News/ Portsmouth	3	0	3	0	160
Dayton	1	0	3	0	160
Ft. Worth	2	0	3	0	160
New Orleans	2	0	3	0	160
Denver	2	0	2	0	160
San Jose	3	0	3	0	160
Portland	1	0	3	0	160
Indianapolis	3	0	3	0	160
Tampa/St. Pete	2	0	3	0	160
Columbus	3	0	3	0	160
Louisville	1	0	3	0	160
Memphis	3	0	2	0	160
Springfield, Mass.	2	0	3	0	160
Birmingham	1	0	3	0	160
Rochester	1	0	3	0	160
Albany	3	0	3	0	160

47 COMPLEX NIKE-X DEPLOYMENT (Cont'd)

COMPLEX	NO. DGZ[a]	NO. MAR	NO. MSR	MISSILE INVENTORY ZEUS	MISSILE INVENTORY SPRINT
Youngstown	1	0	3	0	160
Toledo	1	0	3	0	160
Sacramento	2	0	3	0	160
Akron	1	0	3	0	160
Syracuse	1	0	3	0	160
Grand Rapids	1	0	2	0	160
Peoria	1	0	2	0	160

a/ DGZs indicated contain 100,000 or more people

TAB G TO APPENDIX B

SAM D SYSTEM MODEL

1. The SAM D terminal defense system is deployed with and complements a ballistic missile defense system at 47 complexes for JSOP-70. It replaces NIKE-HERCULES in 24 of the 47 ABM defended complexes.

2. Operational factors employed are as follows:

Detection probability	- .92	
Ready rate	- .96	
Reliability		
On-launch	- .99	
In-flight	- .93	
Terminal kill	- .999 against air supported tgts	
	.95 against ballistic re-entry vehicles and AS-4	
Reprogrammable		

TAB H TO APPENDIX B

AIRBORNE WARNING AND CONTROL MODEL (AWACS)

1. The AWACS used in the CADS and ANGWP studies was considered in this analysis. This system was assumed to provide survivable, self-contained radar surveillance, battle management and weapons control.

2. The F-12 was considered less dependent upon an effective control system than current interceptors. However, under conditions of heavy defense suppression by the enemy, the AWACS permitted optimum deployment of the interceptor force through its capability to substitute for ground-based radar.

3. The AWACs aircraft were "flushed" on BMEWS warning, and provided warning and control of the bomber defenses.

TAB I TO APPENDIX B

CIVIL DEFENSE POSTURE MODEL

1. Three US Civil Defense Postures were considered in JSOP-70. These provide increasing levels of fallout protection and were derived from the Civil Defense Study Project IV A, Annex A. Blast shelter protection was not considered for JSOP-70.

2. Shelter programs are based upon radiation protection factors and cumulative radiation dosage over a 10-month period. The protection factor is the factor by which the fallout radiation intensity at the surface is attenuated or reduced in the process of penetrating to a specified personnel shelter; e.g., an ordinary house basement provides a protection factor of ten and a person in a basement would receive one tenth of the radiation dosage he would absorb in the open.

3. Shelter Posture 1 reflects no special shelter program and an unprepared population which obtains shelter by use of basements, buildings without basements, and any other available cover.

4. Shelter Posture 2 provides for 90 million fallout shelter spaces marked and stocked for two weeks occupancy. Eighty-two million persons are sheltered, reflecting assumptions of shelter use, and variations in protection factor.

5. Shelter Posture 3 considers a complete fallout shelter program of 240 million marked and stocked spaces for two weeks occupancy, which would provide shelter for the projected 1971 population of 210 million people. Ten percent

of the people are assumed to occupy shelters as in Posture 1 above. The remaining 90 percent would occupy shelters as shown for Posture 3 in the figure that follows.

6. For an unprepared population as in Posture 1; i.e., no special shelter program existing, persons were assumed to stay in dwellings continuously for three days followed by normal exposure. For a prepared population, the stay in home basements was extended up to two weeks. Marked but not stocked, shelters were occupied continuously for three days followed by controlled exposure living through the second week following attack. Persons in stocked shelters were assumed to stay in them continuously for 14 days followed by controlled exposure living for 46 days and normal living thereafter. In Posture 3, where the total number of shelter spaces available exceeded the total population, it was assumed that 10 percent of the population would not avail themselves of shelter.

CIVIL DEFENSE POSTURES
DISTRIBUTION (PERCENT) OF POPULATION BY TYPE OF SHELTER

POSTURE	FALLOUT PROTECTION FACTORS 2	10	40-90	100+	COST
1. No Special Shelter Program (Posture 1)	48	47	2	3	
2. 90 M Spaces (Posture 2)	34	27	14	25	107.5 M
3. 240 M Spaces (Posture 3)	5	5	32	58	5.2 B

APPENDIX C

SOVIET BLOC STRATEGIC OFFENSIVE FORCES AND TARGET LISTS

1. Table C-1 below lists the Soviet Strategic Offensive Forces (Median) used in JSOP-70 in comparison with those employed in the AGNWP study.

2. Soviet SS-7 and SS-9 multiple warhead/decoy configurations used for attack of the United States ABM system are described in Table C-2. These were provided by the Director, Defense Research and Engineering.

3. Operational factors for Soviet missile systems are tabulated in Table C-2. This table also includes a description of the Soviet ABM Model. Soviet Strategic Bomber inventory, loading, and operational factors are contained in Table C-3.

4. The above Soviet force estimates and operational factors were derived from information provided in the current Joint Intelligence Estimate for Planning. The bomber threat against the United States has been maximized. Additionally, one-half of the Soviet submarine cruise missile force was programmed against US urban targets. Defense Intelligence Agency provided the Soviet ABM Model.

5. The Soviet [redacted] Target Lists are compared with those used in AGNWP and tabulated in Tables C-4 and C-5.

TABLE C-1

SOVIET STRATEGIC OFFENSIVE FORCES 1/
JIEP

DELIVERY VEHICLE	1969	1974	AGNWP (1971)
ICBM Launchers			
SS-7/8	136	136	124
SS-7/8	48	48	114
SS-9	--	--	76
SS-9/10	193	193	99
SS-Large	15	15	38
SS-Small	107	163	75
TOTAL	499	555	526
Tyuratam Launchers	35	35	30
IR/MRBM Launchers			
SS 4/5	616	616	480
SS 4/5	144	144	261
TOTAL	760	760	741
Submarines/Missiles			
SSBN	55/203	56/253	
SSN3	24/140	25/148	
TOTAL (Against CONUS)	79/343	81/401	96/439
Bombers a/			
BEAR	90	47	63
BISON	80 (43)	55 (42)	70 (47)
BLINDER	250	250	275
BADGER	256 (128)	(115)	50 (50)
TOTAL	676	467	458

1/ See Air Force view, TAB C, APPENDIX E.
a/ Includes aerial refuelers as shown in parentheses.

TABLE C-2

SOVIET MISSILE SYSTEMS AND OPERATIONAL FACTORS (JSOP-70)

System	Force Alert or at Sea	OL REL	Reprogram Ratio a/	Inflt REL
SS 7/8	.80	.85	$\frac{1}{ARxOL}$	.90
SS 9/10	.80	.85	$\frac{1}{ARxOL}$	.90
SS Small	.90	.90 c/	$\frac{1}{ARxOL}$	.85 c/
SS Large	.85	.85 c/	$\frac{1}{AR}$	.85 c/
SSN-3	.85	.80	a/	.85
SSN-4	.85	.80	a/	.80
SSN-5	.85	.80	a/	.80
AS-3	--	.80	--	.70
AS-4	--	.80	--	.70

b(1) [redacted] DOE b13

SOVIET ABM MODEL — 4 cities in FY 1970 — 18 cities in FY 1974

1. Deployment

   90 launchers at Moscow and Leningrad

   60 launchers at all other defended cities

2. Inventory

   Four per launcher at any one time

3. Discrimination Capability

   0.65 warheads from decoys

4. Reliability

   Ready rate - .9

   On-launch - .9

   In-flight - .8

5. SSKP - 0.55

6. Reprogramming Capability - none. (Assumed two interceptors employed against each arriving warhead.)

a/ Sub-launched ballistic missiles at sea will be assumed reprogrammable for OL reliability if there are six or more missiles per unit.

b(1) b/ [redacted] DOE b13

c/ Postulated by DIA.

[redacted]

TABLE C-3

SOVIET STRATEGIC BOMBER INVENTORY AND OPERATIONAL FACTORS

Aircraft	Ref	Staging*	Mission	1969 Med	1969 Hi	1974 Med	Range N.M.	Ready Rate	A/C Rel
BEAR A	No	No	1 or 2-way	17	20	None	8800	.90	.90
BEAR B	No	No	1-way	30	35	5	7250	.90	.90
	Yes	No	2-way	20	20	32	5200	.90	.85
BEAR C	Yes	No	2-way	23	25	10	5200	.90	.85
BISON (BOMBER)	No	No	1-way	37	45	13	5700	.90	.90
BISON (TANKER)	-- No	No	--	43	45	42	--	-	-
BADGER (BOMBER)	Yes	Yes	1-way	128	150	None	4500	.90	.77
BADGER (TANKER)	---	Yes	---	128	150	115	--		
BLINDER A	No	Yes	1-way	135	150	135	3625a/	.90	.81
BLINDER B	No	Yes	1-way	115	150	115	2875b/	.90	.81

NOTE
Staging capacities as per Table 3[illegible] (winter months)

a/ Subsonic mission. With 200 nm supersonic dash, range is 3000nm

b/ Includes Sub-SOVIC Profile, Plus 275, nm AS-4 Range

[redacted]

THIS PAGE
WAS
DENIED IN
FULL

THIS PAGE
WAS
DENIED IN
FULL

APPENDIX D

WEAPON APPLICATION SUMMARIES

1. Tables D-1 through D-5 depict the allocation and application of ready weapons in selected force interactions, with associated damage expectancies. Damage expectancies have been calculated on the basis of achieving severe damage to the target system. Missile damage expectancy is that expectancy of severe damage achieved by only the ICBM/SLBM attack; total damage expectancy is that resulting from application of both missile and bomber-delivered weapons. Weapons assignment is expressed in terms of ready weapons programmed - not inventory weapons. The non-alert portion of the force, which is significant, may be depended upon to penetrate to programmed target areas. The following tables include, as appropriate, the numbers of non-alert vehicles which survive attacks and which could be programmed against non-time-sensitive targets.

