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DRAFT ENVIRONMENTAL IMPACT STATEMENT, MX DEPLOYMENT AREA SELECT--ETC(U)
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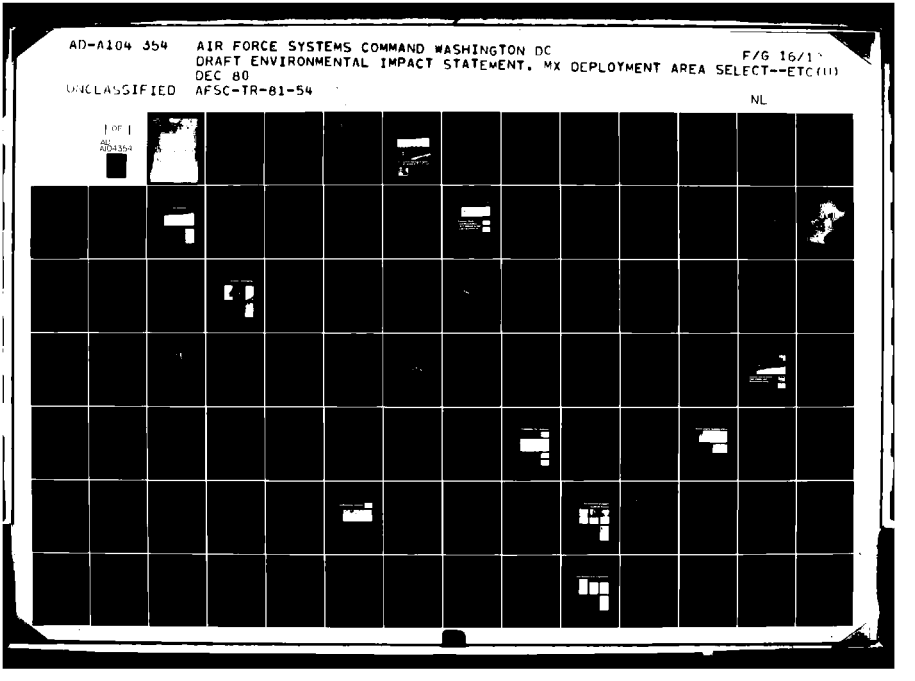

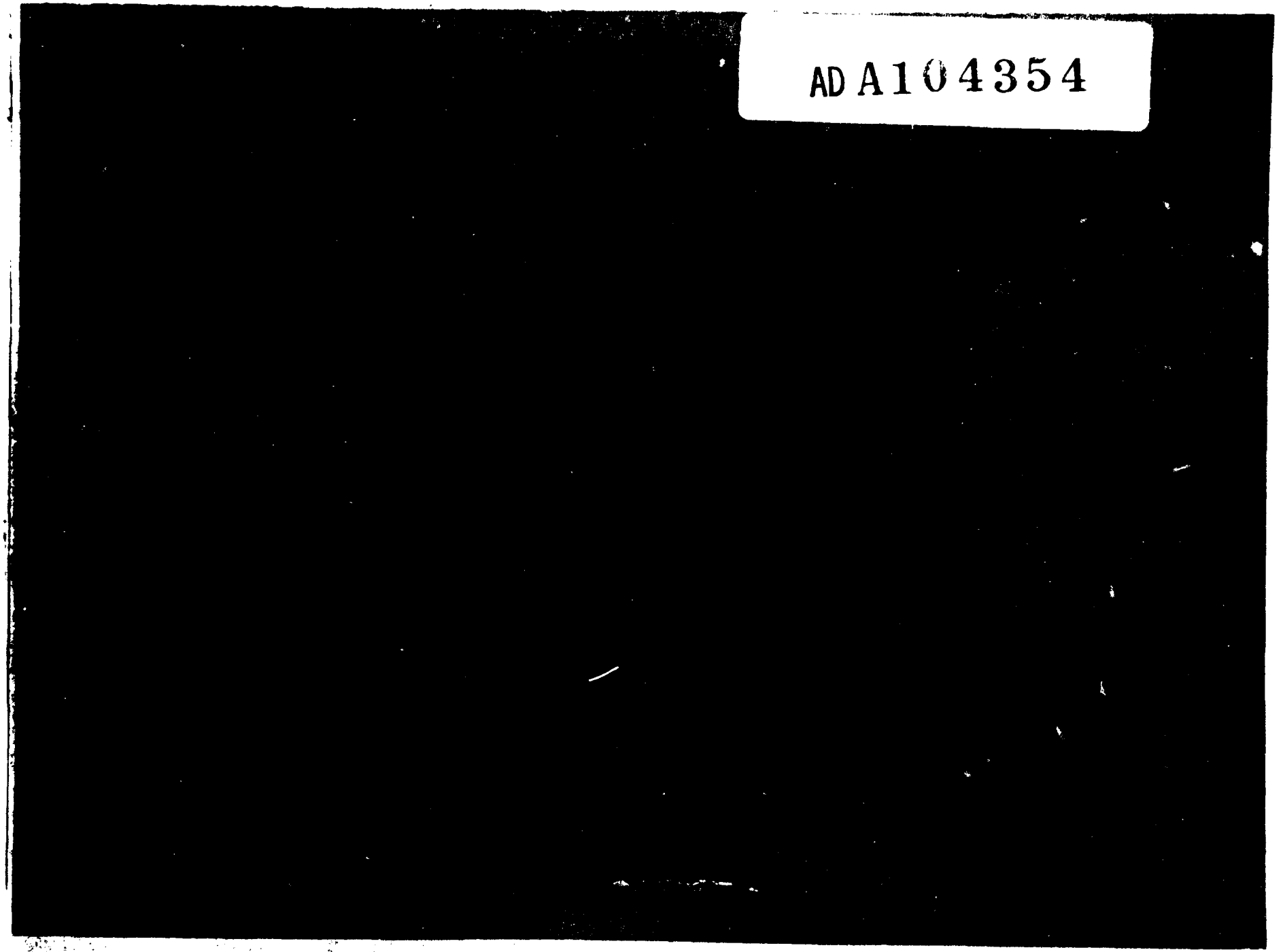

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are to be operational by mid-]986, and the system is to be fully operational by theend of]989. Major decisions to be made are selection of a deployment area or areas and two operating base locations from areas identified as suitable in Nevada, Utah, Texas, and New Mbxico. Land withdrawal/acquisition could begin in]98] and construction of initial facilities in]982.

This EIS analyzes the effects of M-X on alterantive deployment areas.

DEPARTMENT OF THE AIR FORCE
WASHINGTON 20330

OFFICE OF THE ASSISTANT SECRETARY

December 1, 1980

TO: Governmental Agencies, Public Groups, and Interested Individuals

Attached for your review and comments, in compliance with the regulations of the President's Council on Environmental Quality, is the Draft Environmental Impact Statement (DEIS) on the M-X Deployment Area Selection and Land Withdrawal/Acquisition.

This DEIS analyzes the environmental impacts of deployment of the M-X missile system in areas identified as suitable in Nevada, Utah, Texas, and New Mexico. The elements of the system include two operating bases, 4,600 shelters, approximately 8,500 miles of roads, and related support facilities, operated and maintained by about 13,000 persons.

The review and comment period is 90 days beginning January 2, 1981. Please forward any comments to:

Ballistic Missile Office
ATTN: AFRCE-MX/DEV
Box EIS
Norton Air Force Base,
California 92409

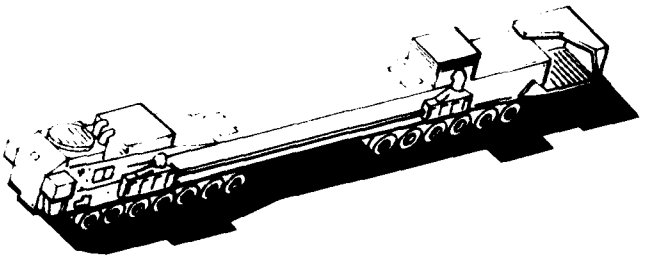
Sincerely,

JOE F. MEIS
Principal Deputy
Assistant Secretary of the Air Force
(Manpower, Reserve Affairs
and Installations)

1 Enclosure
M-X DEIS

I

Program Overview



Environmental Impact Analysis Process

DEPLOYMENT AREA SELECTION AND LAND WITHDRAWAL/ ACQUISITION DEIS

DEPARTMENT OF THE AIR FORCE

DEPLOYMENT AREA SELECTION
AND
LAND WITHDRAWAL/ACQUISITION DEIS

CHAPTER 1: PROGRAM OVERVIEW

CHAPTER 1 PRESENTS AN OVERVIEW OF THE M-X SYSTEM AND THIS EIS INCLUDING:

- A DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES, INCLUDING SCHEDULE AND RESOURCE REQUIREMENTS
- AN OVERVIEW OF THE TIERED M-X ENVIRONMENTAL PROGRAM THAT INVOLVES SITE SELECTION AND LAND WITHDRAWAL
- A PRESENTATION OF PUBLIC SAFETY CONSIDERATIONS WITH PHYSICAL SECURITY AND SYSTEM HAZARDS
- A SUMMARY OF FEDERAL AND STATE AUTHORIZING ACTIONS ASSOCIATED WITH CONSTRUCTION AND OPERATIONS

CHAPTER 2: COMPARATIVE ANALYSIS OF ALTERNATIVES

CHAPTER 2 COMPARES THE ENVIRONMENTAL IMPACTS OF ALTERNATIVE M-X SYSTEM AND OPERATING BASE COMBINATIONS. DETAILS INCLUDE:

- THE SELECTION OF LOCATIONS FOR TWO SUITABLE DEPLOYMENT REGIONS, 200 CLUSTERS, AND SEVEN ALTERNATIVE OPERATING BASES
- PRESENTATION OF CONCEPTUAL CONSTRUCTION SCHEDULES, PERSONNEL REQUIREMENTS, AND RESOURCE NEEDS FOR EACH ALTERNATIVE
- COMPARATIVE ENVIRONMENTAL ANALYSIS BY ALTERNATIVE FOR EACH RESOURCE PRESENTED IN CHAPTERS 3 AND 4

CHAPTER 3: AFFECTED ENVIRONMENT

CHAPTER 3 DESCRIBES THE POTENTIALLY AFFECTED ENVIRONMENT IN NEVADA, UTAH, TEXAS, AND NEW MEXICO. ENVIRONMENTAL FEATURES OF BOTH BI-STATE REGIONS AND OF OPERATING BASE VICINITIES ARE PRESENTED. RESOURCES ADDRESSED INCLUDE:

- WATER, AIR, MINING, VEGETATION, AND SOILS
- WILDLIFE, AQUATIC SPECIES, AND PROTECTED PLANT AND ANIMAL SPECIES
- EMPLOYMENT, POPULATION, PUBLIC FINANCE, TRANSPORTATION, CONSTRUCTION RESOURCES, ENERGY, LAND USE, AND RECREATION
- CULTURAL RESOURCES, NATIVE AMERICAN CONCERNS, ARCHAEOLOGICAL AND HISTORIC FEATURES

CHAPTER 4: ENVIRONMENTAL CONSEQUENCES TO THE STUDY REGIONS AND OPERATING BASE VICINITIES

CHAPTER 4 EXPANDS THE CHAPTER 2 ANALYSIS FOR EACH RESOURCE IN CHAPTER 3. ADDRESSING THE QUESTIONS RAISED IN SCOPING, CHAPTER 4 DISCUSSES THE FOLLOWING TOPICS ON A RESOURCE BY RESOURCE BASIS.

- THE REASON EACH RESOURCE IS IMPORTANT AND THE SOURCE OF SIGNIFICANT DIRECT AND INDIRECT IMPACTS
- THE INTERRELATIONSHIPS BETWEEN RESOURCES AND KEY CAUSES OF SHORT- AND LONG-TERM IMPACTS SUCH AS AREA DISTURBED AND POPULATION GROWTH
- MITIGATIVE MEASURES WHICH POTENTIALLY REDUCE IMPACTS
- A MATRIX OF POTENTIAL IMPACT SEVERITY BY GEOGRAPHIC AREA FOR THE PROPOSED ACTION AND EACH ALTERNATIVE

CHAPTER 5: APPENDICES

CHAPTER 5 CONTAINS AN M-X BASING ANALYSIS ALONG WITH JUSTIFICATION OF SELECTION CRITERIA TO CANDIDATE BASING AREAS. ADDITIONAL SECTIONS INCLUDE:

GLOSSARY
ACRONYMS
LIST OF PREPARERS
DISTRIBUTION LIST
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DEPARTMENT OF DEFENSE

UNITED STATES AIR FORCE

IN COOPERATION WITH

U.S. DEPARTMENT OF INTERIOR

BUREAU OF LAND MANAGEMENT

DRAFT ENVIRONMENTAL IMPACT STATEMENT

ON

DEPLOYMENT AREA SELECTION AND LAND WITHDRAWAL/ACQUISITION

FOR THE

M-X SYSTEM

Soviet missile developments are making our land-based intercontinental ballistic missiles (ICBMs) increasingly vulnerable. To improve deterrence against hostile actions against the United States, the U.S. Air Force proposes to deploy 200 mobile M-X missiles in a survivable multiple protective shelter (MPS) basing mode. The system will include two operating bases, 4,600 shelters, approximately 8,500 miles of roads, and related support facilities, operated and maintained by about 13,000 people. The first 10 missiles are to be operational by mid-1986, and the system is to be fully operational by the end of 1989. Major decisions to be made are selection of a deployment area or areas and two operating base locations from areas identified as suitable in Nevada, Utah, Texas, and New Mexico. Land withdrawal/acquisition could begin in 1981 and construction of initial facilities in 1982.

This EIS analyzes the effects of M-X on alternative deployment areas.

Contact for this DEIS:
Ballistic Missile Office
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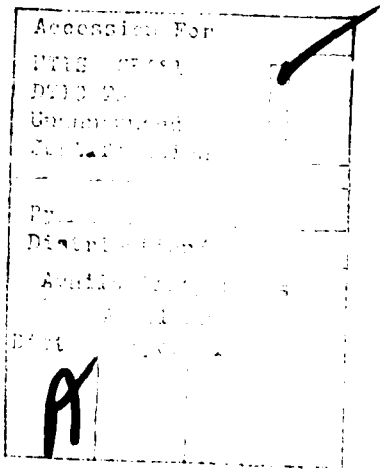
Box EIS
Norton AFB, CA 92409
(714) 382-4891

Date filed with EPA: December 1980
Comments must be received by: 1 April 1981



PREFACE

A great deal of information concerning the M-X program and its potential effects on the environment has been included in this EIS. This document addresses a diverse range of subjects at various levels of detail so that either a generalist or specialist may find appropriate information on topics of interest.

The EIS has been prepared in accordance with the President's Council on Environmental Quality regulations. There are five chapters in the EIS with environmental analysis related to the proposed action and alternatives for the deployment area selection decision. Chapters 1 and 2 summarize the project and potential environmental consequences of the deployment of the proposed action or an alternative. These two chapters should be read as a minimum to understand the M-X program and its potential environmental impacts.

Chapter 1 is the program overview which should be of interest to most readers. It describes the Proposed Action and alternatives, and states the purpose and need of the system as well as the historical background of the M-X program. Chapter 1 provides a description of missile and basing components, program schedules, construction, operations, and decommissioning, the M-X EIS process, the land withdrawal and land acquisition process, the "tiering" process for incorporating additional information into the environmental process, the use of public input to date, and the planned future public participation program.

Chapter 2 draws from Chapters 3 and 4 to present a comparative analysis of the significant environmental effects associated with the proposed action and its alternatives. The discussion includes the level of significance of the effects and includes potential mitigations. Evaluation of the effects are summarized for the short-term as well as the steady state (long-term). The issues which federal and state agencies and the public indicated should be addressed in this EIS were categorized in terms of the resources involved. Significant resources which have the potential to be impacted are addressed in Chapter 2.

Chapter 3 describes the existing environment in and adjacent to the suitable areas for system deployment and operating bases.

Chapter 4 describes direct and indirect effects of the Proposed Action and alternatives and the significance of these effects on the environment. The analysis of adverse effects and mitigation measures considers the relationship between short-term uses and long-term productivity, irreversible or irretrievable commitments of resources, and possible conflicts between the Proposed Action/alternatives and land use plans for the areas concerned. Chapter 4 contains analysis of important resources whether or not the resources are judged to be significant.

Chapter 5 contains the Appendices which present materials relevant to the analyses in the EIS. It also describes the process and criteria by which military and operational factors narrowed the entire United States down to portions of four states (Nevada, Utah, Texas, and New Mexico) now considered to be suitable for M-X deployment. A list of acronyms and an index for section cross reference is part of Chapter 5.

In addition to these appendices, a list of reference material is provided in Chapter 5 which includes Environmental Technical Reports. These reports are made available at locations where interested readers can review them (such as public

libraries throughout the study areas) and to state and local agencies whose need for more detail has been expressed.

There are several aids which may help the reader to use this EIS more effectively. First, the EIS summary should be read for orientation. Then, for a specific topic of interest, the first place to check is the table of contents. Chapters 1 and 2 are the best place to start in that they are concise summaries and usually give references to other sections of the EIS for more detailed information.