2. The Soviet military attack has been held constant in all variations of FY 1974 Soviet Initiation except that TITAN II is not attacked in cases involving a US ABM in the defensive force mix. As described in paragraph 5, the actual application of Soviet weapons to urban complexes has been varied to optimize the attack against each US FY 1974 defensive mix in order to maximize damage and fatalities.

TOP SECRET

3. It is recognized that the results of this analysis, as well as others considered, are sensitive to the targeting concepts assumed. Changes in employment concepts could cause variations in the relative utility of the systems examined; however, the generalization that a proper mix of damage limiting is required would remain valid despite these changes. The weapons application summaries which follow represent illustrative examples for the particular situations examined in this analysis.

THIS PAGE
WAS
DENIED IN
FULL

THIS PAGE
WAS
DENIED IN
FULL

THIS PAGE
WAS
DENIED IN
FULL

THIS PAGE
WAS
DENIED IN
FULL

THIS PAGE
WAS
DENIED IN
FULL

APPENDIX E

PART VI, JSOP-70

FYFS & FP TABLES

TABLE 4 - STRATEGIC RETALIATORY FORCES

TABLE 5 - CONTINENTAL AIR & MISSILE DEFENSE FORCES

TAB A - Views of the Chief of Staff, Army

TAB B - Views of the Chief of Naval Operations

TAB C - Views of the Chief of Staff, Air Force

TAB D - Views of the Commandant of the Marine Corps

The Force Tables which follow contain force levels approved by the Secretary of Defense in the Department of Defense Five Year Force Structure and Financial Program (FYFS&FP) and those recommended by the Joint Chiefs of Staff through FY 1974.

APPENDIX E, SECTION A, PART VI, JSOP-70

FORCE TABS

TABLE 4 - STRATEGIC RETALIATORY FORCES
(End of Fiscal Year)

	65	66	67	68	69	70	71	72	73	74
BOMBERS										
B-52										
Appd	630	600	600	600	600	600				
JCS	630	600	600	600	600[a]	600	600	600	585	495
B-EB-47										
Appd	225	0								
JCS	225	0								
B-58										
Appd	80	80	78	76	74	72				
JCS	80	80	78	76	74	72	70	68	66	64
AMSA*										
Appd										
JCS								0	8[b]	39
AIR LAUNCHED MISSILES										
HOUND DOG										
Appd	560	540	540	540	520	520				
JCS	560	540	540	540	520	520	520	520	520[c]	520
SURFACE-TO-SURFACE MISSILES										
TITAN										
Appd	54	54	54	54	54	54				
JCS	54	54	54	54	54	54	54	54	54[d]	54

* Recommended new line item.

~~TOP SECRET~~

TABLE 4 - STRATEGIC RATALIATORY FORCES
(End of Fiscal Year)

	65	66	67	68	69	70	71	72	73	74
MINUTEMAN I										
Appd	800	800	700	550	400	250				
JCS	800	800	700	550	400	250	100	0		
MINUTEMAN II										
Appd	0	80	300	450	600	750				
JCS	0	80	300	450	700	950	1100	1200	1200[d]/1200	
POLARIS										
Appd	464	512	656	656	656	656				
JCS	464	512	656	656	656	656	656	656[g]/656	656	
[redacted]										
QUAIL										
Appd	392	390	390	390	390	390				
JCS	392	390	390	390	390	390	390	390	390[c]/390	
KC-135										
Appd	620	620	620	620	620	620				
JCS	620	620	620	620	620	620	620[c]/620	620	620	
KC-97										
Appd	120	0								
JCS	120	0								

TABLE 4 - STRATEGIC RETALIATORY FORCES
(End of Fiscal Year)

	65	66	67	68	69	70	71	72	73	74
RB-47										
Appd	30	17	3	3	3	3				
JCS	30	17	3	3	3	3	3	3	3	3
RC-135										
Appd	0	0	10	10	10	10				
JCS	0	0	10	10	10	10	10	10	10	10
SR-71										
Appd	2	14	25	25	25	25				
JCS	2	14	25	34 h/	34	34	34	34	34	34
PACCS										
KC-135										
Appd	24	24	24	24	24	24				
JCS	24	24	24	24	24	24	24	24	24	24

FOOTNOTES - TABLE 4, APPENDIX E

a/ The extent of phase-down in this and succeeding years is contingent on structural life of the B-52, the missile force level and effectiveness, and phase-in of a new manned strategic aircraft. Favorable decision on the 1200 MINUTEMAN force level and/or the introduction of a new manned strategic aircraft will be reflected in reduced numbers of B-52s which the JCS will recommend for retention in the force structure. Forces shown are for planning purposes in related systems.

b/ Recommend approval of PDP; recommendation regarding the decision for full-scale weapons system development deferred pending review of PDP and other manned bomber alternatives. Forces depicted are for planning purposes in related systems.

c/ The extent of the phase-down for this and succeeding years contingent on the B-52 force levels.

d/ Based upon the estimated shelf life of MINUTEMAN II, replacement missiles will be required beginning in 1973. Force levels of MINUTEMAN II and TITAN may be reduced; dependent upon introduction of a MINUTEMAN III anticipated by the CSAF in 1973.

e/ POSEIDON anticipated to become available in 1971-1972 period.

f/ The force levels for these forces have not been addressed by the JCS due to the political uncertainties involved. When the political issues have been resolved, the JCS will address the relationship of these forces to the total force requirement.

g/ Phase-down can be determined only after full consideration of over-all air refueling requirements for manned aircraft.

h/ An increase in force levels above 34 may be required when more definitive information is available concerning requirements, capabilities, and reconnaissance developments in other systems. These data will be provided separately.

~~TOP SECRET~~

APPENDIX E, SECTION A, PART VI, JSOP-70

FORCE TABS

TABLE 5 - CONTINENTAL AIR AND MISSILE DEFENSE FORCES
(End of Fiscal Year)

	65	66	67	68	69	70	71	72	73	74
AIR DEFENSE										
Manned Interceptor-Air Force										
F-101										
Appd	282	276	276	204	114	108				
CSA	270	270	264	204	114	108	a/			
CNO, CSAF, CMC	270	270	264	258	252	240	216a/	180	126	126
F-102										
Appd	235	111	0							
JCS	235	111	0							
F-104										
Appd	36	36	36	24	24	24				
JCS	36	36	60b/	60	50	42	42	24a/	0	
F-106										
Appd	234	228	216	210	204	198				
JCS	234	228	216	210	198	198	180a/	180	126	126
F-12*										
Appd	0	0	0	0	0	0				
CSA, CNO, CMC					c/					
CSAF					18c/	54	108	162	216	216
Air National Guard										
F-89										
Appd	225	125	0							
JCS	225	125	0							

* Recommended new line item

~~TOP SECRET~~

TABLE 5 - CONTINENTAL AIR AND MISSILE DEFENSE FORCES
(End of Fiscal Year)

	65	66	67	68	69	70	71	72	73	74
F-102										
Appd	234	306	396	396	396	396				
JCS	234	324	396	396	396	396	360[a]	324	252	252
SAM MISSILE FORCES (Btys/Msls)										
BOMARC										
Appd	180	174	168	162	156	150				
JCS	180	174	168	162	51[d]					
NIKE HERCULES										
Appd	1548	1548	1548	1548	1504	1397				
	86	86	86	86	86	86	78[e]	60	18	0
JCS	1548	1548	1548	1548	1504	1397	1285	1080	324	0
HAWK (Reg)										
Appd	576	576	576	576	576	560				
	8	8	8	8	8	8	8	8	8	8
JCS	576	576	576	576	576	576	576	576	576	576
NIKE HERCULES (ARNG)										
Appd	936	936	936	936	909	832				
	54	54	54	54	54	54	54	35[e]	12	6
JCS	936	936	936	936	909	909	760	630	216	72
NIKE X*										
Appd										
CSA, CMC					0	244[f]	2256	5403	7192	3560
CNO					0	244[f]				
CSAF					0	[f]				

* Recommended new line item

~~TOP SECRET~~

TABLE 5 - CONTINENTAL AIR AND MISSILE DEFENSE FORCES
(End of Fiscal Year)

	65	66	67	68	69	70	71	72	73	74
Defense Complex (NIKE X)*										
Appd										
CSA, CMC					0	1 f/	8	17	29	36
CNO						1 f/				
CSAF					0	f/				
SAM D*										
Appd								22	34	51
JCS						0	g/	1056	1632	2448
HAWK (ARNG)*										
Appd						0				
JCS						0	h/	6 216	42 1512	82 2952
CONTROL & SURVEILLANCE SYSTEMS										
CONTROL SYSTEMS										
Combat Centers										
Appd	7	5	5	5	5	5				
JCS	6	4	4	4	4	4	4	4	4	4
Direction Centers										
Appd	15	13	13	11	11	11				
JCS	15	13	13	11	11	11	11	11	11	11
BUIC Centers										
Appd	0	14	14	15	19	19				
JCS	0	14	15	15	20	20	20	20	20	20
SAM Fire Coordination Centers										
Appd	24	24	28	28	28	28				
JCS	24	24	28	28	28	28	28	28	28	28