On the inside of each chapter cover there is a quick-check list of contents for the entire EIS with the given chapter's contents highlighted.

Other useful guides are the index in Chapter 5, with key words which refer the reader to the appropriate section of the EIS, and section title markings at the top of each page.

The five chapters comprising the EIS are as follows:

Chapter 1	Program Overview
Chapter 2	Comparative Analysis of Alternatives
Chapter 3	Affected Environment
Chapter 4	Environmental Consequences to the Study Region and Operating Base Vicinity
Chapter 5	Appendices

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1 PROGRAM OVERVIEW

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Introduction

INTRODUCTION

This Environmental Impact Statement (EIS) is the third in a series of four planned environmental evaluations for M-X. The first was an analysis of the buried trench construction test program (M-X: Buried Trench Construction and Test Program Final EIS). The second addressed full-scale engineering development decisions regarding missile design, basing mode selection, and a flight test program at Vandenberg AFB, CA (M-X: Milestone II Final EIS). Subsequent military and operational analyses concluded that there are two regions from which the final locations should be selected: Nevada/Utah and Texas/New Mexico. This third EIS addresses deployment area selection and land withdrawal/acquisition. A fourth EIS will analyze the environmental consequences of production, a decision planned for mid-1983.

The requirement for an advanced, survivable intercontinental ballistic missile was identified in 1971, and the M-X program began in 1974. The M-X system is proposed as a major element of the United States strategic deterrent and is designed to maintain the survivability of the United States land-based strategic missile force. The rapidly expanding Soviet threat is making present Minuteman and Titan missile systems increasingly vulnerable and eroding confidence in our ability to deter Soviet aggression. Therefore, the M-X program is of the highest national priority. The first missiles are scheduled to be operational in 1986 and the entire system in 1989.

The EIS, prepared in compliance with the National Environmental Policy Act (NEPA), is designed to aid in major decisions related to the selection of the designated deployment area or areas and the approximate operating base locations. Deployment alternatives within the states of Nevada, Utah, Texas, and New Mexico are compared to determine relative environmental considerations which may influence selection of an area or areas for deployment of the system. After the deployment area decision, studies will continue on site-specific considerations such as programs to mitigate adverse impacts on the human and natural environment.

Congress is an active participant in the development of M-X and has provided valuable guidance regarding engineering refinements and environmental considerations. For example, Congress has directed that "split-basing" be explored as a possible mitigation to the rapid influx of large numbers of people into a single area.

Another goal is to minimize the total land area to be utilized and affected by the proposed system. The Air Force is working closely with Congress to achieve mutual goals of minimizing adverse environmental impacts, maximizing benefits, and preserving operational capabilities.

Because the EIS could also be used as part of an application for withdrawing public land for Air Force use, the Department of Interior (DOI) is a cooperating agency. The Bureau of Land Management (BLM) has been designated the lead agency for M-X-related activities within the DOI. The last section in Chapter 1 explains the land withdrawal/acquisition process.

Chapter 1 is an overview of the M-X program. It includes purpose and need, the proposed action and alternatives, and a description of M-X and program schedules. This EIS does not necessarily cover all remaining decisions in the M-X program. Decisions and analyses that are not covered by this EIS will be considered in future environmental evaluations. These include:

- o Exact location of the road system in each affected area.
- o Exact location of the protective structures and other facilities.
- o Detailed, site-specific analysis for construction of the operating bases.
- o Detailed mitigation measures.
- o Impacts of commitment of resources to production.
- o Requirements for system expansion or schedule changes, if any.

M-X deployment is a program still in the early stages of planning. It is recognized that as the program develops new issues and problems will arise; surprises will occur and changes will need to be made in the system. Knowledge will also advance concerning the implications of the program for the natural environment and the social and economic fabric of the deployment area. The analysis of impacts in this EIS is, therefore, necessarily the product of best knowledge at a point in time. The urgency of thie program to the defense of the United States, in view of the serious and growing vulnerability of the Minuteman and Titan missiles to advances in Soviet weaponry, requires that decisions be made as soon as possible on the best available evidence.

An example of the rapid changes in data and analysis is shown in Table 1-1. It presents different estimates of the total number of construction workers, missile assembly and checkout workers, and operating base workers required to build, assemble, and operate the system. The "EIS" figures were the earliest prepared. They were done with assistance from contract consultants. Subsequently, the Air Force received a different set of estimates from the South Pacific Division Corps of Engineers. Each set of figures were based on a particular set of assumptions and professional judgements, and the Air Force believed that each was competently done. As a result a task force was convened by the Office of the Air Force Regional Civil Engineer-M-X at Norton AFB in November 1980 to seek agreement on the estimates for numbers and staging of construction workers. The "Task Force" was a joint group consisting of representatives of the Corps of Engineers, Air Force engineers and Air Force contract consultants.

Table 1-1. Estimates of construction, assembly and checkout, and operating base workers.

SOURCE OF ESTIMATE	1982	1983	1984	1985	1986	1987	1988	1989
DEIS	1,150	2,000	4,400	10,750	17,050	15,300	11,100	4,800
Corps of Engineers	1,650	6,940	14,305	19,750	23,730	16,900	12,670	4,725
Task Force	2,035-* 2,912**	5,590- 6,608	9,510- 13,440	19,250- 20,216	18,560- 22,228	17,670- 21,560	12,675- 15,008	5,490- 8,512

4099

*First number is the average for the year.

**Second number is peak employment during the year.

The "Task Force" figures represent an essential consensus of estimates at this point in system development. The task force also agreed on estimates for peak employment in each construction year. This set of estimates provides a range of potential employment for each construction year.

This work was completed too late for inclusion in the EIS, although the significance of these estimates for many aspects of the EIS is acknowledged. Work will continue in this area, and public comments on the estimates are specifically invited. The final EIS will reflect the best estimates available at the time it is prepared, based upon a reconciliation of all reasonable inputs.

There will be a 90-day comment period for the draft EIS, during which public hearings will be held in the candidate deployment regions. The time and place of these hearings will be announced in the Federal Register and by local media.

As comments are received on this draft, environmental analysis may be further refined. Comments, including those obtained during public hearings, will be considered in the preparation of the Final Environmental Impact Statement (FEIS). The FEIS will be on file with the Environmental Protection Agency for 30 days before a deployment area decision is made. A record of decision will be published.

Comments on this draft environmental impact statement or requests for additional copies of this document should be addressed to:

Ballistic Missile Office
Attn: AFRCE-M-X/DEV
Box EIS
Norton AFB, California 92409
(714) 382-4891

Purpose, Need, and Description of Proposed Action and Alternatives

PURPOSE, NEED, AND DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

PURPOSE AND NEED (1.1.1)

The purpose of the M-X missile system is to improve the survivability and capability of our land-based intercontinental ballistic missile (ICBM) force, thus continuing to help deter a Soviet attack against the United States.

The need for M-X results from Soviet missile developments which make our Minuteman and Titan land-based ICBMs increasingly vulnerable. These developments are improved missile accuracy and replacements of single-warhead missiles with missiles carrying multiple warheads. In the near future, Soviet reentry vehicles are projected to be accurate enough to destroy any fixed target. Additionally, the Soviets will possess sufficient numbers of reentry vehicles to apply two against each Minuteman and Titan silo while retaining a residual force of more than 4,000 for use against other targets. If ICBM survivability is not improved, the Soviets could focus their efforts on neutralizing our sea-based forces, strategic bombers, and cruise missiles. This situation would lead to a dangerous gap in deterrence.

It is against this background that the United States must solve the problem of how to retain an effective, survivable ICBM force, without significant loss of the unique features traditionally provided by ICBMs. These features include quick, flexible response; independence from warning; high alert rate; dependable command, control, and communications; and low operating cost.

After 20 years of study and consideration of more than 35 alternative basing modes, the Air Force has concluded that land-based ICBM force survivability is best achieved by a mobile missile deployed in a multiple protective shelter (MPS) system. This concept requires relatively few (200) mobile M-X missiles moved among a relatively large number (4,600) of shelters. The studies that led to M-X evaluated many missile designs, including liquid- and solid-propellant types carrying single and multiple warheads. Basing concepts included those operated on or underground, on or underwater, and in the atmosphere. Some concepts considered hardened shelters while others achieved their survivability by unhardened mobile carriers moved over large areas of the country. The Air Force has studied and rejected systems which

used railroads, barges, wide-body jets, cargo-type airplanes, submarines, lighter than air vehicles, ships, air-cushion vehicles, and trucks. Basing modes included trenches, tunnels, pools, silos, canals, hardened capsules, excavated mountains, and various configurations of shelters. The studies considered manned and unmanned operations as well as various tactical options such as launch on warning, trans-attack launch, and active defensive systems to intercept and destroy attacking Soviet warheads.

The M-X system is designed to strengthen our strategic forces so that no nation would be tempted to initiate an attack against the United States. Should an aggressor attack the M-X missile in a MPS system, he would face an adverse exchange ratio; the attacker would be forced to use more of his weapons than the number of weapons he could expect to destroy. Thus, a rational enemy, if starting from a position of near parity, would be deterred from attacking preemptively because the relative balance of force would be shifted against him. This is the essence of deterrence and the fundamental reason why M-X is needed.

The Air Force has concluded that ICBM survivability can best be achieved by deploying mobile missiles in a multiple protective shelter system. This concept is technically feasible, affordable, and provides required force characteristics.

On September 7, 1979, President Carter announced his decision to proceed with full-scale engineering development of the M-X system:

> ...For nearly 30 years, now, our nation has deterred attack and has kept the peace through a complementary system of land, sea and airborne nuclear forces, commonly known as the strategic TRIAD.
>
> ...My administration is now embarked on a program to modernize and to improve the ability of our entire strategic TRIAD, all three systems, to survive any attack. Our bomber force is being strengthened with nuclear-tipped cruise missiles. Our strategic submarine force is being upgraded by Trident submarines and Trident missiles.
>
> ...However, as result of increasing accuracy of strategic systems, fixed land-based intercontinental ballistic missiles or ICBMs located in silos, such as our Minuteman, are becoming vulnerable to attack. A mobile system will greatly reduce this vulnerability. Therefore, I decided earlier this year to proceed with full scale development and deployment of a new, large mobile ICBM, known as the M-X. I made this decision to assure our country a strategic deterrent now and in the future.
>
> ...At the time I made the decision to build the M-X, I established five essential criteria which the basing system would have to meet.

- First, it must contribute to the ability of the strategic forces to survive an attack.
- Second, it must be verifiable so as to set a standard which can serve as a precedent for the verifiability of mobile ICBM systems on both sides.
- Third, it must minimize the adverse impact on our own environment.
- Fourth, its deployment must be a reasonable cost to the American taxpayer.
- And fifth, it must be consistent with existing SALT agreements and with our SALT II goal of negotiating for significant reductions in strategic forces.

The President concluded his announcement of the M-X decision with the following statement:

> ...In sum, this system will enhance our Nation's security, both by strengthening our strategic deterrent and by offering the prospect of more effective arms control. This system is not a bargaining chip. It's a system that American needs and will have for its security. I'm confident that the American people will support its deployment.

The decision to develop M-X is not dependent on ratification of SALT. Various scenarios were considered and it was concluded that M-X was the best solution to the survivability problem, either with or without a SALT agreement. The system has the flexibility to delete SALT verification aids without changing the fundamental concept or its effectiveness.

Considerable public interest has been expressed in the Submersible Underwater Missile System (SUMS) as an alternative to M-X in multiple protective shelters. Several variants of the SUMS concept have been proposed which would use submarines to carry several missiles, possibly existing Minuteman, near the U.S. coastline. SUMS was considered and rejected before the President made the decision to begin full scale engineering development of M-X. Principal reasons for rejecting SUMS were that it would abandon the TRIAD concept, it would not be deployed when required and its high cost risk.

SUMS would be an abandonment of the TRIAD concept which has served this country well for over two decades. All strategic forces would be either sea-based or air-breathing. Enemy efforts could be concentrated on only two types of strategic forces (DYAD) instead of the greater diversity now achieved with a TRIAD of forces. A technical breakthrough by the adversary against one of the DYAD forces could be catastrophic and cause precipitous action to remedy the situation. Studies by the Department of Defense have found that DYADs are no less expensive than TRIADs for equivalent capability; however, the DYAD would forego military

capability, particularly some of the unique and essential characteristics traditionally provided by ICBMs.

Other serious drawbacks of the SUMS concept are that it is very doubtful if it could achieve an initial operational capability date when it is required. Submarines of the necessary size do not exist and development, production, and checkout would likely not occur until the 1990s at the earliest. A large number of submarines would be required to provide survivability equivalent to M-X. If the Minuteman were to be used, it would have to be modified extensively to adapt it to the SUMS concept. Furthermore, the Minuteman production line or portions of it may have to be reopened to supply missile components. Initial comparative studies have shown that costs for SUMS and M-X are approximately equal; however, these studies have concluded there is significantly lower confidence in the cost estimates for SUMS.

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES (1.1.2)

This environmental impact statement provides the information to aid in making two major decisions:

1. Selection of a designated deployment area or areas.
2. Selection of two operating base locations to support the selected deployment area or areas.

Two regions have been determined suitable for M-X deployment. These are Nevada/Utah and Texas/New Mexico. Seven potential operating base locations, from which two will be selected, have been identified. These bases are located in areas near Beryl, Utah; Coyote Spring Valley, Nevada; Delta, Utah; Ely, Nevada; Milford, Utah; Dalhart, Texas; and Clovis, New Mexico. The process and criteria used to identify these deployment and base locations are detailed in Section 2.1.

All 200 missiles could be deployed in Nevada/Utah, all 200 could be deployed in the Texas/New Mexico region, or approximately 100 missiles could be deployed in each of the two regions. This last option is referred to as "split basing."

If all 200 missiles were deployed in Nevada/Utah, the system would be located within the region indicated in Figure 1.1.2-1. The illustration includes the approximate locations of five alternative operating base sites, of which only two would be selected. The proposed action includes bases in Coyote Spring Valley, Nevada and near Milford, Utah.

If all 200 missiles were deployed in Texas/New Mexico, the system would be located within the region indicated in Figure 1.1.2-2. The operating bases in this alternative would be in the vicinities of Dalhart, Texas, and Clovis, New Mexico.

If "split-basing" is selected, deployment would occur in portions of Nevada, Utah, Texas, and New Mexico (Figure 1.1.2-3). Bases would be in Coyote Spring Valley, Nevada and near Clovis, New Mexico.

More detailed versions of Figures 1.1.2-1 through 1.1.2-3 (presented in Chapter 2) show potential operating base and area support center locations, possible sites for protective shelters, and possible routes for interconnecting roads. This EIS provides an analysis of the potential impacts of these conceptual deployments. As

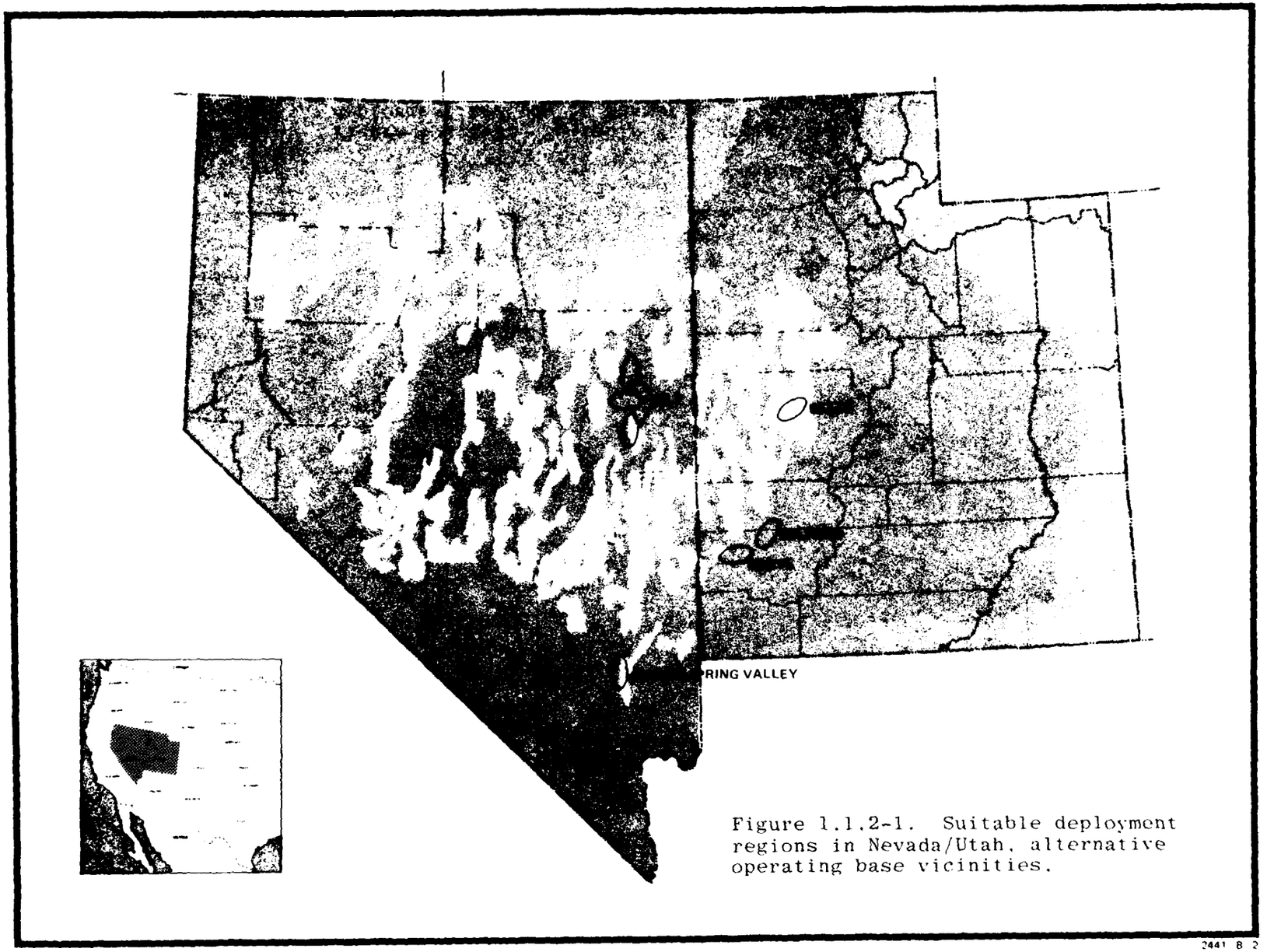

Figure 1.1.2-1. Suitable deployment regions in Nevada/Utah, alternative operating base vicinities.