* Recommended new line item

TABLE 5 - CONTINENTAL AIR AND MISSILE DEFENSE FORCES
(End of Fiscal Year)

	65	66	67	68	69	70	71	72	73	74
Surveillance and Warning Systems										
Search Radars										
Appd	162	158	152	152	152	152				
JCS	162	158	152	152	152	152	152	152	152	152
Search Radar (ANG)										
Appd	6	6	6	6	6	6				
JCS	2	2	2	2	2	2	2	2	2	2
Height Radars										
Appd	278	270	258	258	258	258				
JCS	278	270	258	258	258	258	258	258	258	258
Gap Filler Radars										
Appd	92	92	92	92	92	92				
JCS	92	92	92	92	92	92	92	92	92	92
DEW Radar Stations										
Appd	39	39	39	39	39	39				
JCS[1/]	39	39	39	39	39	39	39	39	39	39
DEW Extension Systems (Aircraft)										
Appd	20	0								
JCS	20	0								
Offshore Radars										
AEW/ALRI Aircraft										
Appd	67	67	67	67	67	67				
JCS	65	65	65	65	65	32[1/]	15	0		

~~TOP SECRET~~

TABLE 5 - CONTINENTAL AIR AND MISSILE DEFENSE FORCES
(End of Fiscal Year)

	65	66	67	68	69	70	71	72	73	74
Ships										
Appd	19	0								
JCS	19	0								
AWAC*										
Appd						0				
CSA, CNO, CMC					0	i/				
CSAF					0	10	31	42j/	42	42
MISSILE & SPACE DEFENSE										
ANTI-SATELLITE SYSTEMS										
Program 437										
Appd	4	4	4	4	4	4				
JCS	4	4	4	4	4	4	4	4	4	4
Program 505										
Appd	4	4	4	4	4	4				
JCS	4	4	4	4	4	4	4	4	4	4
Surveillance & Warning Systems										
BMEWS Sites										
(474L)										
Appd	3	3	3	3	3	3				
JCS	3	3	3	3	3	3	3	3	3	3
SLBM Radar Sites										
(SAGE)										
Appd										
JCSk/										
SPASUR Transmitter/Receiver										
Appd	3/6	4/7	4/7	4/7	4/7	4/7				
JCS	3/6	4/7	4/7	4/7	4/7	4/7	4/7	4/7	4/7	4/7

* Recommended new line item

TABLE 5 - CONTINENTAL AIR AND MISSILE DEFENSE FORCES
(End of Fiscal Year)

	65	66	67	68	69	70	71	72	73	74
Space Track Radars										
Appd	5	5	5	5	5	5				
CSA, CNO, CMC	4	4	5	5	5	5[1]				
CSAF	4	4	5	5	5	7[1]	7	7	7	7
SOUND SURVEILLANCE SYSTEM (SOSUS)										
ATL Caesar Arrays										
Appd	20	23	26	27	27	27				
CSA, CNO, CMC	20	23	26	27	31[m]	31	31	31	31	31
CSAF	20	23	26	27	27[m]					
PAC Caesar Arrays										
Appd	7	7	8	8	8	8				
CSA, CNO, CMC	7	7	8	8	8	11[m]	15	18	21	21
CSAF	7	7	8	8	8	8[m]				
COLOSSUS I										
Appd	1	2	3	3	3	3				
JCS	0	1	2	3	3	3	3	3	3	3

FOOTNOTES - TABLE 5, APPENDIX E

a/ The JCS, less CSAF, consider that a phase-down is dependent on the phase-in of a follow-on manned interceptor, the type and number of follow-on manned interceptors deployed and the determination of the optimum mix of SAMs and manned interceptors. CSAF considers that the phase-down for FY 1971 and succeeding years is for planning purposes and was computed by the Air Force on the basis of phase-in of 216 F-12s.

b/ Force increase pending availability of F-104 C&D aircraft from Program III.

c/ The JCS support the requirement for a follow-on manned interceptor. CSAF recommends the F-12 as the appropriate aircraft for deployment. CSA, CNO and CMC consider that an option for the F-12 should be retained but, based on the estimated threat, the decision for production and deployment of either the F-12 or F-111 can be deferred. (See views Tabs A, B and D).

d/ The JCS consider that the phase-down is dependent on phase-in of a follow-on manned interceptor.

e/ The JCS consider that a phase-down is dependent on the phase-in of improved SAMs and the determination of the optimum mix of SAMs and manned interceptors.

f/ The JCS, less CSAF, support the development and deployment of NIKE-X; they defer decision on scope of deployment pending determination of a specific deployment configuration; they consider that required funding should be provided in the FY 1967 budget to insure IOC in FY 1970 and, accordingly, force levels beyond IOC are for planning purposes. CSAF believes that the required funding should be provided in FY 1967 budget to prevent slippage of IOC; final decision for production should be subject to JCS review of NIKE X development and testing progress, and determination of specific deployment concept.

g/ Funds should be provided in the FY 1967 budget to permit an uninterrupted development cycle for the SAM D system; decisions regarding full scale weapon system development, production and deployment of SAM D should be subject to JCS review upon completion of advanced development and studies currently underway. Forces shown are for planning purposes in related systems.

h/ Scope of deployment for this and succeeding years will depend on the development, production, and deployment of improved SAMs. Source of HAWK (ARNG) from Program III dependent on phase-in of SAM D to field army.

i/ The JCS consider that a phase-down in this sytem is contingent on the phase-in of new surveillance, warning and control systems.

j/ JCS recommend continued development. CSAF believes this force level will be required to provide adequate radar surveillance and control coverage of the Continental US regardless of the force level or type of interceptors deployed during this time period. CSA, CNO, and CMC defer decision on deployment pending program evaluation.

FOOTNOTES

k/ JCS comments will be provided upon review of program.

l/ JCS comments will be provided upon review of program. CSAF believes this level contingent upon current development programs on radar positioning and identification of space objects with interferometer radars.

m/ Reflects Phase II SOSUS; however, CSAF reserves judgment on increases in the SOSUS system pending review of a program to assure effectiveness and survivability of the system.

TAB A

APPENDIX E

SECTION A , PART VI, JSOP-70

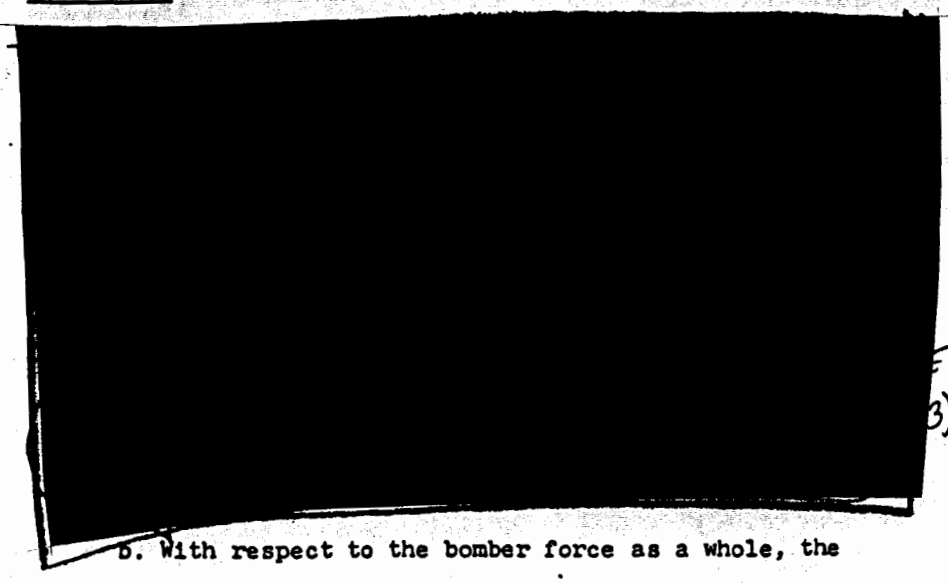
VIEWS OF THE CHIEF OF STAFF, US ARMY

1. General. I fully endorse and desire to emphasize my support of the early attainment of a balanced damage-limiting capability. If the Soviets were to initiate an all-out attack on this country now or in 1970, however irrational that might be and however disastrous for themselves in turn, our armed forces with currently programmed systems could not assure the survival of the nation. A balanced program to rectify this situation must include powerful and effective offensive forces, improved area and terminal bomber defenses, improved ASW forces, an expanded civil defense effort and, particularly, the achievement of a defense against ballistic missiles. Since the analysis in Section A, Part VI of JSOP-70 supports such a program, the Army is basically in agreement with it. My divergent views on certain aspects of the paper, however, are expressed hereafter, as well as my over-all views on specific systems.

2. Offensive Forces

[redacted]

* Page A-15, [redacted] Page A-93, Table C-5; and Tables D-2, D-4 and D-5 on pages A-97, A-99 and A-100 respectively.



b. With respect to the bomber force as a whole, the Army opinion is that the requirement for bombers decreases as the missile force builds up to full strength.

(1) While there remains a requirement for the foreseeable future for a mix of missiles and manned bombers, that mix should become more heavily weighted toward missiles with their survivability and quick reaction.

(2) The B-52 fleet should be maintained generally for the fully operational life of the aircraft without further modification beyond what is now approved, subject to determinations with respect to the B-52/SRAM system.

(3) The B-58s do not appear to offer any considerable advantage over B-52s when stationed in the CONUS. As a relatively small and expensive system, their future should be based on the decisions on studies currently underway regarding possible reflex deployments.

(4) No recommendation or decision on a follow-on manned bomber need be made at this time, but study and development should proceed on the various possible alternative systems.

c. The missile targeting tables* present requirements for US strategic missiles in terms of inventory weapons, with the final implication that the recommended missile force is inadequate to cover the necessary targets. Two possible areas of misconception are associated with this.

(1) First, this method of presentation, translating directly from alert to inventory missiles, overlooks the contribution of the non-alert increment of the force, which is significant. Non-alert missiles can be depended upon to survive, in large part, initial Soviet attacks and penetrate to target areas. Therefore, they can be programmed with assurance against

b(1) [redacted] targets.

(2) Second, these tables exemplify the extreme sensitivity of analytic methods to the assumed operational input factors. In this analysis, alert rates for MINUTEMAN I and II were assumed to be 85% and 90% respectively. The current alert rate for our present-day MINUTEMAN force, on the other hand, is about 98%. Changing this factor alone, on the premise that alert rates achievable today should at least be able to be equalled if not surpassed in coming years, would give us about a hundred more MINUTEMAN on alert. This, by itself, when properly factored in to the

* Page A-24, Table [redacted] and Page A-26, Table, Summary of Missile Targeting.

computations on which these tables are based, would eliminate the apparent deficiency for FY 1969. When combined with the expressed Army view that [redacted] in US retaliation, the apparent deficiency for FY 1974 is also overcome.

d. Although not founded entirely on this or any other single analysis, the Army's over-all view of US strategic missiles is that our recommended force level, which includes 1200 MINUTEMAN, is adequate but not excessive. Two possible developments bear on this matter.

(1) One is the potential capability of a MIRV system. Although this could unquestionably improve the effectiveness of our strategic missiles, it is too remote at this time to influence force requirements. Further, if feasible for us, it could well be balanced off by a concurrent Soviet MIRV development.

(2) The other is the possible deployment of a multilateral or multi-national force within NATO. Although, at this time, too involved with political uncertainties to change recommendations for missile forces, such a development is possible. If an effective NATO missile force should come into existence, it should be in lieu of and not in addition to US strategic missile forces for attack of a part of the nuclear threat targets which imperil Europe but which could not reach the United States.

TOP SECRET

3. Defensive Forces

a. Associated with the nuclear offensive forces are the continental missile and air defense forces, designed to protect the United States against direct attacks. Currently the United States has no protection against Soviet ICBMs or SLBMs, once launched, and only a moderate defense against Soviet aircraft and cruise missiles. Moreover, the current US interceptor force is highly vulnerable to defense suppression attacks by Soviet missiles. The limited capability and high vulnerability of the current interceptor force leads to the conclusion that it should be reduced to the programmed level. As a result the recommendation* of the JSOP-70 analysis to retain current interceptors essentially at present levels is not supported.

b. Follow-on Manned Interceptor**

(1) In view of the deficiencies of the current interceptor force, there should be developed a follow-on interceptor to provide area bomber defense complementing the terminal bomber defenses. The Army considers that an option on the F-12, for the role of follow-on manned interceptor as a part of a balanced damage limiting force, should be retained. However, based on the estimated threat, and on the earliest attainable date of a balanced damage-limiting posture, the decision for production and deployment of either the F-12 or the F-111 can be deferred. It is considered that studies now in progress as well as

* Page A-67, line 13 Current Manned Interceptors
** Page A-67, line 18, Advanced Manned Interceptor and Page A-105, F-12

~~TOP SECRET~~

continuing system developments and possible further intelligence will form a better basis for later recommendation on which of the competing systems is preferred.

(2) One point should be made clear in considering my support of a follow-on manned interceptor. This support is based on the need for a balanced defensive posture. At this time there is no active defense against the Soviet ballistic missile threat. Until such time as that defense is also programmed, the inclusion of a follow-on interceptor in the bomber defense is not warranted, since such a defense can be overcome with ease through the use of missiles. The JSOP-70 and other analyses have shown that the damage-limiting effectiveness of forces including IMI or any other interceptor, is very restricted when ABM is not included. Consequently, my support of the deployment of any follow-on manned interceptor would be conditional on a favorable decision for deployment of NIKE X.

c. The concept of complementary defenses is important in missile defense not only with area bomber defense but also with terminal bomber defenses. To have one defense without the other permits the attacker to defeat the defense by the simple expedient of attacking with the system against which there is no effective counter. It is for this reason that Force C* should be recognized as being simply for analytic purposes. Both Force C and Force B should be compared separately to Force A as indicating the contributions of components of the balanced defensive mix, and not as realistic mixes in

* Page A-20, Table 2, Force C.

themselves. Force C added missile defenses to currently programmed forces but did not include the deployment of the complementary terminal bomber defenses at the complexes defended by NIKE-X. Since many of the fatalities in this analysis resulted from SLCMs targeted against complexes defended by NIKE-X, inclusion in Force C of SAM-D at these complexes under the conditions assumed in this analysis would have resulted in additional major reductions in fatalities and damage.

d. In this analysis the F-12 was not employed against the SLCM threat.* The mere fact that an individual F-12 could have a good kill probability against an individual SLCM does not mean that the system would be effective against the SLCM threat. In defending the United States from bomber attack, the F-12 together with its associated AWAC must be oriented for attack coming over the polar area. The SLCM attack, on the other hand, would occur from other directions, requiring that the F-12 system be reoriented or the number of F-12s increased. Further, a survivable system to provide sufficient early warning and control would have to be available along the coasts of the United States so that the F-12 could be in position in time to intercept the missile. While the F-12 could be deployed for use against the SLCM threat, the concept of such employment, its cost, and its effectiveness have not been developed for comparison with the use of terminal bomber defenses in this role.

* Page A-20, Footnote and Page A-41, line 22, F-12 vs SLCM.

e. In summary, I wish to stress again my support of the balanced defensive posture. Since the primary threat is the ballistic missile, against which there is no active defense whatever, NIKE-X is the key to attainment of such a posture. This, along with the essential improvements proposed for the other offensive and defensive systems, would ensure the survival of the United States should deterrence fail and, as a result, would strengthen our hand in dealing with aggression at any level.

TAB B

APPENDIX E

SECTION A, PART VI, JSOP-70

VIEWS OF THE CHIEF OF NAVAL OPERATIONS

1. General. The CNO is in general agreement with the level of forces stemming from the analysis of requirements. Footnotes on the force tables indicate reservations. Further explanation concerning these reservations, where appropriate, together with a discussion of associated considerations, are contained in the following sections.

2. Views on Strategic Retaliatory Forces

a. The Chief of Naval Operations views concerning force level requirements for strategic offensive forces reflect the following judgments:

(1) For the foreseeable future a "mix" of missile and aircraft forces is needed to meet assured destruction objectives and to complement other damage limiting capabilities. This reflects an appreciation for the flexibility provided by a manned aircraft force and the complicating effect that such a force has on enemy defensive planning.

(2) Within the "mix" the priority requirement for both purposes is the attainment of an adequate missile inventory. The emphasis accorded missile requirements is based on analysis of the relative value of missiles versus aircraft for assured destruction and damage limiting purposes. For assured destruction purposes, survivability is essential. In that respect missiles have a clear edge. For damage limiting purposes the critical consideration is the potential against [redacted] targets. Here also missiles have an evident superiority.

b(1)

b. An illustrative analysis was conducted in consonance with the foregoing judgments. In that analysis the operational factors in Table A-2, Appendix A were used to evaluate the following systems in a 1971 time frame:

MINUTEMAN I

MINUTEMAN II

TITAN II

POLARIS (A-2)

POLARIS (A-3)

B-52 [redacted]

(1) The above forces were weighed against the 1969 target list outlined on pages A-92 and A-93 extrapolated toward the 1974 list to provide an estimated 1971 target list. The result was an increase of 22 hard point targets (SS small, 1X1) over the 1969 quantity. The target list is a composite of USSR and [redacted]

(2) The analysis considered conditions of [redacted] and retaliation with forces generated in the former case and in a day-to-day readiness posture in the latter. In each case full account was taken of all systems considered, both alert and non-alert.

(3) On that basis the strategic offensive task would involve the attack of some [redacted] Utilizing the concept that one "on target" weapon is required for each soft DGZ and two for each hard DGZ, (the latter requirement assumes no marked improvement in missile CEPs) a requirement for 1899 (1974) "on target" missiles is indicated. An "On Target" weapon is one which arrives at DGZ subject to all planning factors. Under the conditions postulated the following "on target" weapons are available in the force described in Table A-1:

Quantity	System	On Target Weapons [redacted]	On Target Weapons Retaliation
100	MM I	74	74
1100	MM II	880	873
54	TITAN	35	35
208	POLARIS A-2	133	112
448	POLARIS A-3	309	256
	TOTAL	1431	1350

From the foregoing, it can be seen that approximately 75% (72%) of the weapon requirement [redacted] and 71% (68%) in retaliation is satisfied by the above missile inventory. The balance of the task, then, could be completed by manned aircraft systems.

(4) Computations based on the factors discussed above discloses that a B-52 force composed of [redacted] aircraft would provide the following "on target" weapons:

[redacted]

Retaliation

Consolidation of the B-52 capability with the missile force results in the following:

[redacted] Retaliation

Missiles 1431 1350

B-52 [redacted]

TOTAL "on target" [redacted]

These totals fulfill the target list requirements assumed under either [redacted] or retaliatory conditions, including an expanded [redacted]

(5) The illustrative analysis, briefly discussed above, did not consider the potential of a SOVIET ABM system, since uncertainties in that area preclude a meaningful assessment. The considerable contribution available from general purpose forces would provide a hedge against ABM developments.

c. Recommended requirements and force levels for specific weapons systems were predicated on the analysis discussed herein, proven data, and estimated performance potentials.