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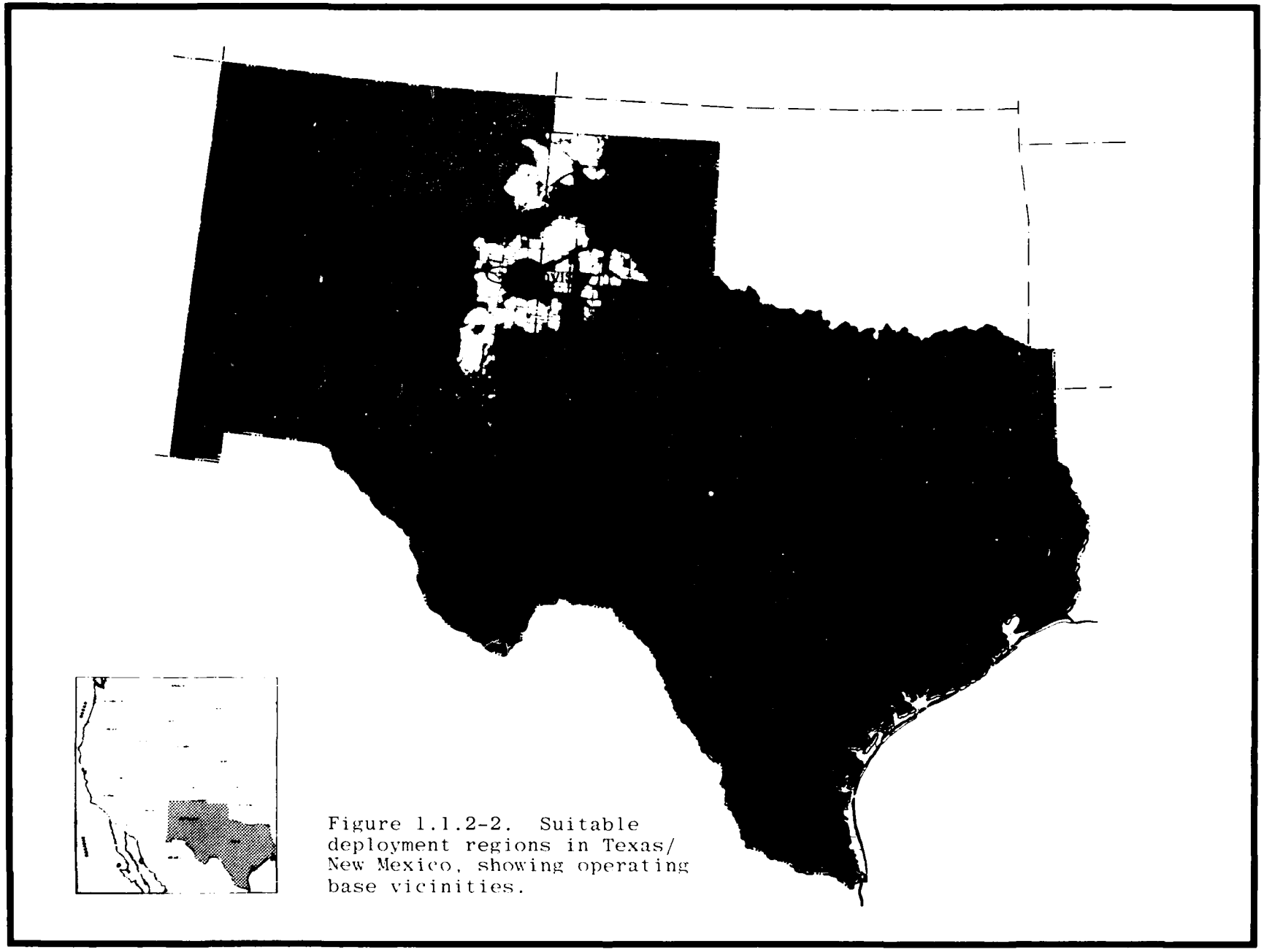

Figure 1.1.2-2. Suitable deployment regions in Texas/ New Mexico, showing operating base vicinities.

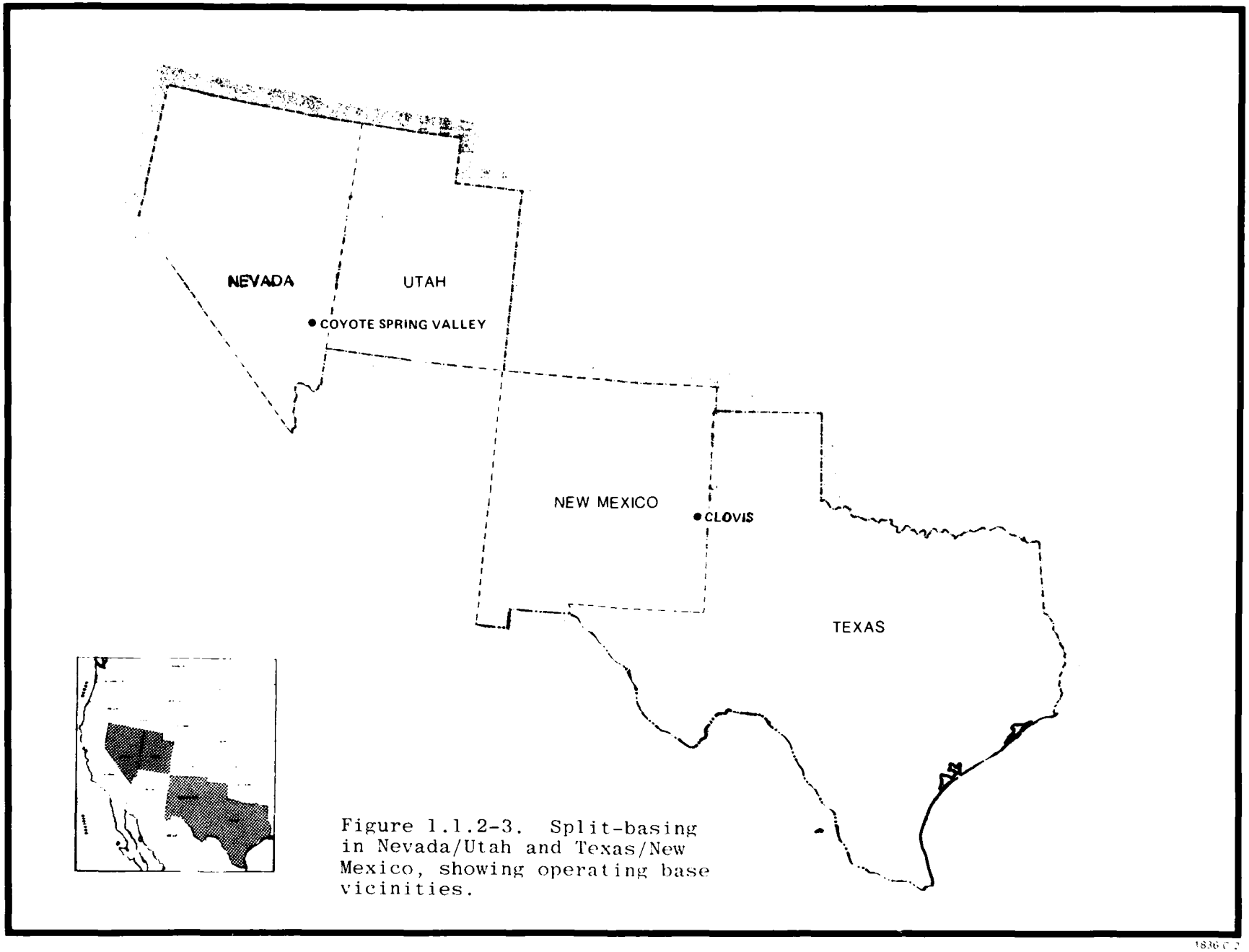

Figure 1.1.2-3. Split-basing in Nevada/Utah and Texas/New Mexico, showing operating base vicinities.

the program proceeds, more detailed studies will be conducted at specific sites and along potential routes. The general regions identified and the overall impacts predicted are not expected to change. Specific sites may change from the tentative locations shown in this EIS, to minimize environmental impacts. Additional environmental studies and documentation required following this EIS are described in Section 1.7.2, Tiered Decision Making.

The proposed action and alternatives selected for environmental analysis are shown in Table 1.1.2-1. Section 2.1 describes the process used to determine deployment alternatives. Section 2.2 provides descriptions of the proposed action and alternatives, construction scenarios, and resource requirements for each.

Land will be required within the deployment regions for long-term operational use and for short-term construction. The total fenced area is approximately 25 square nautical miles for each alternative except for split-basing. For split basing, the total fenced area is about 28 square nautical miles. A detailed listing of the facilities, roads, and disturbed areas is provided in Table 2.2-3.

The proposed action and alternatives 1 through 6, which consider deployment of 200 missiles in the Nevada/Utah region, diffe- principally in operating base locations. Alternative 7 considers deployment of 200 miss .es in Texas/New Mexico. Alternative 8, the split basing alternative, considers deployment of approximately 100 missiles in Nevada/Utah, and 100 in Texas/New Mexico (see Table 1.1.2-1).

The ninth alternative is to take no action on the proposed action or any of its alternatives. The Department of Defense and the Air Force have concluded that failure to implement the proposed action or one of its alternatives would result eventually in an unacceptable risk to the survivability of the nation's strategic deterrent.

If the decision is made to take no action, land uses and the human and natural environments of the candidate deployment areas will still change because of other projects. This EIS has been structured so that the reader can distinguish between the environment without M-X, the environment with M-X, and the cumulative environment with both M-X and other expected projects. The impact of no action is, in essence, the projected change of the environment without M-X, which is summarized in Chapter 2.

Table 1.1.2-1. Proposed action and alternatives.

PROPOSED ACTION AND ALTERNATIVES	DEPLOYMENT AREAS[1]				OPERATING BASE VICINITIES	
	NEVADA	UTAH	TEXAS	NEW MEXICO	FIRST	SECOND
[illegible]						
[illegible]	200		0	0	Coyote Spring Valley, NV	Milford, UT
[illegible]						
[illegible]	200		0	0	Coyote Spring Valley, NV	Beryl, UT
[illegible]	200		0	0	Coyote Spring Valley, NV	Delta, UT
[illegible]	200		0	0	Beryl, UT	Ely, NV
[illegible]	200		0	0	Beryl, UT	Coyote Spring Valley, NV
[illegible]	200		0	0	Milford, UT	Ely, NV
[illegible]	200		0	0	Milford, UT	Coyote Spring Valley, NV
[illegible]			200		Clovis, NM	Dalhart, TX
[illegible]						
[illegible]	100		100		Coyote Spring Valley, NV	Clovis, NM
[illegible]	NA			NA	NA	NA

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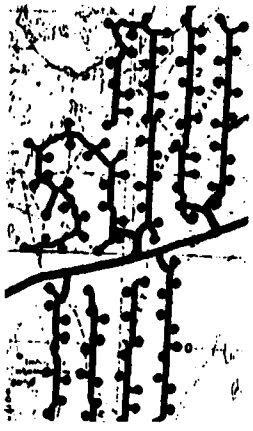
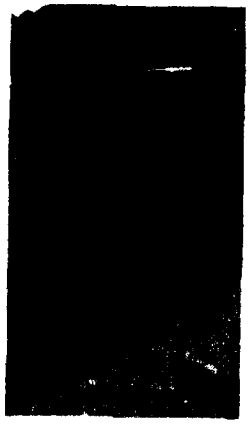
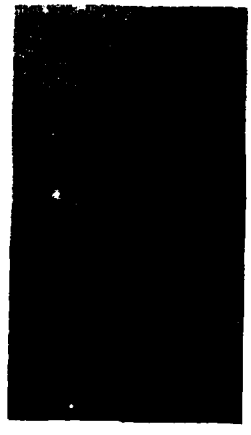
[1] Numbers represent missiles deployed (approximate for split basing).

System Description







SYSTEM DESCRIPTION

This section provides a description of the M-X system, which includes the following basic elements:

- o M-X missiles (200)
- o Protective shelters (4,600)
- o Mobile launchers (200)
- o Special transport vehicles (about 5)
- o Roads (approximately 8,500 miles)
- o Support facilities
- o Transporters (200)
- o Simulators (4,600)

Three main system components described herein are: 1) the missile; 2) the facilities and equipment in the designated deployment area; and 3) the operating bases. These descriptions are current; however, refinements may be incorporated during full-scale engineering development to improve performance and reliability, reduce cost, or decrease environmental impacts.

The M-X is a new mobile missile which will be assembled at a small, centralized facility and is designed for horizontal movement. A relatively few missiles will be hidden among a large number of garage-like structures. Transported by a large vehicle, the missile will move infrequently because of its very low expected failure rate. All of the facilities for housing and maintaining missiles will normally be unmanned, with people required for maintenance or security travelling from a few small support centers located throughout the missile basing area. The majority of the people required to operate and support the system will be located at two bases each resembling a small community. System components will be addressed in the following sections.

MISSILE (1.2.1)

The M-X missile will be 70 ft long, 92 in. in diameter, and weigh approximately 190,000 lbs (Figure 1.2.1-1). It has four propulsion (rocket) stages; the first three use solid fuel, and the fourth uses liquid fuels. It carries ten reentry vehicles

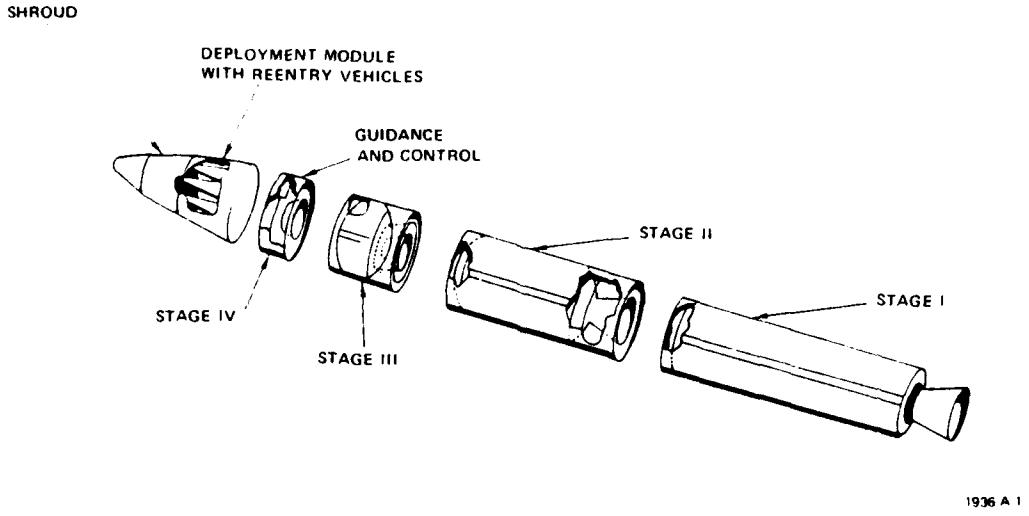


Figure 1.2.1-1. M-X missile.

(with nuclear warheads), which may be of the same type currently being deployed on a portion of the Minuteman III strategic missile force. The missile is enclosed in a cylinder (canister) which provides a controlled operating environment and is also used to launch the missile. The canister attaches to a launcher, containing launch-essential equipment. Upon command, the launcher erects the missile to a near-vertical launching position.