3. Views on Continental Air and Missile Defense Forces.

a. The CNO is in general agreement with the requirement for a balanced defensive force mix as the best means of reducing the extremely high fatalities we presently anticipated from a Soviet attack. The evolution of the Soviet ICBM and SLBM as the major threat to the United States

has outmoded the structure and composition of our defensive forces which were designed primarily to counter a now declining Soviet bomber threat. The composition of our anti-bomber forces for the JSOP-70 period is an area of uncertainty which requires resolution. The key issues are the determination of the optimum mix of surface-to-air missiles systems and manned interceptors and the requirement for, as well as the selection of, a follow-on manned interceptor.

b. While the analyses conducted within the past year have been useful in identifying the major competitive systems which could significantly improve the capability of our anti-bomber forces, they have not examined the effectiveness of various alternative mixes available for surface-to-air missiles (SAM) and manned interceptors. The JSOP-70 analysis is also considered deficient in this regard. Further analysis is required to more clearly define an optimum mix of area and terminal defensive systems against the estimated Soviet threat.

c. Additional views on defensive forces follow:

(1) F-111 and F-12. The comments relating to the comparison of the F-12 and F-111 on page A-59 fail to indicate the longer endurance of the F-111, the equal missile carrying capability of both aircraft when missiles are carried externally, the ability of the F-111 to operate from a larger number of airfields, and finally, the fact that a greater number of F-111 could be procured for a fixed price. The effectiveness of the F-12 is dependent upon a high sortie rate (which is in turn dependent upon availability of rearming bases) during the course of the air battle and upon the optimal performance of an AWAC system which is currently in the early stages of development. The performance attributed to the F-12 was based upon the assumption that the above conditions existed.

(a) The choice between the F-12 and F-111 as the follow-on manned interceptor is not a clear one. While the F-12 would be the preferable aircraft if the Soviets develop and deploy a long-range supersonic bomber force, the F-111 aircraft would provide an adequate area defense system against the currently estimated Soviet threat. Of interest is the fact that the comparative analyses of these two aircraft have not considered the contribution of terminal SAM systems. As a result, the over-all effectiveness of anti-bomber defenses has not been recognized.

(b) The CNO considers that the decision regarding the deployment of either the F-111 or F-12 can be deferred at this time. Since development of the F-12 and F-111 is essentially complete, additional information on their capabilities and effectiveness will be available to define more clearly the relative advantages of both systems. The declining nature of the Soviet bomber threat removes any degree of urgency associated with the selection of follow-on manned interceptor. In addition, the option for deployment of either or both aircraft can be retained as a hedge against any unforeseen Soviet long-range bomber developments.

(c) With information available on the optimum mix of SAMs and interceptors, and the actual capabilities of both the F-12 and F-111 aircraft established, better judgments can be made on the requirements for a follow-on manned interceptor within the context of a balanced anti-bomber defense force.

(2) Use of F-12 Against SLCM. Footnote a. on page A-20 ~~makes the assumption that the kill probability of the~~ F-12 against the submarine launched cruise missile (SLCM) would be similar to that for the SAM-D. While this would no doubt be true if deployment of the aircraft and supporting systems were to be optimized along the coasts,

the bomber threat would require deployments to the north, andthe same resources could not be deployed against both threats. The CNO considers that the SLCM threat in the mid-range period, which is a sub-sonic one, does not justify the development or deployment of a follow-on manned interceptor as a counter threat.

TAB C

APPENDIX E

SECTION A, PART VI, JSOP-70

VIEWS OF THE CHIEF OF STAFF, AIR FORCE

PART I - GENERAL

1. These views cover the specific footnotes which appear at the end of these comments. In general, the Chief of Staff, US Air Force, agrees with the methodology and recommendations of the JSOP-70 analysis of strategic retaliatory and continental air and missile defense forces. He believes the first military objective of strategic offensive and defensive forces is to deter or deal effectively with a direct nuclear assault against the United States. The nature of the current and projected Soviet threat dictates that these strategic offensive and defensive forces must have sufficient and capable forces in-being. The growing effectiveness of the Soviet forces provides for the consideration of a variety of options for nuclear attack against the United States, which in turn requires the United States to develop and deploy strong and flexible strategic deterrent forces which will convince the Soviets that initiation of a nuclear attack by them will result in unacceptable damage to the Soveit Union. The United States must possess forces in strategic offensive and defensive posture, with the ability to sustain a nuclear attack, minimize damage to the US and allies, and launch effective counter attacks against the aggressor. These forces must be adequate to protect and defend the United States with the assurance that we will emerge from such a conflict in a dominant position as a free and independent nation. Further, the achievement of this objective requires the United States to

~~TOP SECRET~~

attain and maintain the capability to destroy, as a matter of priority, the instruments of

b(1)

[redacted]

A credible strategic capability of this nature will act as a deterrent force, serve the purpose of limiting damage to the US and its allies in the event of general war and also will contribute to the achievement of US national and military objectives at all levels of conflict, including cold war.

2. The expressed fundamental objective of Communist leadership is the world-wide imposition of its ideals and institutions. It may be assumed the Soviets would not deliberately sacrifice their national society to this purpose; however, Soviet military policy in recent years has been to build up strategic offensive and defensive capabilities, maintain and improve large general purpose forces and pursue research and development programs in advanced weapons*. The relation of these propositions would indicate that the Communist leadership will continue to pursue its objectives and strive to improve its strategic posture vis-a-vis the United States so Soviet advancements will cause a shift in the balance of power in favor of the Communists, thus permitting wide-spread Communist inroads under the cover of strategic superiority.

3. The counter strategy to this threat requires that the United States continue and improve its technological efforts and capitalize upon those recognized developments which will assure a clear margin of US strategic superiority. Several studies, including the Alternative General Nuclear War Postures study as well as the JSOP-70 analysis, indicate that this clear US margin of superiority is not programmed to

~~* NIE 11-8-64~~

exist in the early 1970s. Instead, the relationship of Soviet to US strategic forces indicates that without a positive change in our strategic programmed forces, any Soviet breakthrough in this area would cause the United States to be placed in an extremely unfavorable position. Projected shortcomings in our own strategic forces and their inability to provide adequate continuing security to the nation in general war require us to undertake such technological improvements in our forces as are now feasible and desirable. We must increase efforts to examine, develop and deploy strategic offensive and defensive weapons systems which are required, and which will provide adequate strategic superiority and national security.

4. The Chief of Staff, US Air Force, believes that a balanced force of effective, attainable strategic offensive and defensive systems in conjunction with a full fallout shelter program is necessary to achieve the military objectives for national security in the time frame of this plan. He considers the following programs essential to the attainment of this balanced force:

a. The maintenance of an effective bomber force to include the development and deployment of an Advanced Manned Strategic Aircraft (AMSA) by FY 1973.

b. A surface-to-surface missile force consisting of TITAN II, POLARIS and 1200 MINUTEMAN missiles by FY 1970.

c. The development and deployment of an effective Anti-Ballistic Missile (ABM) system.

d. The development and deployment of effective terminal and area air defenses to include:

(1) The production and deployment of the F-12 manned interceptor by FY 1969 and the retention of Century Series interceptors at existing levels pending its availability.

(2) The development and deployment of a fully capable Airborne Warning and Control System (AWACS).

PART II - STRATEGIC OFFENSIVE FORCES

1. General

a. The task these strategic offensive forces must perform is increasing in magnitude and complexity as the Soviets improve their strategic offensive capabilities by increasing the numbers as well as the survivability of their offensive systems. [redacted] the recent developments indicating that there is little prospect of NATO acceptance of MLF, and the possible phase out of US MACE missiles which would uncover targets of concern to NATO. In contrast to these increasing requirements for strategic forces, currently approved programs would maintain US capabilities at approximately the FY 1965 levels. Therefore, modernization must be emphasized to insure maintenance of the capabilities required of these forces.

b. Actions required to provide more effective and modern strategic offensive systems, which will contribute to the balanced force needed to counter the increasing Soviet nuclear threat, include the development and deployment of

an advanced manned bomber, the improvement of existing bomber systems pending such deployment, and improvements in the strategic missile force. Without such actions, there will be a narrowing range of strategic options available to the United States. These two systems are the substance of the strategic retaliatory forces which deter general nuclear war. Should deterrence fail, these strategic retaliatory forces must have the capability to contribute significantly to limiting damage to the United States, [redacted] as may be necessary. They are characterized by a flexibility which affords a range of response from the discrimination provided by an individual advanced manned aircraft to the capacity [redacted] in times of international tension. A discussion of the action the Chief of Staff, US Air Force, believes should be implemented to provide modern and more effective strategic offensive forces follow.

2. Advanced Manned Strategic Aircraft (AMSA)

a. JSOP-70 indicates* that manned bombers as well as missiles would be effective in attacking residual Soviet forces. By successfully destroying these nuclear threat forces as well as other types of strategic targets, such [redacted] manned bombers contribute significantly to the objective of limiting damage to the United States and its Allies and should be considered as an essential element of the strategic offensive force.