DESIGNATED DEPLOYMENT AREA - OVERVIEW (1.2.2)

The designated deployment area (DDA) is the land on which the major M-X system facilities will be constructed and the system elements operated. These facilities include 4,600 horizontal shelters (grouped in clusters of 23), 200 cluster maintenance facilities (one per cluster), cluster roads, the major portion of a special interconnecting road (the designated transportation network or DTN), area support centers (3-6), and earth barriers (200, each restricting a missile to its assigned cluster). The DTN and barriers aid in arms control verification, a process which permits each party to arms control agreements to verify, by national technical means (defined as satellite), that no more than the agreed-upon numbers of launchers are present in the deployment area. Additionally, the DDA will contain major portions of an electrical power distribution system, physical security system, buried antennas, and buried fiber optic command, control, and communications network. The major system elements include 200 missile/launchers and 200 transporters.

Clusters (1.2.2.1)

A cluster is a group of 23 concrete structures (horizontal shelters), each capable of housing and protecting a missile launcher, connected by a cluster road,

and containing a cluster maintenance facility (CMF) (Figure 1.2.2.1-1). Each cluster will contain only one missile. Horizontal shelter site pattern and spacing ensures survivability against attacks. The preferred pattern is hexagonal with an average spacing of 5,200 ft (but not less than 5,000 ft) between shelters (Figure 1.2.2.1-2a). Existing roads may make it necessary to use an alternative pattern, called a "grid." In the latter case, the pattern is no longer an equal-sided hexagon (Figure 1.2.2.1-2b).

The Air Force is studying the feasibility of increasing the number of shelters per cluster from 23 to as many as 92 (while retaining the system total of 4600), and the number of missiles per cluster from one to as many as four (while retaining system total of 200 missiles). In any case, the shelter-to-missile ratio would remain at 23:1, but there are potential advantages in larger clusters. With 92 shelters per cluster, the number of clusters and CMFs would be reduced from 200 to 50, with corresponding reductions in cost and land-use requirements. This study is not yet complete, and this EIS consequently addresses the 200-cluster case.

The pattern chosen for M-X provides for missile survivability against current and possible future threats. There is room for a fifty percent increase in the number of shelters constructed without expanding the designated deployment area or reducing the average shelter spacing. While construction of more than 4,600 shelters is not proposed, the selected combination of shelter spacing and pattern represents a compromise between minimizing total land requirements and providing a hedge against potential Soviet initiatives. If additional shelters are proposed in the future, further impact analysis will be required.

Protective Shelters

The protective shelter (shown in Figure 1.2.2.1-1) is unmanned and can house, protect, and conceal the missile/launcher. Each of the 4,600 shelters is a reinforced-concrete, steel-lined cylinder buried under 5 ft of earth. Its concrete and steel door is exposed. Two plugs in the roof of each shelter can be removed to permit periodic SALT monitoring of shelter contents by satellites. Concrete enclosures for electrical power; command, control, and communications; and environmental control equipment are buried adjacent to each shelter.

Each protective shelter is located on a 2.5 acre site protected by a fence. Site security is provided by a variety of sensors which are monitored remotely. If suspicious activity is detected, security forces would be dispatched. Design features are built into each shelter to prevent unauthorized access.

Cluster and Support Roads

Cluster and support roads are shown in Figure 1.2.2.1-3. Cluster roads connect each shelter and the cluster maintenance facility within a cluster. Cluster roads consist of a stabilized base material treated with a dust suppressant (palliative). They are 21 to 30 ft wide with 5 ft shoulders and are covered by an earth barrier where they join the DTN. The maximum grade for these cluster roads is 5 percent, with a minimum turn radius of about 400 ft. Approximately 5,900 - 6,200 mi of cluster roads will be required to deploy the entire system. The transporter operates exclusively within the cluster and is confined in it by the barrier.

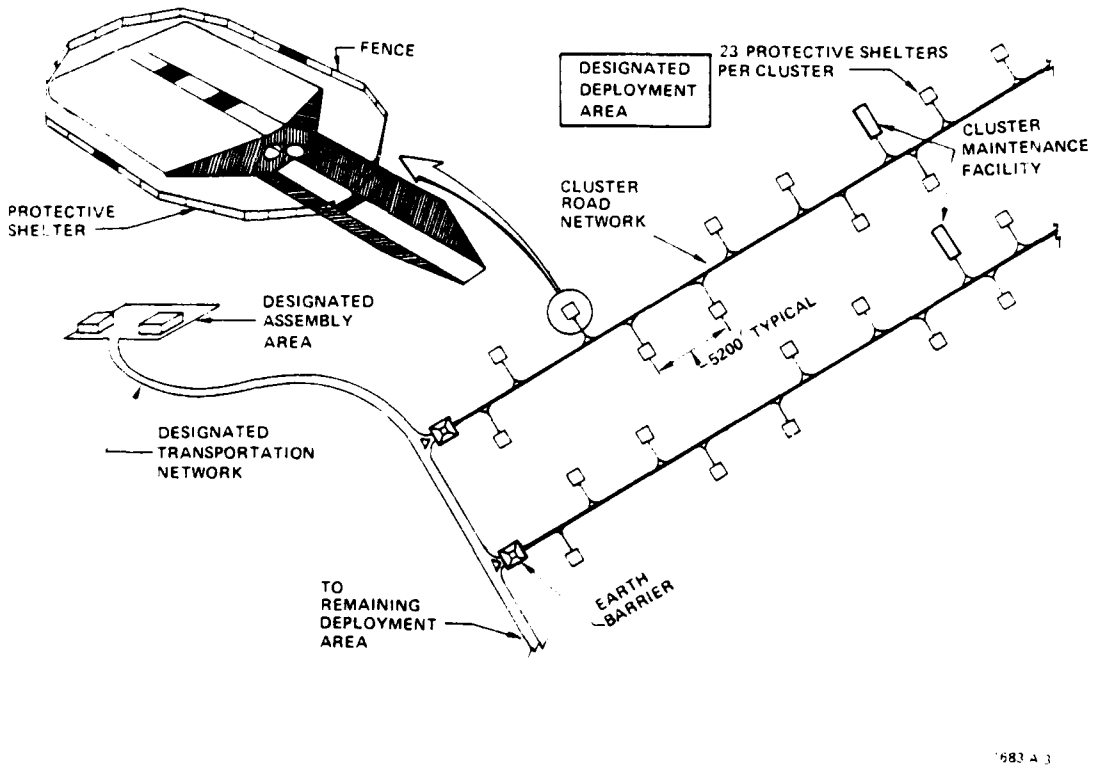


Figure 1.2.2.1-1. Conceptual cluster layout.

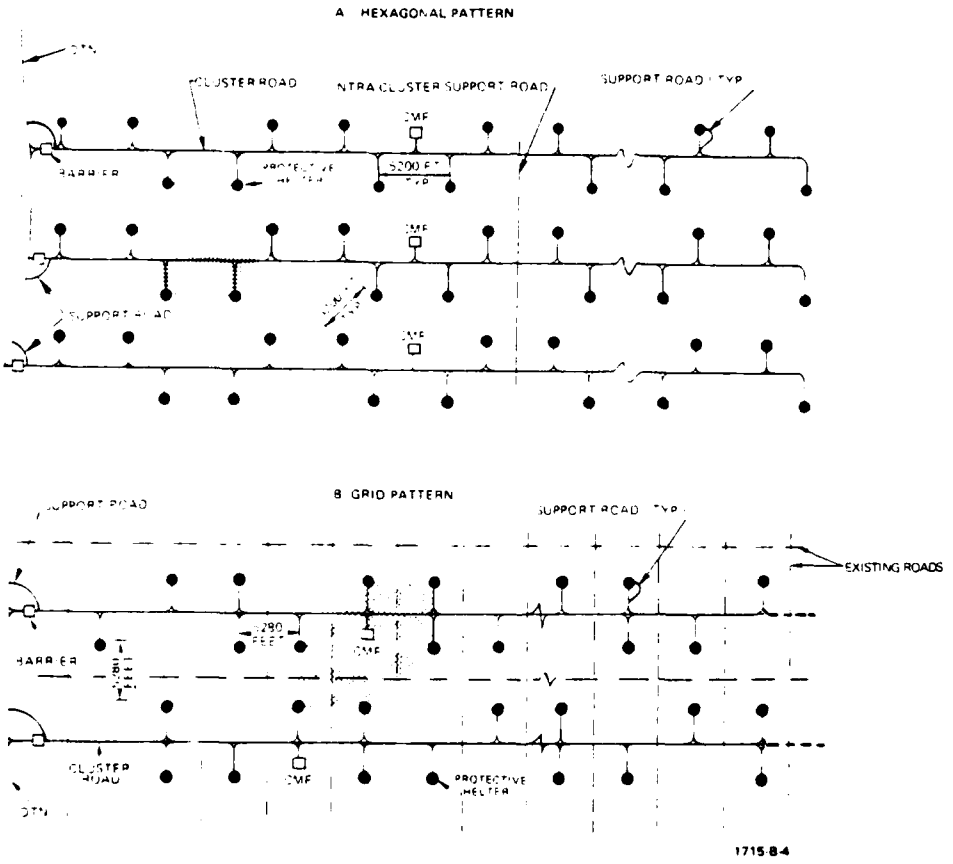


Figure 1.2.2.1-2. Hexagonal and grid cluster patterns.

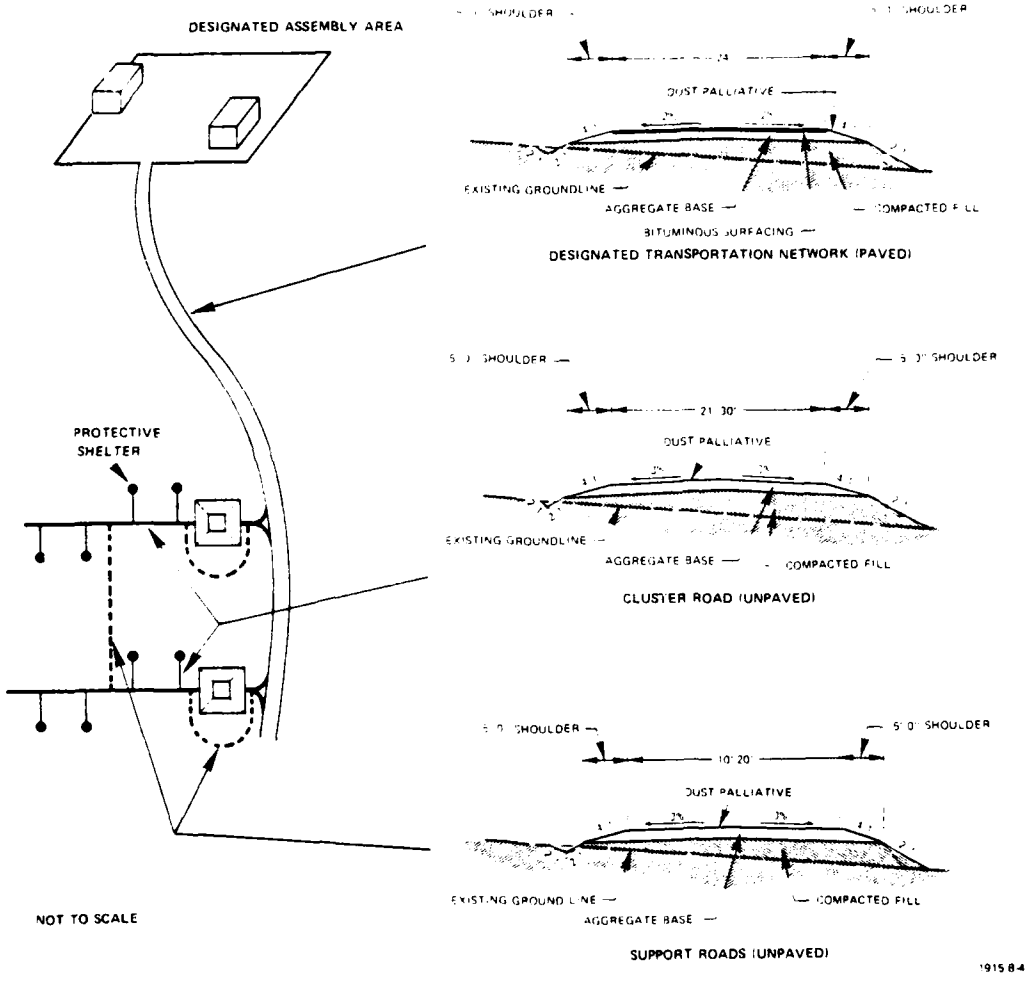


Figure 1.2.2.1-3. Roads.

Support roads provide access to other deployment area facilities such as remote surveillance (radar) sites and power distribution centers and for inter-cluster security vehicle movements. Support roads are made of stabilized base materials treated with dust palliative. They are 10 to 20 ft wide with 5 ft shoulders. The missile transporter is incapable of operation on the support roads. This ensures that the missile/launcher cannot be moved between clusters. Approximately 1,200 to 1,500 mi of support roads will be required.

All roads, including the DTN (Section 1.2.2.7), are for M-X system operation and maintenance but will be open to the public. During missile movements, public safety may require temporary public traffic restrictions.

Barriers

To aid SALT verification, each missile/launcher is confined to a single cluster, or group of 23 shelters. Confinement is provided by a barrier which consists of a 60 ft x 50 ft earthen berm piled 10 ft high. Once the missile/launcher is in a cluster, this earthen barrier is erected over the cluster road connection to the DTN to ensure confinement of the missile/launcher. A support road bypasses the barrier to accommodate maintenance and security vehicles. While the transporter could operate on the DTN, the presence of the barrier prevents access to it. This ensures that the transporter remains in the cluster. Removal of the barrier, to permit movement of the missile/launcher for repair of large missile/launcher components at the designated assembly area (Section 1.2.3.1), is detectable by satellite. Additionally, barrier removal, if required, will be part of SALT monitoring procedures during initial deployment, as discussed in Section 1.3.2.

Cluster Maintenance Facility

Each cluster of 23 shelters will contain a cluster maintenance facility (CMF) where transporter, launcher, and minor missile repairs will be performed (Figure 1.2.2.1-4). The CMF is fenced and normally unmanned. When required, personnel are dispatched from an area support center to the CMF to make necessary repairs to the launcher and some missile components. The CMF also serves as a garage for the transporter. The cluster maintenance facility is located within a 4-acre fenced site, and includes a building with monitoring ports in its roof, a transfer area, and a vehicle parking area.

Launcher, Simulator, and Transporter (1.2.2.2)

The launcher contains a missile, a canister, and the electronic and mechanical equipment required to monitor, operate, and launch the missile (Figure 1.2.2.2-1). The missile would normally be launched from a shelter, but can also be launched from a cluster maintenance facility. The shelter is not a launcher. For launch, the canisterized missile/launcher partially emerges from the shelter, the canisterized portion erects to near vertical, and the missile is launched (Figure 1.2.2.2-2). The weight of the built-up missile/launcher assembly is about 500,000 lbs.

Preservation of location uncertainty is required for the survivability of the M-X system. To achieve it, each protective shelter and each transporter must exhibit the same characteristics to external observers whether they contain a

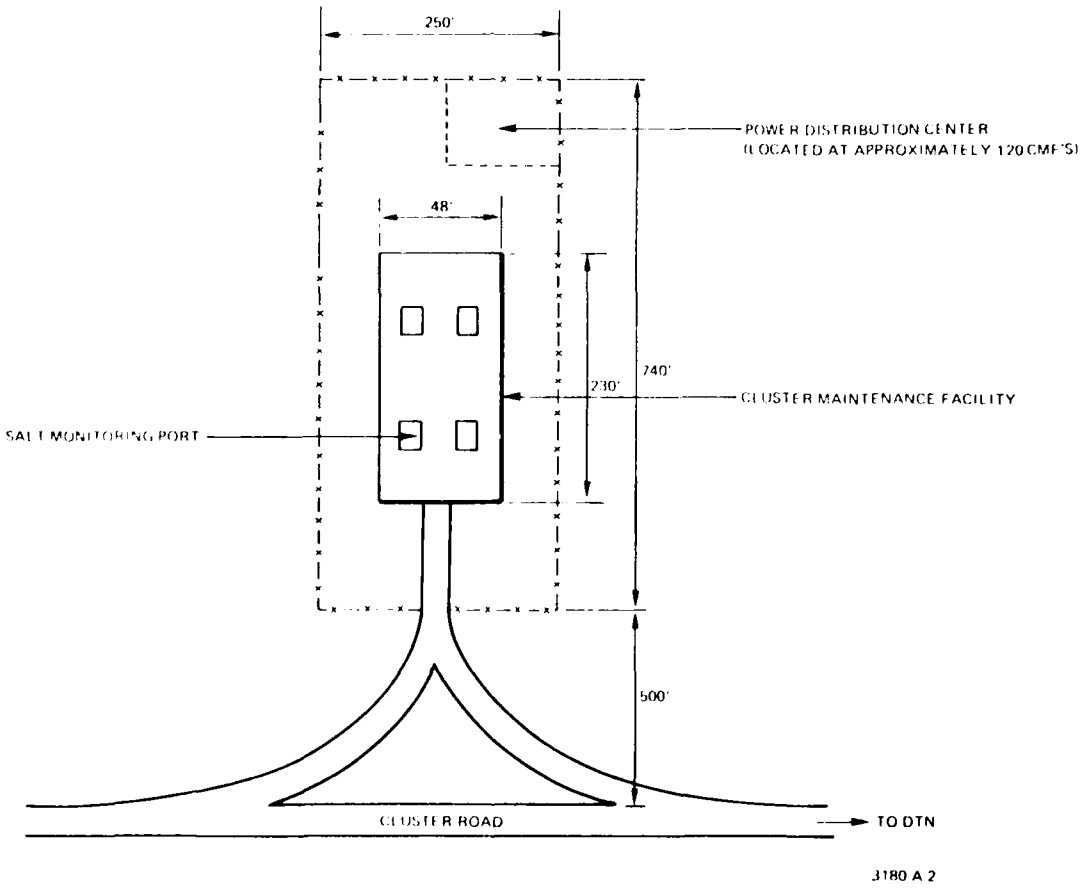


Figure 1.2.2.1-4. Cluster maintenance facility (dimensions approximate).

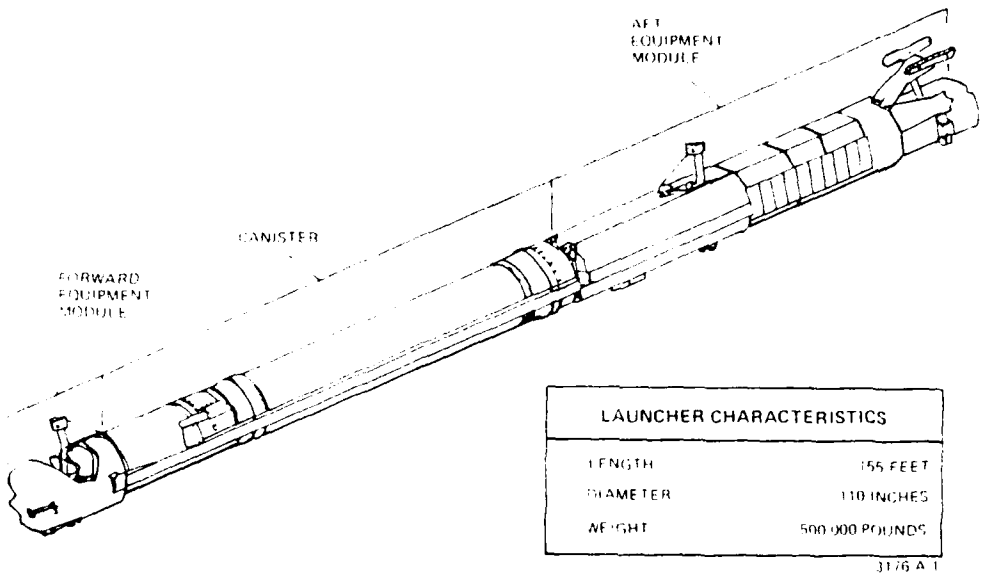


Figure 1.2.2.2-1. Launcher.

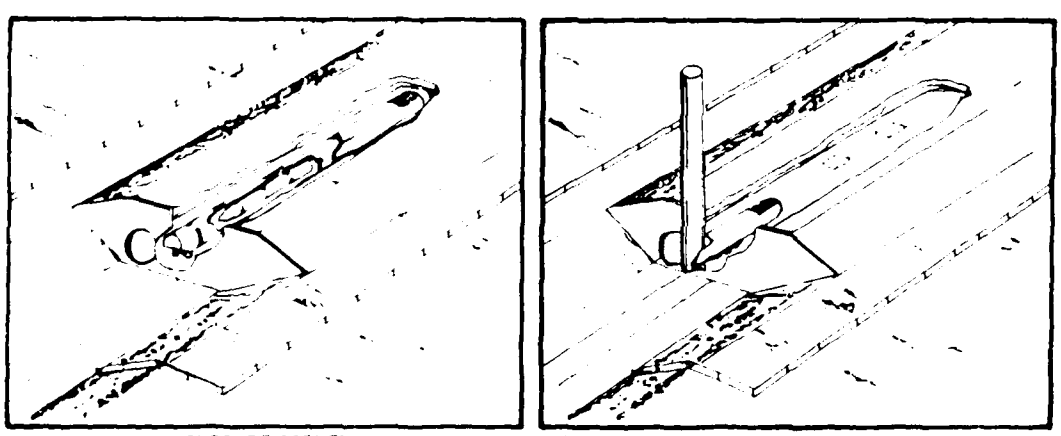


Figure 1.2.2.2-2. Missile launch sequence.

missile/launcher or not. To aid in achieving this external "sameness," a simulator will be used. The simulator duplicates the characteristics of the missile/launcher (weight, balance, and other factors) so that it is not possible for an external observer to distinguish between the launcher or simulator on the transporter or in a shelter.

The transporter (Figure 1.2.2.2-3) moves the missile/launcher among the 23 shelters of a cluster at about 10 mi per hour. This transporter (one for each missile/launcher) weighs about 1,100,000 lbs empty and 1,600,000 lbs when carrying the missile/launcher or a simulator.

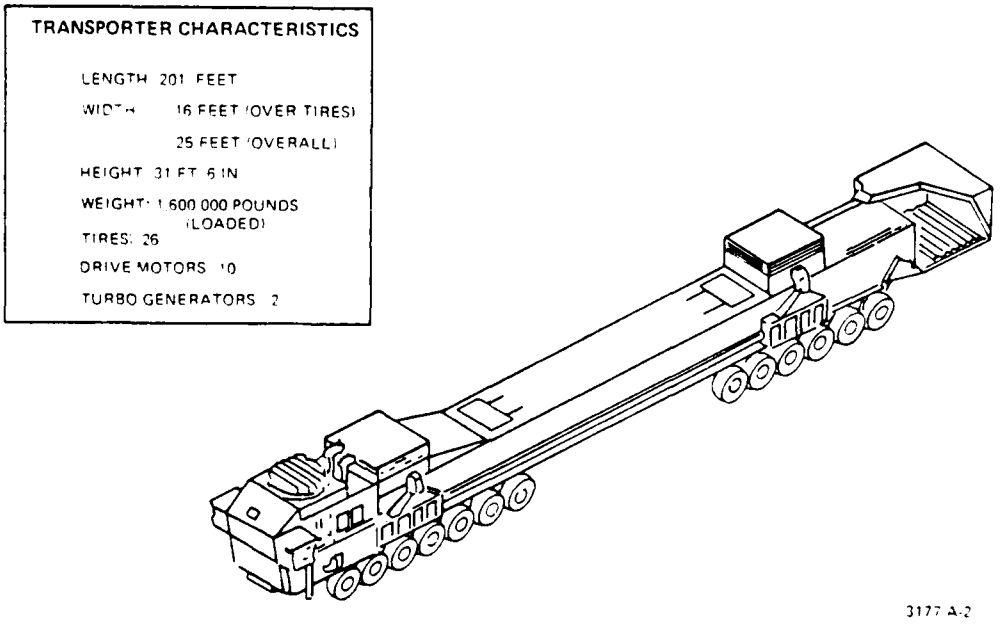


Figure 1.2.2.2-3. Transporter (used inside cluster).

The transporter and missile/launcher or simulator are separable. Only the missile/launcher or simulator is inserted into a shelter. Each cluster will have one missile/launcher and 22 simulators inserted in shelters. When it is not in use, the transporter will be located at the cluster maintenance facility, and may be loaded with a simulator.

Area Support Centers (1.2.2.3)

Operations, maintenance, and security support for the system are required throughout the designated deployment area, which could be dispersed over about 12,000 sq mi.

Services could be provided from two or more operating bases with permanently assigned personnel; however, detailed studies by the Air Force's Strategic Air Command (SAC), which will operate and maintain the system, have shown that it is not desirable to have more than two operating bases because of operational considerations, excessive manpower requirements, and cost.

In addition to the two operating bases planned, three to six area support centers (ASCs) will be sited within the designated deployment area (Figure 1.2.2.3-1). Area support centers will provide facilities for equipment storage and repair, security control, maintenance dispatch, helicopter transport and maintenance; and other services necessary to support the system in the field. The area support centers will be located along the designated transportation network to provide a secure temporary parking area for missiles in transit. Area support centers will be sited so that any protective shelter within their area of responsibility is not more than about 65 air miles away, to allow security forces to arrive via helicopter at any threatened area within 30 minutes. Additionally, maintenance

Figure 1.2.2.3-1

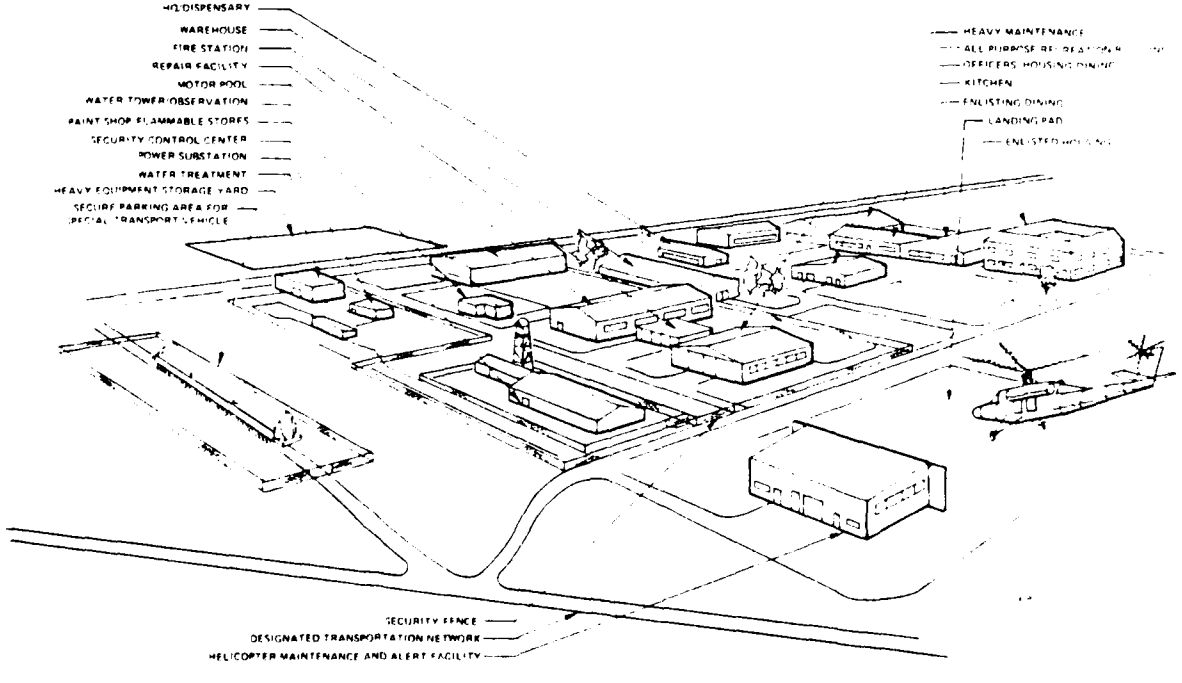


Figure 1.2.2.3-1. Area support center (conceptual).

forces will not be required to travel more than 90 ground miles, one-way, so that they can complete their tasks in a single work shift, including travel time.

A typical area support center is expected to require a 55-acre site, and will provide living, eating, and recreational facilities for about 300 personnel. About 200 of these personnel are expected to be military and will be on temporary duty from an operating base for periods up to 7 days. The remaining 100 or so personnel could be civilians hired from communities adjacent to the area support centers, and would commute daily for work.

The number and locations of ASCs required to support the system depends on the alternative selected. Potential locations for ASCs are within a few tens of miles of the following communities:

- Pioche, Nevada
- Ely, Nevada
- Eureka, Nevada
- Tonopah, Nevada
- Delta, Utah
- Milford, Utah
- Dalhart, Texas
- Hereford, Texas
- Portales, New Mexico

Final site-specific ASC locations are a Tier 2 decision as discussed in Section 1.7.2.

Remote Surveillance Sites (1.2.2.4)

Remote surveillance sites (RSS) will provide radar detection and tracking of vehicles and aircraft in and over the cluster complexes. RSS data will be transmitted via underground fiber optic cables to an area support center, where the data will be monitored and displayed and from which security forces can be dispatched.

Two RSS location alternatives are currently being evaluated. The first uses 200 RSS radars atop 100 ft towers within cluster areas (Figure 1.2.2.4-1). Towers would be located on quarter-acre fenced sites and would include a support building for power distribution and data processing and transmission. This alternative is analyzed in this EIS.

The second alternative requires 60 long-range radars outside cluster areas on topographically elevated locations providing radar surveillance of parts of the DDA. If this alternative proves reasonable, it will be comparatively evaluated before a choice is made between the RSS concepts. The radar sites are not analyzed for electromagnetic radiation levels in this EIS but will be addressed in subsequent site specific analyses (see Section 1.7.2 for tiering discussion).

Electric Power (1.2.2.5)

Electrical power to meet major system construction and operational needs will be purchased from commercial utilities or generated on site.

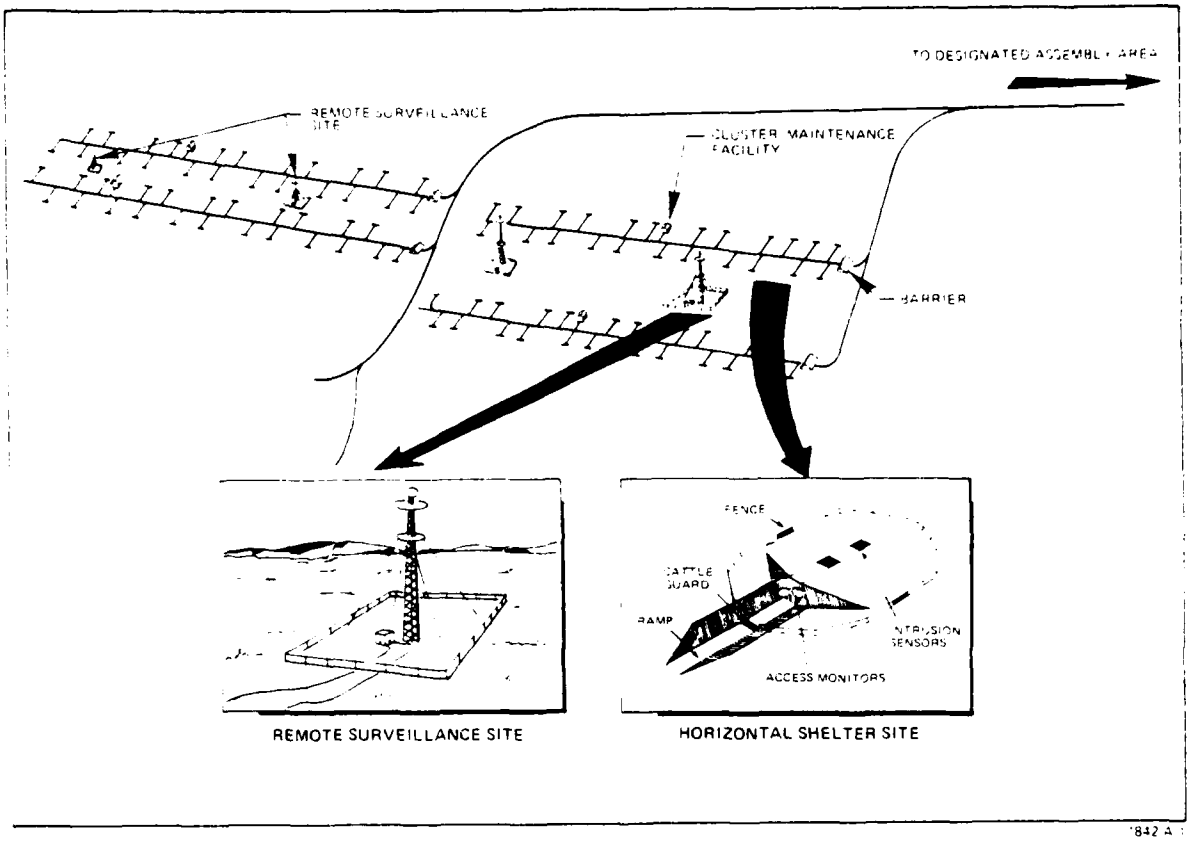


Figure 1.2.2.4-1. Physical security system.

As shown in Figure 1.2.2.5-1, transmission lines from commercial sources will deliver power to approximately 120 power distribution centers which are normally unmanned. Since the lines from the power sources to the distribution centers will be owned by the utility companies, other users could also be supplied. The distribution centers will have standby diesel generators. Power is distributed from each distribution center via underground cable which follows M-X or other road corridors to each shelter and support facility. Commercial power will be provided directly to the operating bases.

Alternative power sources will be used to the maximum feasible extent to reduce M-X requirements for commercial power. The Department of Defense/Department of Energy are studying renewable energy sources both for M-X and as a possible stimulant to commercial use of such systems. Beneficial spinoffs from the Renewable Energy Resources program are consistent with national energy goals. Details of the DOD/DOE program are contained in "Power and Energy Resources, M-X Project," ETR-24, and EIS reference documents. Renewable energy sources being considered are solar, wind, waste-to-energy, and geothermal. Phase one of the study will develop designs and selection criteria and phase two will build, test, and evaluate prototypes. This study will be complete by late 1983.