* Reference Page A-27, line 8, Section A, Part VI

TOP SECRET

b. There have been three studies completed in late 1964 by the Chairman, JCS Special Studies Group, which included the AMSA in a balanced force concept. Each of these studies concluded that the AMSA was competitive with other systems on a cost-effectiveness basis. In the Alternative General Nuclear War Study, the AMSA in a damage limiting role was more effective than ballistic missiles; and the reason was, "that it offers the capability to look at a large number of targets and attack only those which have not been destroyed, thus permitting achievement of high damage expectancies at relatively lower cost than reattacks on each target of the system, irrespective of its state of damage or occupancy."

c. The Effectiveness of Strategic Retaliatory Forces Study, Part I, compared the effectiveness of the programmed missile force alone and with this same force plus 200 AMSA. The primary conclusions of this study were given for damage limiting and assured destruction: (1) "Depending upon the war outbreak situation, a force of 200 AMSA, when added to the programmed strategic missile force, could significantly reduce fatalities and damage levels in the United States. These reductions could be as high as 13 per cent in fatality levels and 11 per cent of the industrial base."; and (2) "The AMSA would be consistently effective in the damage assurance role; increases in damage assurance ranged from eight per cent to ten per cent. [redacted] The additive AMSA force would increase US force effectiveness against the entire target spectrum;

TOP SECRET

damage expectancies could be expected to increase by 20 per cent against the Soviet offensive force structure and by 65-70 per cent against the balance of the prime military target structure."

d. The Effectiveness of Strategic Retaliatory Forces Study, Part II, was conducted to determine the optimum mix of missiles and AMSA considering cost effectiveness. The optimum mixes derived were: [redacted] 280 MINUTEMAN, 656 POLARIS and 142 AMSA; for US retaliation 1200 MINUTEMAN, 656 POLARIS and 117 AMSA.

e. In addition to this study justification for development of the AMSA, the JCS have recommended four times in 1964 and in JSOP-70 that Project Definition Phase for AMSA be approved so that they can make an early decision on production and deployment. Their concern is to retain a manned bomber in the strategic offensive forces for the foreseeable future without relying indefinitely on the continued modification of the aging B-52 force.

f. The concern of the Chief of Staff, Air Force, is to assure the modernization and increased effectiveness of the manned bomber force with a system that is designed to penetrate the estimated defenses in the 1970s, and with this modernization, to phase out the aging B-52s. Toward this end the Chief of Staff, Air Force, includes in JSOP-70 the entry of the AMSA and the initial phase down of the B-52 in FY 1973.

3. The B-52

a. To extend the safe life of the C through H series B-52s (40 squadrons or 600 UE) there is an approved

structural modification program (ECP-1128) under way which will allow the B-52 to be effectively employed using a low level delivery tactic. With this modification and the lifting of present flight restrictions, which will allow SAC to perform realistic training missions at low altitudes, the B-52s will start reaching their estimated safe life in substantial numbers in FY 1969.

b. An additional structural modification (ECP-1185) is programmed to be applied to the B-52 G and H series only (17 squadrons or 255 UE). It is estimated that ECP-1185 will extend the safe life of these aircraft through 1975. This estimate is to be validated by the Air Force Logistics Command and Boeing engineers in a report due in March 1965. This leaves a question concerning the C through F series B-52 (23 squadrons or 345 UE) if they are to remain in the force until FY 1973, the projected phase in date of the AMSA. If funds cannot be provided to apply ECP-1185 or some other less costly structural modification to the B-52 C thru F there is an alternative to extending their safe life without modification. This alternative, while not recommended, is to impose certain flight restrictions so that the aircraft are not subject to the stress of low altitude flying during training missions.

c. A decision on the best way to extend the life of the B-52 C thru F may be delayed until FY 1966. Based on this fact and the expected better understanding of ECP-1185 as mentioned above, the Chief of Staff, Air Force, includes in JSOP-70 40 squadrons of B-52s or 600 UE through FY 1972.

TOP SECRET

4. The MINUTEMAN Force Level

a. The JSOP-70 analysis has demonstrated the requirement for a force of 1910 missiles consisting of 656 POLARIS, 54 TITAN II, and 1200 MINUTEMAN. In the targeting concept of this strategic missile force the POLARIS is generally targeted against [redacted] because of its probability of survival while at sea along with its lesser yield and accuracy [redacted] DOE b(3)

Round out the targeting of the missile force the MINUTEMAN is targeted against [redacted]

b. In a recent Air Force study* the number of [redacted] targets used was [redacted] representing the JIEP median estimate for 1970. This Air Force study addressed the MINUTEMAN requirements for that time period giving the Air Force the capability to [redacted] DOE b(3)

An analysis of damage expectancy indicated this combination of yield and CE was better suited for use against [redacted] Of the [redacted] targets, [redacted] were suitable for [redacted] requiring a greater yield for acceptable damage expectancy. [redacted] DOE b(3)

* An Air Staff analysis of possible MINUTEMAN capabilities and effects of MIRV on the programmed missile force.

[redacted] This combination of yield and CE is effective for the destruction of [redacted]

d. The Air Force study considered the effectiveness of the FY 1970 programmed 1000 MINUTEMAN force, consisting of 250 MINUTEMAN I and 750 MINUTEMAN II, when applied to the time sensitive target coverage task for that year. [redacted] The application of this force against the [redacted] using optimum reprogramming methods, yielded a total number [redacted] probably destroyed. Also, due to limitation in numbers of missiles available, it was not possible to cover each aim point with one reliable missile. Thus, even with MIRV capability and using optimistic planning factors, it was not possible with a force level of 1000 MINUTEMAN, to achieve an adequate level of damage expectancy and target coverage in the task assigned to the MINUTEMAN. However, the study showed that a similar application of a 1200 MINUTEMAN force, [redacted] provided complete target coverage with a damage expectancy of approximately 90%.

e. Further substantiation of the requirement for a MINUTEMAN force of 1200 comes from the three studies cited in paragraph 2 b, c and d above. The General Nuclear War Postures Study showed a requirement for 1200 MINUTEMAN; the

Effectiveness of Strategic Retaliatory Forces Study, Part I, used 1326 while Part II indicated a requirement from 1200 to 1280 in its "optimum mixed force." These studies all addressed the problem of determining the balanced force required in the 1970s to provide the United States with the capability to meet the strategic objectives of damage limiting and assured destruction.

f. The Chief of Staff, US Air Force, taking into consideration the 18 month lead time for MINUTEMAN facility construction, supports the attainment of a minimum level of 1200 MINUTEMAN by end FY 1970.

5. MINUTEMAN III*

a. A MINUTEMAN modernization and replacement program should be considered to develop MINUTEMAN III for initial operational deployment in FY 1973. The development of MINUTEMAN III is similar to the development of POLARIS B-3 in that the time of entry into the force of each of these improved missiles is predicated on the estimated termination of the effective shelf-life of the respective missiles being replaced. Also, it is planned for MINUTEMAN III to use the MINUTEMAN II facilities similar to the POLARIS A-2 and A-3 replacement with POLARIS B-3. Current Air Force studies indicate that a significant increase in payload capability is possible with this improved MINUTEMAN. In addition to the increased payload capability, the MINUTEMAN III is estimated to have improved re-entry vehicle capabilities resulting from improvements to the technological advances in the MINUTEMAN II and POLARIS B-3 programs.

* Reference Page A-62, line 18, and Page A-66, line 5, Section A, Part VI

b. The Chief of Staff, US Air Force, believes that the replacement of MINUTEMAN II with MINUTEMAN III will increase significantly the capability of the strategic offensive forces in the later JSOP time period. Consequently, he has indicated in JSOP-70 the possible phase out of TITAN and phase down of the MINUTEMAN II force consistent with the anticipated phase in of MINUTEMAN III.

6. SR-71

a. The need for modernization of the strategic reconnaissance force is evidenced by the approved program for the production and deployment of 25 SR-71s. This [redacted] aircraft with its advanced avionics and long range may be employed to fulfill the cold war requirement for global reconnaissance; the "periods of tension" requirement to concentrate on specific areas of interest; the limited war requirements for area of conflict damage assessment as well as sanctuary reconnaissance; and the general war requirements of pre-attack, trans-attack and post attack reconnaissance; and damage assessment.

b. The approved program provides six test flight aircraft and 25 operational aircraft. This is not a standard aircraft program in that no allowance for attrition is included in the approved program so as to maintain a force level of 25. Experience with the U-2 indicated that normal attrition rates cannot be applied to aircraft operating at the speeds and altitudes planned for the SR-71. The rates are generally higher than those used for other aircraft. In addition to attrition, the expected operationally ready rate needs must be considered when establishing a total force requirement. For example, to receive a C-1 combat readiness rating, F-106 and B-58 units must have 71% of UE aircraft operationally ready.

These aircraft approach the SR-71 in speed and avionics complexity. Considering attrition and with a 71% operationally ready rate, 25 SR-71s will not provide a day-to-day available force adequate to satisfy long term mission requirements.

c. The mission, force required and concept of employment are currently being developed in detail based on the results of tests now in progress.

d. Taking into consideration the many possible applications of this system, the operational factors and the mission requirements to be developed, the Chief of Staff, Air Force, supports in JSOP-70 a level of 34 SR-71s in FY 1968 and will provide in the near future a proposed ultimate force level objective for JCS consideration.

7. Other Considerations

a. The Soviets have ample reason to place high priority on the development of a multiple warhead/decoy payload for their ICBM's to offset any US numerical superiority as well as to counter the possibility of a US antimissile system. The attractiveness of the multiple warhead and MIRV capability to the Soviets would support the judgment that, rather than awaiting an impending deployment of a US ABM,* the Soviets probably already have assigned a high degree of urgency to improvements in their ICBM force. Soviet development and deployment of a MIRV capability in the high payload Soviet ICBMs would provide for the attack of a greater number of targets including more of our strategic offensive and other military forces. If the Soviets develop a MIRV capability, the US must consider improved means of survivability for strategic offensive systems such as providing higher levels of

* Reference Page A-49, line 26, and Page A-64, line 16, Section A, Part VI

TOP SECRET

missile hardiness; producing smaller missiles in larger numbers; designing a land mobile ICBM system, or combinations of these and other measures. Considerations for increasing the survivability of the remaining strategic offensive forces could include such actions as extending strategic bomber dispersion and alert readiness; increasing the on-station, alert deployment of inventory POLARIS submarines; and increasing the survivability measures applicable to submarine base facilities, the ships in port, and national/military command, control and communications facilities.

b. The JSOP-70 analysis also considers that non-alert vehicles which survive nuclear attack could be programmed against [redacted] targets.* It is acknowledged that if such residual missiles and aircraft can be placed in operational status within a reasonable period of time they can contribute by striking targets [redacted] However, the general war requirements for total delivery vehicles must be computed with due consideration to the basic US general war objective "to defeat the Soviet Bloc alone [redacted] and its supports in such a manner as to force termination of hostilities on terms advantageous to the United States and to assure that the United States has sufficient residual power to retain its position as a dominant world power." (JSOP-70 Part III). Throughout the JSOP analysis no ready uncommitted weapons have been withheld as a strategic reserve to underwrite this objective. If all readily available residual vehicles are committed to the attack of [redacted] targets, as reflected in protions of the JSOP analysis, there would be no reserve of delivery vehicles with which to satisfy this general war objective. Consequently, the Chief of Staff, US Air Force considers it prudent, in computing strategic requirements, to consider those non-alert vehicles which survive an initial attack as a portion of the uncommitted reserve.

* Reference Page A-97, Table D-2; Page A-99, Table D-4; Page A-100, Table D-5, Section A, Part VI

PART III - STRATEGIC DEFENSIVE FORCES

1. General. The strategic defense task has expanded from sole concern with a Soviet bomber attack to defense against an attack by missiles followed by bomber attacks. Ballistic missiles represent an increasing threat and, while the quantitative Soviet bomber threat is decreasing, the reduction is taking place as a lesser rate than previously forecast. This fact, together with qualitative improvements in the Soviet bomber force, indicates continued reliance on the manned vehicle as a strategic offensive system. The relationship of the threat spectrum to the interaction of strategic offensive and defensive force, as contained in the JSOP-70 analysis, should have considered the following Air Force view of Soviet ICBM launchers and Soviet Long Range Aviation as contained in the National Intelligence Estimates* and the Joint Intelligence Estimates for Planning.**

Soviet ICBM Launchers

	1969	1974
Soft	185-220	180-275
Hard	340-430	720-925
Totals	525-700	900-1200

Tyuratam launchers are included. The estimate assumes a small reliable ICBM deployed in hard sites, deployment starting in 1967.

Bomber Strength in Soviet Long Range Aviation

	1969	1974
Heavy Bombers		
BISON	95	15
BEAR	95	45
Follow-On	20- 65	90-150
Totals	200-245	150-210
Medium Bombers		
BADGER	425-525	0- 50
BLINDER	250-325	200-320
Follow-On	----	250
Totals	675-850	450-620
Total Bombers in LRA	875-1095	600-830

* NIE 11-8-64
** Reference Page A-89, Table C-1, Section A, Part VI

The Chief of Staff, US Air Force considers that a mix of modernized area and terminal defensive weapon systems is required to provide an effective air and missile defense capability. Area and terminal weapons supplement and complement each other; they force the enemy to provide means of countering each type of defensive system, thereby complicating his offensive strategy and reducing its effectiveness. Accordingly, an effective US strategic posture requires defensive forces in-being which are sufficient in quantity and quality to counter the missile and bomber threat, thereby complementing our strategic offensive forces in the damage limiting role and adding to the deterrent posture of the US.

2. Ballistic Missile Defense Forces.* The lack of an effective US ballistic missile defense constitutes a major gap in our existing defensive forces. While the NIKE-X system offers promise of considerable capability, it should be acknowledged that, in addition to the uncertainties described in the JSOP-70 analysis, there are others which have a bearing on the development of an effective ABM capability.

[redacted]

The Chief of Staff, US Air Force believes that the scope of production and development

* Reference, Page A-52, line 7, Section A, Part VI

for NIKE-X should be contingent upon progress made in the development program and the review of an optimum deployment concept by the Joint Chiefs of Staff. In addition, accelerated and expanded research and development effort should be initiated towards the attainment of an area anti-ballistic missile defense capability (boost or mid-course). Such an effort is considered with a view towards complementing the terminal ABM defense that NIKE-X would provide.

3. Air Defense Forces

a. Advanced Manned Interceptor.* Selection of the best interceptor aircraft to bolster US defense against the manned bomber and submarine launched cruise missile (SLCM) threat has been the subject of extensive consideration, including 7 major studies, within the past 3 years. Several weapon systems were considered which included the Navy version of the F-111, the tactical F-111A, (both modified to an optimum interceptor configuration), the F-4, and A-5 and the F-12, Several threat levels and variable budget levels were examined for sizing interceptor forces as well as selecting optimum defense force postures. These studies were conducted to explore the full range of requirements and capabilities. The F-12 consistently emerged as the superior weapon system on the basis of its proven ability to satisfy the requirement for an advanced manned interceptor to operate at extended ranges against enemy targets. This advanced manned interceptor will have the capability of detecting, identifying, intercepting and destroying targets from the earth's surface to altitudes of 100,000 ft. or more. This system will provide for

* Reference Page A-67, line 14, Section A, Part VI

destruction over unpopulated areas thus minimizing collateral damage. Its improved radar, longer range missiles, interceptor speed of [redacted] or better, and high kill probability are requirements to counter the effectiveness of ASMs, SLCMs, and bombers. The aircraft will be capable of autonomous or semi-autonomous operation in the degraded command and control environment likely to be encountered in a general nuclear exchange. Within the JSOP-70 analysis the F-12 was not employed against sea launched cruise missiles (SLCMs).* However, the normal concept of deployment for the F-12/AWACS area defense force is well suited for defense against SLCMs. Under normal alert conditions six AWACS stations would be located approximately 500 NM off shore adjacent to the major population centers. These stations would provide coverage from the present ground radar coverage area to a distance about 750 NM off shore. The AWACS would have a 95% probability of detection for SLCMs launched from or entering its area of coverage. This capability, together with the planned deployment locations for the F-12, would enable destruction of the SLCMs at least 100 NM from their targets, thereby greatly reducing the hazards associated with the detonation of nuclear weapons over population areas. Considering the capabilities of the F-12 system, reattack could be accomplished if necessary. Accordingly, the percentage of fatalities indicated in the analysis would have been proportionately reduced if the F-12 had been applied against the SLCM threat. The Joint Chiefs of Staff have recognized** the necessity to modernize US defense forces with

* Reference Page A 20, Table 2, Section A, Part VI and Page A-41, line 22, Section A, Part VI
** JCS 1800/907-1

a manned interceptor which takes full advantage of the state-of-the-art. They also stated that weapon systems which promise to be effective should not be deferred if a balanced damage limiting force is to be achieved by 1974 without prohibitively high annual budgets in the later JSOP time period. The F-12 development program conclusively has established the capability of the system, and it has taken full advantage of the state-of-the-art. The Chief of Staff, US Air Force recommends that production funds be provided within the FY 1967 budget to permit an orderly and economical deployment of the F-12 force starting in FY 1969. With such deployment a more cost-effective interceptor force will be realized. Until the F-12 force is deployed, current manned interceptor forces should be maintained essentially at their present levels.

b. Surface-to-Air Missiles.* Attainment of the most effective air defense capability requires the deployment of both area and terminal defenses. These two types of systems are complementary and should not be viewed as replacements for each other. Although the F-12 interceptor force virtually eliminated the manned bomber and ASM threat in the bomber defense excursion within this analysis (See page A-54, Case III), those few bombers and/or ASMs that might get through the area defense could cause much damage if they were to attack our highest priority urban/industrial areas. Therefore terminal defenses should be provided for those high priority areas in order to complement the area defenses. The JSOP-70 analysis considered the following possibilities in regard to terminal air defense:

* Reference Page A-55, line 20, Section A, Part VI

(1) Increasing the capability of the NIKE HERCULES system to permit engagement of low altitude vehicles. For purposes of evaluation, this analysis attributed the NIKE HERCULES system with a 50 per cent probability of detection and acquisition against low level (approximately 1000 feet) aerodynamic vehicles. This capability does not exist today. CINCNORAD states that all NIKE HERCULES defended areas are vulnerable to low altitude attack (1000 feet and below). Improvements to provide NIKE HERCULES with a capability against low altitude targets would require extensive resiting of detection and acquisition radars as well as other system modifications. There are no approved programs to provide this capability.

(2) Improving the HAWK system and its deployment to 175 cities.

(3) Developing the advanced surface-to-air system (SAM D).

If successfully developed, the SAM D system could be deployed in the early 1970s. Actions to improve and/or resite the NIKE HERCULES and HAWK systems could not be completed until the late 1960s. Therefore, to avoid unnecessary duplication in capabilities and expenditure of funds, the Chief of Staff, US Air Force, recommends that a review of development progress and capabilities of these three terminal defense systems be accomplished during programming actions for FY 1967 to insure timely recommendations by the Joint Chiefs of Staff.*

* Reference Page A-67, line 5, and Page A-68, line 5, Section A, Part VI

c. Surveillance, Warning and Control. Reorganization of the air defense surveillance and control system to achieve cost reductions and increased survivability must be based on the interrelationship among weapon system force structure and deployment, operational capabilities vis-a-vis the threat and the dynamics of the defense problem. Recently, approval has been received to change the system into the SAGE/BUIC III configuration. This will greatly increase the survivability and flexibility of the air defense ground environment. However, the necessary surveillance, warning and control capability can be realized only through the development and deployment of a fully capable Airborne, Warning and Control (AWAC) system to augment and replace, when necessary, the ground environment. The ultimate phase-out of the existing AEW/ALRI aircraft is contingent upon phase-in of the AWAC system which will greatly increase capability and survivability of the air defense environment and enhance the effectiveness of interceptor weapons. No phase down in off-shore radar extension aircraft should be made until the AWAC system is operational.