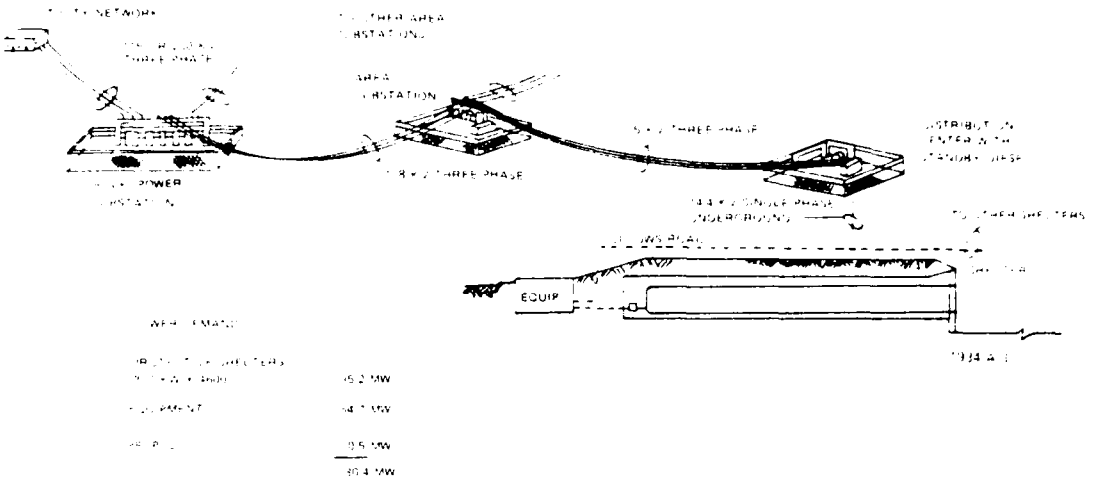


Figure 1.2.2.5-1. Electrical power distribution.

Command, Control, and Communications (1.2.2.6)

The command, control, and communications system will control the M-X system; monitor, retarget, and launch the missiles; and link operations, security, and maintenance personnel.

Day-to-day communications will use a fiber-optic cable network paralleling the system roads and inter-connecting shelters, cluster maintenance facilities, remote surveillence sites, area support centers, and operations control centers (Figure 1.2.2.6-1). The system also incorporates a medium frequency (MF) radio system as back-up if the cable system is inoperative. The MF radio will utilize buried antennas located at each shelter site to permit control of the M-X system by launch control aircraft.

Designated Transportation Network (1.2.2.7)

The designated transportation network (DTN) is an integrated road system connecting each cluster with the designated assembly area (DAA) (Figure 1.2.2.1-3). The DTN is the only road over which the missile can be moved between its assigned cluster and the DAA. The missile launcher is transported over the DTN by a special tranport vehicle (Figure 1.2.2.7-1).

The designated transportation network is expected to be between 1,300 to 1,500 mi long, depending on the deployment area or areas selected. It will be paved, have a width of 24 ft with 5 ft shoulders and a maximum grade of 7 percent.

The DTN will not co-exist with public roads unless it is technically infeasible to do otherwise, e.g., in difficult terrain such as mountain passes.

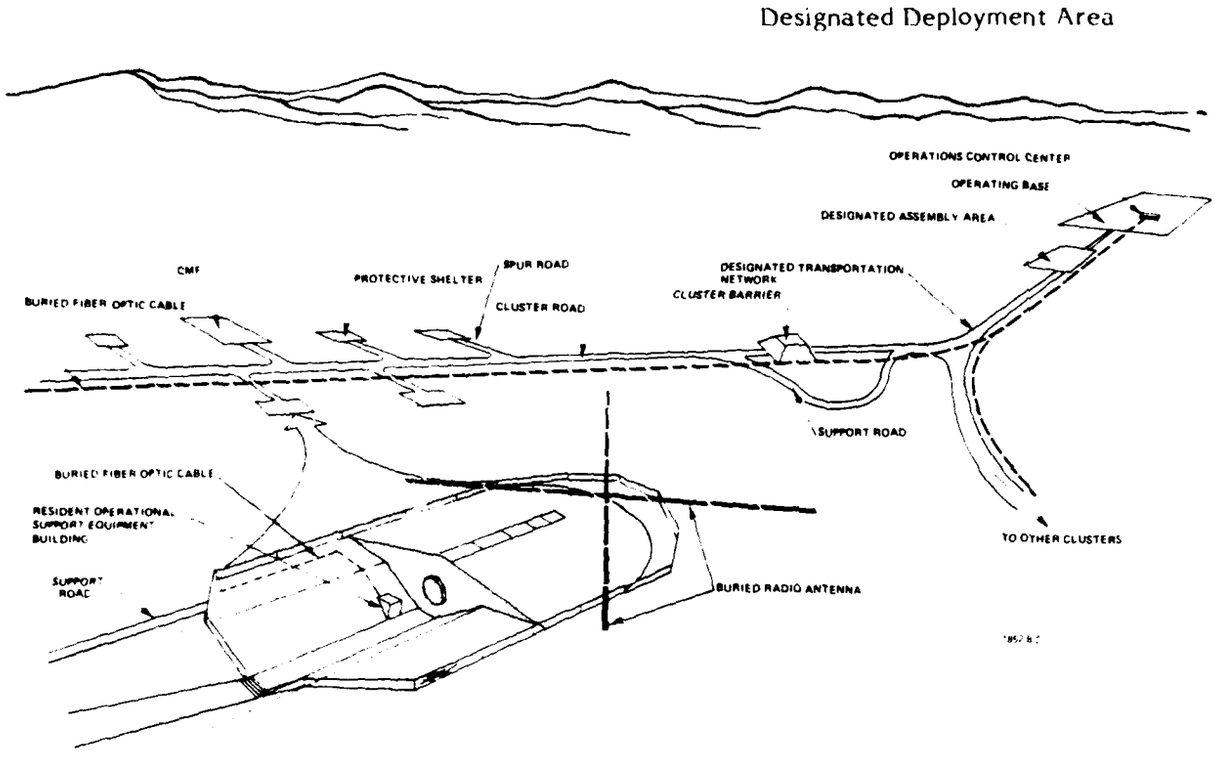


Figure 1.2.2.6-1. Command, control, and communications buried elements.

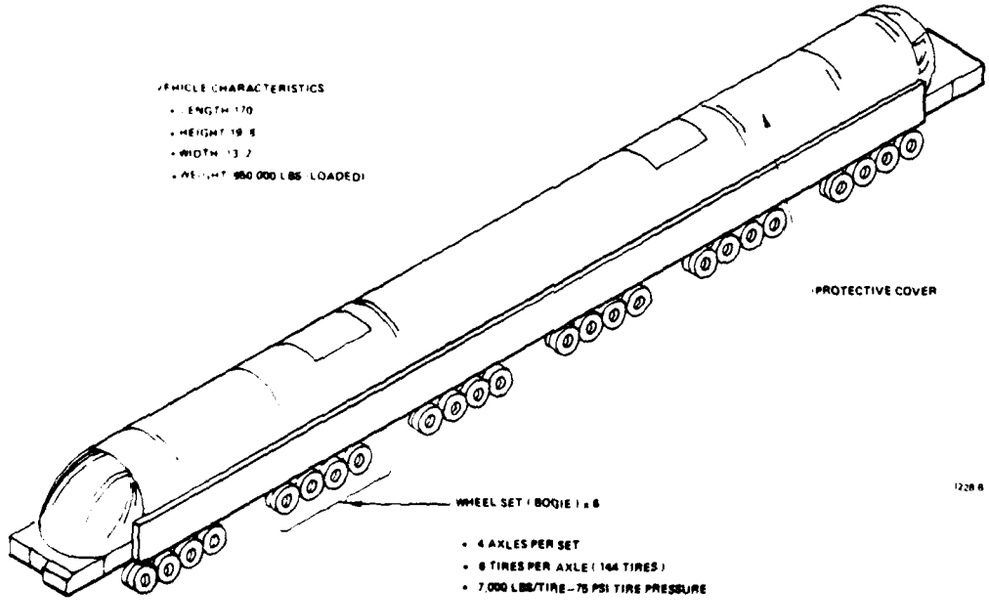


Figure 1.2.2.7-1. Special transport vehicle (used outside clusters).

OPERATING BASE COMPLEXES (1.2.3)

Two operating bases (OBs) will be constructed. Each base is estimated to require 4,000 to 8,000 acres and will provide personnel and technical support for approximately one-half of the M-X system.

The two OBs will provide functions unique to the M-X mission, including assembly and checkout of missile/special vehicle components, and related equipment, maintenance, supply, training, and operational control of the M-X system. Additionally, each M-X operating base will provide personnel administration, warehouses, automotive maintenance, roads, buildings, and utilities maintenance. The base also provides medical and dental care, housing, shopping centers, and recreational facilities for military personnel and dependents, and schools built and maintained by local school boards.

About 12,000 to 13,000 employees are needed to operate and maintain the M-X system. The total population is estimated to be approximately 17,000 people (civilian workers, military personnel and their dependents) at the first base and 13,000 at the second base during normal work hours. Some military and all civilian personnel will live in communities near each of the bases. The bases may be in isolated locations.

Essentially all of the housing required to support Air Force families is planned for on-base construction. As the community near the operating base grows and can support housing requirements, some onbase housing construction could be cancelled. The EIS analyses assume that 80 percent of assigned military personnel will live on-base.

Operating base planning goals are to: (1) maximize energy efficiency; (2) optimize land use; (3) minimize facility maintenance; (4) provide a high quality of life; and (5) minimize disruption of the natural environment.

Major facilities for the first operating base to be constructed are shown in Figure 1.2.3-1. The number and type of facilities to be constructed depends on whether full basing in a contiguous region or split basing is selected. Table 1.2.3-1 shows which facilities are needed for alternative configurations.

The second operating base to be built for contiguous basing alternatives has fewer facilites and a lower number of people than the first operating base. For split basing, the second operating base nearly duplicates the first, and the numbers of assigned personnel are approximately equal.

Each of the OB-related facilities is discussed below.

Airfield (1.2.3.1)

Provisions will be made at each OB site for a 12,000 ft airfield runway with parallel and cross taxiways. Flightline facilities for aircraft operations and maintenance will include aircraft hangars, base operations, command post, control tower, aircraft maintenance and testing, meterological measurements, fuels storage and dispensing, etc. The airfield will be open to joint civilian and military use.

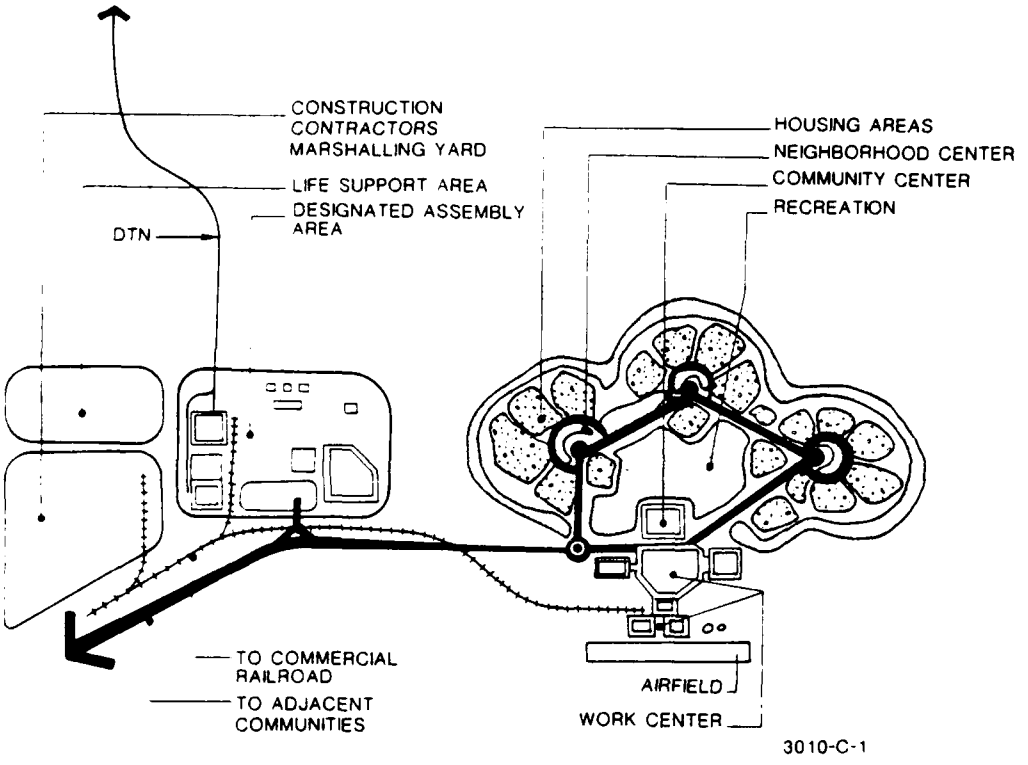


Figure 1.2.3-1. Conceptual layout of major facilities for first operating base.

Table 1.2.3-1. Operating base complexes for full or split basing.

FACILITY	FULL BASING		SPLIT BASING	
	FIRST BASE	SECOND BASE	FIRST BASE	SECOND BASE
Airfield	X	X	X	X
Workcenter	X	X	X	X
Community/Neighborhood Center	X	X	X	X
Recreation Areas	X	X	X	X
Housing Areas	X	X	X	X
Designated Assembly Area	X		X	X
Assembly and Checkout Contractor Support Area	X		X	X
Operational Base Test Site	X		X	
Training	X			
Operations Control Center	X		X	X
Alternate Operations Control Center		X	[1]	[1]
Construction Contractors' Marshalling Yard	X	X	X	X
Life Support Area	X	X	X	X
Railspurs	X	[2]	X	X
Depot	X		X	X

3665-2

[1]Required but offbase.

[2]Desirable but not mandatory.

Workcenter (1.2.3.2)

The workcenter includes administrative functions such as headquarters staff facilities, personnel, security police, social actions, etc.; support functions such as base civil engineering (for facility maintenance, repair, operation), vehicle operations and maintenance, supply, communications, supply administration and warehousing, etc.

Community Center (1.2.3.3)

The community center includes facilities such as the commissary, exchange facilities, library, theater, hospital, post office, bank, credit union, etc.

Neighborhood Center (1.2.3.4)

A neighborhood center may be included to provide neighborhood services to family housing areas. They could include an elementary school, youth center, youth oriented recreation areas, base exchange branch, chapel, etc.

Recreation (1.2.3.5)

Facilities will be provided for personnel recreation. They could include athletic fields, gymnasium, swimming pools, bowling center, hobby shops, golf course, and officer's and noncommissioned officer's clubs.

Housing (1.2.3.6)

The housing element could include family housing, unaccompanied personnel quarters, visiting/temporary quarters, and airman's dormitory/dining facilities. Housing units are to be clustered to reduce land requirements within each neighborhood or housing area. All civilian and approximately 20 percent of military personnel are expected to occupy off-base housing.

Designated Assembly Area (1.2.3.7)

The Designated Assembly Area (DAA) contains, within approximately 1,950 fenced acres, technical facilities required for missile/canister/launcher final assembly and associated storage and maintenance facilities. Once assembled, these components are transported to the deployment area on a special transport vehicle over the DTN. Missiles must be returned to the DAA for major repair.

The DAA ordnance storage and reentry system assembly/storage areas will comply with applicable safety requirements. See Section 1.5.1 for details.

If full system development in a single area is selected, the DAA will be located at the first operating base only. If the system is split between two deployment areas (called split basing), each deployment area will have an operating base, and each of these operating bases will have a DAA.

Assembly and Checkout Contractor Support Area (1.2.3.8)

A contractor support area (CSA) in the DAA provides facilities required by M-X system contractors. The CSA could include an office building, a vehicle

maintenance shop, a rail staging area, storage areas and buildings, shops, and utilities.

Operational Base Test Site and Training Facilities (1.2.3.9)

The operational base test site (OBTS) will contain DDA prototype facilities for weapon system test and evaluation (Figure 1.2.3.9-1). The OBTS will be close to the DAA and located in terrain similar to that of operational clusters.

Some of the facilities within the OBTS are: a road and utility network; horizontal shelter sites that simulate a portion of an operational cluster; a surveillance site in a test support building; and a cluster maintenance facility, a barrier, and a simulated DTN. These facilities are to be used for engineering development and are not intended to be used for training purposes.

Training facilities will be located at a training area contiguous to the OBTS (see Figure 1.2.3.9-1). Training facilities will include shelters, barriers, maintenance facilities, and other buildings. Other training facilities will also be provided on base.

Operations Control Center (1.2.3.10)

The operations control center is the nerve center for M-X operations. It combines supervision, missile launch, maintenance and security control and other minor functions into one facility.

Construction Contractors' Marshalling Yard (1.2.3.11)

An area would be provided for use by the construction contractor as a marshalling yard for the bulk of construction materials and equipment. This could include office facilities, storage areas and facilities, maintenance shops, etc.

Life Support Area (1.2.3.12)

An area would be provided to the contractor for facilities necessary to supply contractor personnel. This could include housing, dining facilities, medical facilities, administration, shopping, recreation, etc.

Railspurs (1.2.3.13)

The first operating base will have and the second may have railspur connections to the commercial railroad system in the area. They will be used to support construction, and subsequently for delivery of general supplies and missile components (at the DAA only).

Depot (1.2.3.14)

The M-X weapon system will have three levels of maintenance: organizational, intermediate, and depot. More highly skilled personnel and/or more complex equipment area required at each successive level. The least complex tasks (e.g., simple replacement of a known component) will generally be performed in the field and the most complex at the depot. Intermediate level maintenance will be performed at the DAA or OB. Depot level maintenance will be performed at Air Force Logistics Command installations, by contractors, and at M-X operating bases.

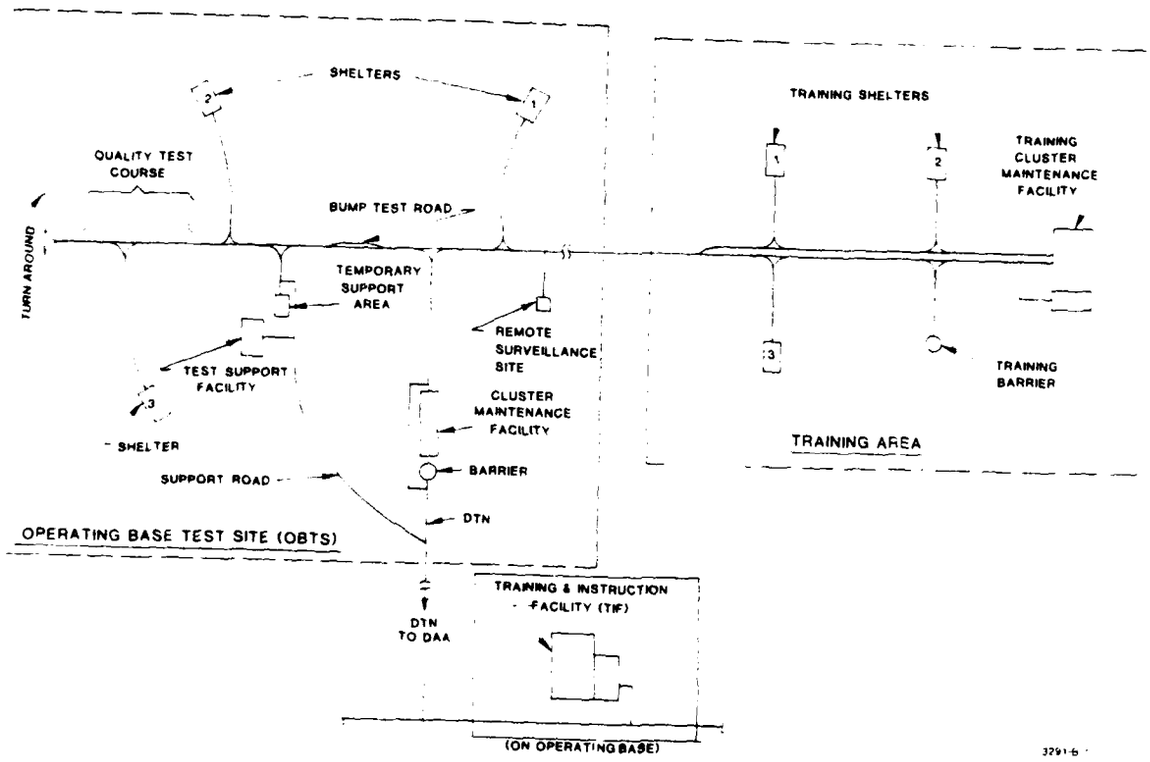


Figure 1.2.3.9-1. Operational base test site and training areas.

Logistics Command depots for Minuteman and Titan ICBM systems are at Hill AFB (Ogden, UT), McClellan AFB (Sacramento, CA), Kelly AFB (San Antonio, TX), Tinker AFB (Oklahoma City, OK), Newark AFB (Newark, OH), Kirtland AFB (Albuquerque, NM), and Robins AFB (Robins, GA). These installations could be used for M-X use.

System Construction, Operations, and Decommissioning

SYSTEM CONSTRUCTION, OPERATIONS, AND DECOMMISSIONING

This section addresses the principal phases of the program: construction, operations, and decommissioning.

Figure 1.3-1 shows major M-X program milestones through 1989. The President authorized full-scale engineering development in September 1979. That phase of development will continue until production starts in mid 1983. A separate EIS is planned for the production decision. Shortly before the production decision is to be made, the first flight test will occur from Vandenberg AFB, California. At the time of initial operational capability (IOC) in July 1986 an operating base and ten missiles with associated shelters and other necessary facilities are to be operational. All 200 missiles, 4,600 shelters and support facilities are planned for by 1989.

Achievement of this schedule is critically dependent upon timely availability of land for the necessary facilities. Achievement of an IOC in 1986 requires that construction of roads, utilities, and the operational base test site begin in early 1982. Construction of the first operating base facilities would follow in 1983 and continue through 1987. The second operating base would be constructed in the 1985-1989 period.

As shown in Figure 1.3-1, construction of shelters and operating bases is phased from 1982 to 1989 when the system becomes fully operational.

CONSTRUCTION (1.3.1)

This subsection provides an overview of the construction phase of the project. Details are given for alternative construction scenarios in Chapter 2.

Construction of the system will take 8 years and may be dispersed over an area as large as approximately 12,000 sq mi. The construction will be phased, and the effort will be spread among several construction camps. In the peak year approximately 17,000 direct construction workers and 6,000 facility assembly and checkout personnel will be in the deployment area.

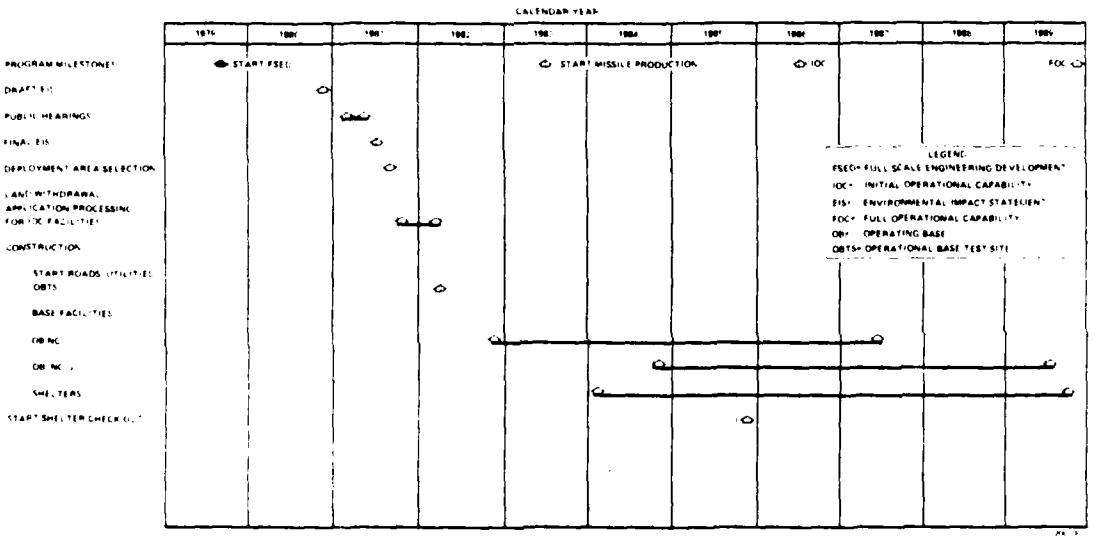


Figure 1.3-1. Major M-X program milestone schedule, 1979-1989.

M-X construction will require temporary and permanent use of land resources. Table 1.3.1-1 lists the land required for temporary construction such as camps, concrete batch plants, and roads. A total of about 6,100 to 9,400 acres will be temporarily disturbed by construction.

Construction material resource requirements are shown in Table 1.3.1-2. The ranges shown apply to differing alternatives. Water totals include water consumed by workers. Steel will be used primarily for concrete reinforcement and shelter liners. Asphaltic oil is a road surfacing material.

Table 1.3.1-3 shows land required for construction of permanent facilities and represents maximum disturbance of land. Mitigation efforts to reclaim disturbed areas are discussed in Chapter 4. Operations phase requirements are discussed in Section 1.3.2.

Table 1.3.1-4 shows the land requirements for permanent roads.

Clusters will be constructed in groups supported by a construction camp, wells, aggregate plants, and concrete batch plants. Before shelter construction can begin, power will be available and access roads constructed.

Construction of support facilities, roads, and utilities at the first operating base will start in 1982 and continue through 1987. Construction of the second base will begin in 1985 and continue though 1989.

In 1982, a railroad spur, railhead, and marshalling yard will be constructed at a site convenient to initial construction activities. Construction materials and equipment will be stored at the marshalling yard and transshipped to construction sites. The DTN and utilities will be built to the initial construction group, wells drilled, and a construction camp erected.

In 1983, the first construction cluster roads will be built, group aggregate and concrete batch plants established, and the DTN run to an adjacent group. In 1984, construction of shelters will begin in the first group, cluster roads in the second, and the DTN run to the third. The process will continue until all facilities in the first segment are completed. Construction of the first cluster is to be complete by mid-1985. At that time, the Air Force and contractor personnel will start to install the equipment necessary to make the system operational.

At the completion of activities in each group, personnel and equipment will be moved out, construction water sources shut down, and borrow/sand and gravel mines closed. Construction demobilization overlaps mobilization of the assembly and checkout force.

Three methods of shelter construction are being considered: pre-casting shelter sections at a central point, mechanized cast-in-place, and conventional cast-in-place. Automated equipment could be used to construct the 4,600 identical protective structures under the first two methods, trading increased cost of

Table 1.3.1-1. Land requirements for construction facilities.

TYPE	NUMBER REQUIRED[1]	AREA (Acres)/ UNIT	TOTAL AREA (Acres)
Construction Camp Locations	15- 18	25	375- 450
Concrete Plants	100-200	5	500-1,000
Material Source Points[2]	15- 18	10	150- 180
Wells	150-310	1	150- 310
Marshalling Yards	3- 5	650	1,950-3,250
Construction Roads[3]	250-350	12 acres/mi	3,000-4,200
			6,125-9,390

2599-2

[1]Number is dependent on siting alternative.

[2]Includes plants and quarries

[3]Roads to material sources, 30 ft roadway, including shoulders, in miles

Table 1.3.1-2. Total estimated range of major construction resource requirements.[1]

RESOURCE	UNIT	QUANTITY
Water	Acre-Feet	78,000 - 130,000
Steel	Tons	400,000 - 420,000
Cement	Tons	1,500,000 - 1,600,000
Fly Ash	Tons	446,000 - 522,000
Aggregate	Tons	95,000,000 - 123,500,000
Asphaltic Oil	Tons	379,000 - 452,000

2598-1

[1]Construction occurs over approximately an 8-year period.

Table 1.3.1-3. Land requirements for facilities.

FACILITY	NUMBER	CONSTRUCTION PHASE		OPERATIONS PHASE		
		EACH (Acres)	TOTAL (Acres)	FENCED EACH (Acres)	NON-FENCED (Acres)	TOTAL (Acres)
Bases						
First Operating Base[2]	1	6,140	6,140	3,740	2,400	6,140
Second Operating Base[2]	1	4,240	4,240	2,740	1,500	4,240
Operational Base Test Site/Training Site[2]	1	250	250	30	60	90
Designated Assembly Area (DAA)[3]	1	1,950	1,950	1,950	–	1,950
Shelters	4,600	7.5	34,500	2.5	–	11,500
Cluster Maintenance Facilities	200	5.2	1,040	4.0	–	800
Area Support Centers	3-6	55	165-330	20	35	165-330
Remote Surveillance Sites	200	0.35	70	0.25	–	50
Total			48,460[5] 48,575			24,930[4] 25,095

2600-3

[1]Includes runway and clear zones.

[2]Located near first operating base.

[3]Colocated at First Operating Base. for split basing there would be 2 DAAs (1 at each base).

[4]Total fenced land is 20,890 acres, total unfenced land is 4,040.

[5]Approximately half of total is temporarily disturbed land for construction.

Table 1.3.1-4. Land requirements for roads.[1]

TYPE ROAD	LENGTH (Miles)	AREA REQUIRED DURING CONSTRUCTION[4] (Acres)	PERMANENTLY REQUIRED RIGHT-OF-WAY (Acres)
Designated Transportation Network (DTN)[1]	1,260-1,460	15,300-17,700	11,500-13,300
Cluster Roads[2]	5,900-6,200	72,000-75,200	54,000-56,400
Support Roads[3]	1,320	8,100	8,100

2601-3

[1]DTN is 24 ft wide with 5 ft shoulders, 100 ft construction (right-of-way), 75 ft permanent right-of-way.

[2]Cluster roads are 21 to 30 ft wide with 5 ft shoulders, 100 ft construction right-of-way, 75 ft permanent right-of-way.

[3]Support roads are 10 to 20 ft wide with 5 ft shoulders, 50 ft construction and permanent right-of-way.

[4]Same as disturbed area.

[5]This provides a range for split-basing and full deployment.

equipment costs against lower manpower requirements and shorter production times. The net result is expected to be lower production manpower requirements and costs, and recuced temporary socioeconomic impacts as compared with conventional methods. A test program to demonstrate the capability of precast and mechanized cast-in-place techniques will be completed in 1982.

Although construction activities differ between the precast and cast-in-place techniques, the amount of aggregate and water required for the concrete will be approximately the same, and a similar construction camp layout would be required. For this EIS, conventional cast-in-place is analyzed.

Construction plans, resources, and schedules by alternative are given in detail in Chapter 2.

OPERATIONS (1.3.2)

The operations area for M-X is divided into two general areas, the designated assembly area (DAA) where missile assembly takes place and the designated deployment area (DDA) in which the clusters are located. Missile and launcher components will be shipped to the DAA where teams will assemble and check out the missile, canister, and launcher. This process will take about a week for each missile/launcher. Once assembled, the missile/launcher is transported over the DTN in a special transport vehicle to its assigned cluster within the DDA and placed at the cluster maintenance facility. The DDA is a well-defined geographical region which allows for the incorporation of procedures to ensure that unauthorized missile/launchers are not deployed. Assurance of SALT compliance is provided through the following procedures at both the DAA and DDA.

- Observable shipment of Stage I boosters from the factory to the missile assembly area.
- Observable assembly of the missile/launcher at a designated assembly area adjacent to, but physically separated from, other military facilities and all but one road.
- Movement of the missile/launcher to the cluster from the assembly area only along a special road, the designated transportation network, on a special observable and identifiable vehicle.
- Blocking missile entry into the clusters by barriers across the access roads. Removal/replacement of barriers is observable.
- Periodic opening of observation ports in all structures and vehicles capable of concealing a missile/launcher in the clusters, to verify that the proper number of missile/launchers are present.

When observation ports are closed, the transporter visits each of the 23 shelters in the cluster, placing the launcher in one of them. The remaining 22 shelters will contain a simulator. Since the transporter actions are the same at each shelter, concealment is maintained. Backup capabilities are available if it is suspected that concealment has somehow been compromised. All 200 missiles could be relocated in their clusters in about 12 hours or all or a portion of the missiles

could be put in motion on the cluster roads, able to move rapidly to the nearest shelters on warning.

The launcher may be moved for maintenance three or four times a year. Very little activity will consequently occur in the clusters. Security patrols and road maintenance may be the only visible activity in a cluster for several months.

Missile/launcher status is automatically sent to the operations control center via the fiber optic network. Some repairs can be made at the cluster maintenance facility by a team from the area support center. The transporter is used to retrieve the failed missile/launcher by visiting each of the shelters in the cluster. The repaired missile/launcher is returned to one of the shelters by the transporter, which again visits each shelter.

If the failure is major, the missile/launcher must be returned to the DAA. A team retrieves the missile/launcher as described above. A special transport vehicle is dispatched from the DAA to the cluster, and the barrier is removed. The missile in its canister is removed from the missile/launcher and transferred to the special transport vehicle. The ports of the cluster maintenance facility, the transporter, and each of the 23 shelters in the cluster are then opened. The replacement missile and canister are taken to the cluster and mated to the launcher at the cluster maintenance facility. The barrier is reinstalled. Following a two day monitoring period, the ports are closed on all shelters and the missile/launcher installed as previously described. The process, including monitoring provisions, takes about seven days.

All deployment area facilities, such as remote surveillance sites, power distribution centers, shelters, and roads are maintained by teams from an area support center.

Security operations are controlled from area support centers. Patrols are in the DDA at all times. If an alarm activates, a patrol team is sent to the location. Backup security forces are available at the area support center for transport by helicopter. The remote surveillance radars will be used to monitor activities which may call for security checks. Finally, any time a missile is transported over the road network, escorts provide traffic control and missile security.