4. Anti-Submarine Warfare Forces.* The damage limiting effectiveness of Naval ASW forces in the JSOP-70 analysis is particularly sensitive to the study assumptions and to the targeting concept for Soviet submarine launched missiles used in the analysis. Although submarine launched missiles were programmed in the analysis against cities and strategic bomber bases, there would be equal justification for the enemy to direct the submarine portion of his missile forces against US naval bases, ports, associated littoral targets, and the SOSUS

* Reference Page A-43, line 20; Page A-44, line 18, and Page A-45, line 7, Section A, Part VI

TOP SECRET

system itself. The JSOP-70 analysis acknowledges that completion of Phase II SOSUS is essential to obtaining the Soviet submarine attrition factors employed therein. The entire SOSUS system, however, received at least 85 per cent quick destruction in all JSOP-70 scenarios except [redacted] Therefore, it follows that the effectiveness of existing and programmed ASW forces is closely related to assured survival of the SOSUS systems. Consequently, the Chief of Staff, US Air Force, while supporting improved effectiveness of ASW forces, reserves judgment on increases in the size of these forces or increases in the SOSUS system pending a program to assure the effectiveness and survivability of SOSUS.

PART IV - SUMMARY

In summary, the Chief of Staff, US Air Force believes a balanced mix of forces containing the strategic offensive and defensive programs he has recommended constitutes the necessary force to maintain the required strategic posture and that its adoption will indicate clearly our resolve in supporting US national objectives. The recommended strategic offensive force mix represents a careful balance of hardened and mobile missiles backed by long range, penetrating aircraft with the reliability, versatility, and economy achieved only through the presence of man-over-target. The complementary recommended objective force for Continental Air and Missile Defense is an orderly phasing toward a smaller but more efficient force to provide a thoroughly effective missile, bomber and space defense when deployed in conjunction with a full fallout

shelter program. The entire strategic offensive and defensive posture recommended by the Chief of Staff, US Air Force, provides for capable forces in being, designed to fulfill the national objectives of maintaining a credible strategic deterrent and, should deterrence fail, provide assurance that the US will emerge from the conflict in a dominant position as a free and independent nation.

TOP SECRET

CSAF FOOTNOTES

SECTION A, PART VI, JSOP-70

STRATEGIC RETALIATORY FORCES AND CONTINENTAL AIR AND MISSILE DEFENSE FORCES

Page A-20. 3/ This analysis attributed NIKE HERCULES with a low level capability (approximately 1000 ft) which it does not and is not programmed to have. The analysis also assumed the F-12 to have no capability against SLCMs when, in fact, the normal concept of deployment for the F-12/AWACS area defenses would provide an excellent capability against SLCMs. The compounding of these two study assumptions results in study outcomes which do not accurately reflect the capability of the 1974 USAF proposed area defenses.

Page A-27. 1/ Manned strategic aircraft as well as missiles would be effective in attacking residual Soviet forces. Manned aircraft will contribute significantly to limiting damage to the United States and its Allies by destroying [redacted] consequently, they must be considered as an essential element of the strategic offensive force.

Page A-41. 1/ The JSOP-70 analysis did not examine the F-12 against sea launched cruise missiles (SLCMs). This omission provided terminal defense weapons with an abnormally high number of target opportunities. The normal concept of deployment for the F-12/AWACS area defenses would enable destruction of SLCMs at least 100 NM from their targets thus greatly reducing the hazards involved with the detonation of nuclear weapons over populated areas. The over-all kill probability for the F-12 system against SLCMs would be approximately 85% with a single missile. Re-attack could be accomplished if necessary.

Page A-43. 1/ Effective ASW is supported; however the subject of total ASW forces is of principal concern in programs other than Continental Air and Missile Defense and should be considered in recommendations rendered in relation to the appropriate program rather than in the Continental Air and Missile Defense Analysis.

Page A-44. 1/ It is noted that the damage limiting effectiveness of ASW forces in the JSOP-70 analysis and the conclusions derived therefrom are highly sensitive to the ASW assumptions and the targeting concept for Soviet submarine launched missiles used in the analysis. If SLMs were programmed against US cities in combination with ICBMs and bombers, the Soviet submarine force would account for only about 3 percent of US fatalities with a full fallout shelter program.

Page A-45. 1/ Judgment is reserved on increases in the size of ASW forces or increases in the SOSUS system pending a review of a program to assure the effectiveness and survivability of the system.

Page A-49. 1/ There is no sound basis for the judgment contained in the analysis report that there is no urgency for the USSR to develop and test multiple warhead/decoy payloads for ICBMs until a US ABM is in the offing. The Soviets have ample reason at present to place high priority on development of a multiple warhead capability to offset any US numerical superiority as well as counter the possibility of a US anti-missile system. The attractiveness of these possibilities to the Soviets would support a judgment that they probably already have assigned a high degree of urgency to improvements in their ICBM forces.

~~TOP SECRET~~

Page A-52. 1/ In addition to the uncertainties covered in the analysis, there are others which might degrade effectiveness of terminal missile defenses [redacted] Accelerated and expanded R&D effort should be initiated toward the attainment of an area (boost or mid-course phase) missiles defense capability to augment and complement terminal missile defenses.

Page A-55. 1/ The most effective air defense capability requires both area and terminal defense systems. They are complementary and should not be viewed as replacements for each other. Within this analysis consideration was given to improving NIKE HERCULES, a HAWK Improvement program and deployment to 175 cities, and SAM D development and deployment to 47 complexes. Actions to improve or resite the HERCULES and HAWK units could not be completed until the late 1960s. If successfully developed, the SAM D system could be deployed in the early 1970s. To avoid unnecessary duplication in capabilities and expenditure of funds, the JCS should review the development progress and capabilities of these three terminal defense systems and make appropriate decisions during programming actions for FY 1967.

Page A-62 and A-65. 1/ As MINUTEMAN II shelf life expires modernization is required. MINUTEMAN III is proposed to use MINUTEMAN II facilities and have improved capabilities to fill the requirement for modernization.

Page A-64. 1/ Some of the actions which may be considered if the Soviets develop a MIRV capability are: higher levels of missile hardness; production of smaller missiles in larger numbers; development of land mobile missiles; greater bomber dispersion and alert readiness; increased on-station alert deployment of POLARIS submarines; and increasing survivability of ship, submarine, and command and control facilities.

Page A-67. 1/ Same as footnote 1/, page A-55.

Page A-67, line 14. 1/ The F-12 development program conclusively has established the capability of the system and has taken full advantage of the state-of-the-art. The Chief of Staff, US Air Force, recommends production funds be provided in FY 1967 to permit an orderly deployment of F-12 aircraft beginning in FY 1969.

Page A-68. 1/ Same as footnote 1/, page A-55.

Page A-89. 1/ It is believed the JSOP-70 analysis should have considered the Air Force view as contained in National Intelligence Estimates and the JIEP concerning Soviet ICBM launchers and Soviet Long Range Aviation.

Pages A-97, A-99 and A-100. 2/ Throughout the JSOP analysis no ready uncommitted weapons have been held in reserve to underwrite the US military objective of emerging from general war as a dominant world power. The Chief of Staff, US Air Force, believes that non-alert vehicles which survive an initial attack should be considered as a portion of this uncommitted reserve.

TAB D

APPENDIX E

SECTION A, PART VI, JSOP-70

VIEWS OF THE COMMANDANT OF THE MARINE CORPS

I generally concur in the approach used in the preparation of Section A, Part VI, JSOP-70, and support the force levels depicted in Tables 4 and 5 of Appendix E as modified by the appropriate footnote. To provide a general overview of my position insofar as Strategic Offensive and Defensive forces are concerned, I have provided the below listed general and specific comments and identified the items to which they pertain:

a. Page A-65, paragraph 8, OFFENSIVE SYSTEMS, Footnote 1/:

I consider that the level of strategic offensive forces should provide the capability to destroy [redacted] and, in combination with an improved civil defense posture, improved intelligence, improved ASW, and strategic defensive forces, to limit damage to the United States by attack on military targets so long as it is remunerative in terms of lives saved, based on cost effectiveness. I consider that the force levels depicted in Table 4, Appendix E will provide this capability against the currently estimated threat. In addition, however, it is necessary that a vigorous research and development program be pursued, and more sophisticated systems phased in as older systems phase out, to retain the above capability against a more sophisticated enemy threat should one develop.

TOP SECRET

b. Page A-66, paragraph 8b, DEFENSIVE SYSTEMS

Footnote 3/:

I consider that the level of strategic defensive forces, in combination with strategic offensive forces, an improved civil defense posture, improved intelligence, and improved ASW should provide for limiting damage to the United States to ensure survival as a Nation with sufficient strength to bring a nuclear war to a conclusion on terms favorable to the United States and our Allies. The development of new interceptors, surface-to-air missiles, anti-ballistic missiles and improved warning and control systems are fully supported; however, recommendation regarding force levels for new systems are dependent on resolution of the optimum mix of manned interceptors and surface-to-air missile systems, and the estimated enemy bomber threat existing at the time. It is necessary that a vigorous research and development program be pursued, and more sophisticated systems phased in as older systems phase out, to retain the above capability against a more sophisticated enemy threat should one develop. I consider that the force levels depicted in Table 5, Appendix E will provide the capability as outlined above. Specific comments on certain forces are provided below:

(1) Development to retain the option to deploy the F-12 is supported; however, I consider that deployment of the F-111 or an improved F-4 series aircraft could provide an adequate defense against the currently estimated bomber threat at less cost. Should intelligence provide indications that the Soviets are developing a supersonic bomber, then a recommendation to deploy the F-12 will be reconsidered.

~~TOP SECRET~~

(2) Force levels for Surveillance, Warning and Control Systems are supported, but significant reduction may be possible with the successful development and deployment of Over-the-Horizon (OTH) radars.

(3) Development to permit an option to deploy the AWAC is supported; however, recommendation for deployment is contingent on review of the estimated bomber threat, deployment decision regarding the F-12 interceptor, and review of the status and/or results achieved with the OTH radars.