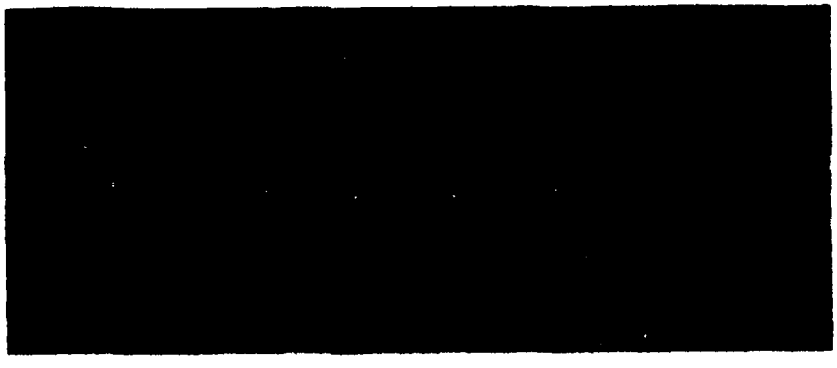
Total operational manpower is about 13,000 people. Approximately 5,800 personnel will maintain missiles, facilities, aircraft, electronic equipment, munitions, and operate supply facilities. Over 2,300 additional personnel are needed for safety and security. Support personnel number about 4,700 people, and 350 people staff and manage the system.

The Air Force is committed to the Congressional and DOD guidance concept that military essential tasks will be performed by military members. Lacking a military essential determination, workloads should be performed by in-service civilian employees or civilian contractor labor. Survey of expected types of work indicate civilians could comprise from 15 to 35 percent of the total workforce.

DECOMMISSIONING (1.3.3)

The Air Force will develop specific plans for decommissioning the M-X system at a later stage in the program. The system is anticipated to remain operational for approximately 30 years or more. Under present law, decommissioning of a system such as M-X would require full environmental analysis including preparation of an EIS and implementation of a mitigation program for significant adverse impacts. Alternative military use of the facilities would be considered first. If the facilities could not be used for Department of Defense purposes, they would be disposed of in accordance with the procedures in effect at the time. Portions of the M-X road system are expected to have been adopted for various public uses over the lifetime of the system, and to remain in service after system decommissioning. Disposition of the other facilities will depend on the use(s) adopted.

Community Development



COMMUNITY DEVELOPMENT

Induced development would occur in the communities near the new base. Table 1.4-1 lists the potentially influenced communities. More complete discussions are in Chapter 2 and 4.

Of special concern is the possibility of undirected and indiscriminate urban development in rural areas. Although the federal government will assist local jurisdictions in providing the infrastructure to meet rapid population increase, local jurisdictions are responsible for community plans and development regulations.

New communities to accommodate new civilian population or the use of undeveloped land within or adjoining existing communities may be preferred by local government. Whichever option is used, land use planning is desirable for orderly development.

Table 1.4-1. Communities within commuting distance of potential operating base locations.

POTENTIAL BASE LOCATION	COMMUNITIES WITHIN COMMUTING DISTANCE OF BASE	1977 POPULATION ESTIMATE	HIGHWAY DISTANCE TO BASE (miles)
Nevada			
Coyote Spring Valley	Las Vegas	161,086	52
	North Las Vegas	46,217	50
	Overton	1,200	39
	Logandale	375	33
	Alamo	250	40
Ely	Ely	6,008	12
	McGill	1,900	24
	Ruth	735	20
Utah			
Beryl	Cedar City	10,960	44
	Milford	1,217	53
	Kanarraville	276	44
	Parowan	1,810	60
	Paragonah	289	64
	Minersville	440	53
	Beryl	30	0
Milford	Beaver	1,814	35
	Milford	1,217	10
	Minersville	440	23
	Cedar City	10,960	55
	Parowan	1,810	55
	Paragonah	289	58
Delta	Delta	2,090	23
	Fillmore	1,882	53
	Hinckley	503	20
	Holden	437	48
	Kanosh	358	33
	Scipio	213	58
New Mexico			
Clovis	Clovis	30,257	8
	Portales	10,545	15
	Muleshoe	4,462	38
	Friona	3,152	43
	Fort Sumner	1,720	54
	Bovina	1,344	27
	Farwell	1,261	16
	Texico	810	15
Texas			
Dalhart	Dalhart	6,434	16
	Stratford	2,246	31
	Texline	424	56
	Channing	332	46
	Hartley	185	30
	Dumas	10,626	59

3777

·1970 population.

Sources: Rand McNally and Co., 1979 (distances) and Dept. of Commerce, Nov. 1979 (population).

Public Safety Considerations

PUBLIC SAFETY CONSIDERATIONS

The Department of Defense and the Air Force have formal safety programs covering operations, implemented by:

- Directives and regulations establishing policy and procedures
- Specifications, manuals, and pamphlets providing detailed information on safety
- Reviews and inspections
- Training
- A mandatory reporting system for identification of safety-related problems

Air Force Regulations and their related procedures implement existing law and Department of Defense Directives, and comply with U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) standards.

EXPLOSIVES SAFETY (1.5.1)

The M-X missile uses three solid-propellant rocket motors (Stages I, II, and III), and a liquid-propellant rocket engine (Stage IV) (see Figure 1.2.1-1.) The relatively small Stage III motor uses propellants that can detonate. The other stages use propellants that normally would not detonate, but would burn rapidly if ignited, and can cause explosions through rupture of their containers.

The M-X propulsion system is similar to that of the Minuteman ICBM series, 1000 of which are currently deployed. Minuteman, like M-X, uses three solid-propellant booster stages, and a small liquid-propellant post-boost rocket engine. The solid propellants are rubber-like substances which burn when ignited by a high temperature starting device. The liquid propellants ignite when mixed; however, they are stored in separate hermetically sealed containers that are filled in the factory, never opened in the field, and release their contents only under controlled (metered) conditions during an actual flight. There have been no accidental

ignitions of separate or assembled Minuteman stages during its entire history, and no leaks of the liquid fuels.

Accidents that have occurrred with liquid-fueled Titan missiles cannot be considered indicative of possible M-X experience. Titan missiles use fuels similar to those in the Minuteman and M-X Stage IV; however, the very large fuel tanks of Titan are not hermetically sealed and the fuel must be transferred to and from the missile in the field. The presence of large quatities of liquid fuels and the need to transfer them have been eliminated in Minuteman and M-X missile design as part of the Air Forces' continuing effort to maximize safety and reliability and minimize maintenance requirements for the ICBM force.

Department of Defense Standard 5154.45 and Air Force Regulation 127-100 prescribe safety zones or required safe distances between places where explosives (including rocket propellants) are based, stored, or processed, and other specified locations. These specified locations include inhabited buildings, public traffic routes, recreational areas, utilities, petroleum storage facilities, and storage or processing facilities for other explosives. The safety zone distances vary and are a function of the quantity and hazard class of propellants involved. Moreover, when propellants of different classes are mated together, as is the case for M-X, the entire combination is required to be classified as potentially explosive, rather than partially an explosive and partially a fire hazard.

Based on required criteria, safe distances to other facilities have been determined both for the complete M-X and its individual stages. Separate stages and complete missiles will be stored and handled at the designated assembly area. This area will provide the required safe separation distances among facilities. To the extent feasible, exclusion zones related to explosives safety will be within the fence surrounding the designated assembly area.

Only 200 missiles will be deployed, but they could be located in any of the 4,600 protective shelters or 200 cluster maintenance facilities. Two safety distances are of particular interest in the deployment area, since they influence both siting and land use around each of these facilities. These are the inhabited building and public traffic route safety distances.

The inhabited building safety requirement states that no part of an inhabited building* can be within 2,965 ft of a building/structure capable of storing the entire M-X missile. The public traffic safety requirement states that no public traffic route** can lie within 1,780 ft of a protective shelter or cluster maintenance facility. Both of these distances extend beyond the fence lines around the facilities.

Protective shelters and cluster maintenance facilities will be sited to avoid existing (or rerouted) public traffic routes by at least the required 1,780 ft distance.

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*Inhabited buildings are all buildings, locations, or structures, other than explosives locations, used in whole or in part as a habitation or place of assembly--for example: schools, churches, residences, passenger terminals, shops, factories, hospitals, theaters, dining halls, and hangars.

**Public traffic routes are public highways, navigable streams, passenger railroads, and airfield facilities used by aircraft conducting passenger transport operations.

The Air Force also intends to route the linear portions of the cluster roads beyond this distance wherever practical; although these roads will be open to public use, they are not "public traffic routes" within the meaning of the regulations, so such routing is not mandatory. Spur roads that lead to one or more protective shelters will follow the most appropriate route; the 1,780 ft standoff will not apply.

Under present regulations, protective shelters and cluster maintenance facilities cannot be constructed within 2,965 ft of an inhabited building. Where existing buildings interfere with siting, it may be necessary to acquire and remove them or to resite the M-X facilities.

The Air Force proposes to acquire the minimum amount of land necessary for facilities that must be fenced. Consequently, it does not intend to acquire all the land within the inhabited building safety zones.

It is possible that the safety zone provision established by regulation will be altered or abolished for some parts of the M-X system, particularly the missile shelters, because the probability of any one shelter containing a missile is low (one in twenty-three). Exemptions from safety zone requirements may also be granted by law, by congressional resolution, or by a finding and determination of the Secretary of Defense or designated officials. Exemption for a specific time by the Defense Department may be granted only when immediate corrective measures are wholly impractical and if positive programs for the eventual correction of the deficiency are being carried out.

The allowable activities within the safety zones are:

1. Grazing
2. Crop growing and harvesting, including crop dusting
3. Prospecting for minerals
4. Mining and mineral extraction of the type presently in the deployment areas
5. Oil and gas exploration and production-related crude oil storage tanks
6. Drilling and production of water
7. Hunting, fishing, hiking and off-road vehicle use; subject to applicable state and federal regulations
8. Temporary (overnight) camping, with tents or recreation vehicles (but no commercial or established public campgrounds)

On public lands, all horizontal protective shelters will be sited to avoid existing uses within the safety zones that are incompatible with the above uses. On private land, horizontal protective shelters will be sited to avoid incompatible existing uses within the safety zones to the extent practical. Safety easements, or fee title, will be acquired as appropriate where incompatible present uses are not avoided or future incompatible uses are considered likely. On all other private land sites, future proposed land uses will be monitored and case-by-case decis ons made as required.

No land will be withdrawn for safety zones on public land. Rather, incompatible land uses will be restricted to the extent possible through a cooperative agreement for land management between the Air Force and the Bureau of Land Management. Where the Department of Defense cannot control land use within safety zones, the responsible official will advise the land manager of the consistency of the proposed use with this policy, and a case-by-case decision will be rendered as necessary.

When future incompatible proposed uses are identified, as a part of the case-by-case decisions, the Air Force will determine whether funds should be programmed to purchase the incompatible use and acquire the necessary land rights or whether the affected shelter(s) should be abandoned and replaced elsewhere in the deployment area.

NUCLEAR TRANSPORTATION AND SAFETY (1.5.2)

Nuclear weapons (or weapon components) may be present at the designated assembly area (DAA), and in the deployed missiles. If so, weapons will be moved when they are:

- Delivered to the DAA initially, or returned to the Department of Energy. These movements will normally be via road or rail, or by Military Airlift Command (MAC) aircraft. Ground shipments must comply with Department of Transportation (DOT) regulations. Military air shipments must comply with DOD directives and Air Force regulations to minimize shipping hazards.

- Taken from or returned to storage at the DAA, for assembly into reentry vehicles or deployment modules, or for surveillence or inspection; or when they are installed on or removed from a missile. These movements require use of equipment meeting stringent design standards for nuclear handling.

- Transported between the DAA and a cluster maintenance facility when a missile is deployed or removed from service. These movements involve a completely assembled missile (and initially its launcher) on the special transport vehicle (STV), and are confined to the designated transportation network (DTN). The STV must meet nuclear safety design standards (Air Force Regulation 122-10), will move under armed escort, and only during daylight hours. "Safe havens" along the DTN will provide lighted and fenced secure areas for overnight parking (usually at an area support center).

- Emplaced or removed from a protective shelter, or moved to or from the cluster maintenance facility during initial deployments, for maintenance, or for SALT verification. These movements involve the assembled missile/launcher on the transporter vehicle, which must also be nuclear qualified. These movements will also be made only during daylight hours, and under armed escort.

Both STV and transporter movements will be monitored, and backup security forces can be dispatched from area support centers.

Nuclear safety involves both protection against accidents involving nuclear materials, and physical security against sabotage, vandalism, theft, or other deliberate hostile actions.

Physical Security Measures

Physical security within the DAA is provided by layers of protective methods including double fences; multiple perimeter and area alarm systems; provision of armed on-site forces for patrol, alarm response, and backup; access monitors on the Assembly, Surveillence and Inspection building where weapons are processed, and on other critical buildings including the security control station; delay/denial systems on each weapons-storage igloo; emergency power supplies, guard towers; and a positive system for personnel identification and authentication of their authorization for access.

If nuclear weapons were in the designated deployment area, they would normally be in a protective shelter; if not, they would be under armed escort, as described previously. The shelters are under radar surveillence, and equipped with both intrusion detectors and delay/deny systems to allow timely security force response to actual or suspected hostile activities. The intrusion detection system is required to have a reliability of at least 0.999999.

Systems Hazards

The basic system hazards are associated with handling, transportation, storage, maintenance, and strategic alert of missiles, propellants, and nuclear warheads. To minimize the hazard to military personnel and the public, an extensive system safety program has been in being since the start of the M-X conceptual studies. This safety program not only applies existing safety criteria gained from past experience in weapons design, but also analyzes the system and all its components to determine the system hazards in all operating modes. The hazards are then eliminated by design or controlled to an acceptable level.

As an example of "an acceptable level," Air Force Regulation 122-10, the nucelar safety design criteria document, specifies quantitative requirements for an inadvertent programmed launch, an inadvertent nuclear detonation, and an accidental motor ignition that would result in movement of a warhead. "Fault trees," defining every reasonably conceivable mishap or malfunction that could lead to one of these events must be formulated, probabilities for each branch analyzed, and the total probability kept below an established goal.

The probability of inadvertent programmed launch from hardware or software functioning or malfunctioning, normal human action, or error in manipulating controls or adjustments, or by any combination of these factors, must not exceed 1 in 10,000,000,000,000 per missile per year. The probability of an inadvertent nuclear detonation (nuclear yield equivalent to more than 4 pounds of TNT) for normal environments must be less than 1 in 1,000,000,000 per weapon for the service life of the system. The probability of accidental ignition resulting in warhead movement must be less than 1 in 100,000,000 per missile per year.

A single-point safetying device will be provided for positive, physical interruption of power to each missile and its ground ordnance. It will permit manual safing

and locking, with a positive visual indication of a "safe" condition, but will not permit manual arming. The system must be armed by a unique coded signal, and can be disarmed remotely by another coded signal (i.e., it will not cycle from arm to disarm by the same signal). Armed or safe status will be remotely monitored. Environmental conditions critical to system safely (e.g., temperature) will also be monitored remotely, so that abnormal conditions can be detected and corrected rapidly.

Nuclear Safety Certification

DOD policy on protection of nuclear weapons against accidents has resulted in the Air Force Nuclear Safety Certification Program (AFR 122-3). It requires that all equipment used to deliver, move, transport, support, test, operate or maintain nuclear weapons plus software and technical procedures dealing with the above must receive an engineering evaluation and nuclear safety certification prior to being used with nuclear weapons. The system safety analysis program for uncovering hazards includes all related equipment; the analysis reports will be the basis for the independent engineering evaluation which is required for nuclear safety certification. This certification program assures that specific safety attention has been given to each element of supporting equipment and should minimize any accidents with the weapon system.

Nuclear Safety Reviews

By DOD direction, an agency independent of the design agency (the Ballistic Missile Office) must conduct a nuclear safety review of the weapon system design at critical milestones. This agency, the Nuclear Weapon System Safety Group, will conduct three sequential studies to assure that the design complies with the four DOD nuclear safety standards. These standards require that as a minimum there shall be positive measures to:

(1) Prevent any nuclear weapon involved in an accident or incident, or a jettisoned weapon, from producing a nuclear yield.

(2) Prevent deliberate prearming, arming, launching, firing, or releasing of any nuclear weapon, except upon execution of emergency war orders or when directed by competent authority.

(3) Prevent inadvertent prearming, arming, launching, firing, or releasing of any nuclear weapon.

(4) Insure the adequate security of each nuclear weapon, pursuant to DOD Directive 5210.41.

In addition the Group has the responsibility and the authority, with approval from Headquarters USAF, to direct changes in the weapon system design if in their opinion existing nuclear safety criteria or the four nuclear safety standards have not been met.

The initial NWSSG study is to be complete in October 1982. The follow-on (pre-operations) study in March of 1985, and the final operational safety requirements approval in February 1986. The final study results in approved nuclear safety

rules by which the system must be operated. This system of independent reviews and resultant nuclear safety rules provides maximum assurance that the system will be safely fielded, operated, and maintained.

HAZARDOUS WASTES (1.5.3)

Construction and operation of the M-X system is not expected to generate large quantities of hazardous wastes. Potential sources of such wastes include expended or unusable oils and lubricants, solvents, paints and thinner, hydraulic and machining fluids, cleaning agents, and adhesives. To the extent that the types and quantities generated meet the EPA criteria for hazardous wastes, the formal handling and reporting requirements will be observed.

The special nuclear materials incorporated into the M-X warheads are not sources of hazardous wastes within the meaning of the Resource Conservation and Recovery Act. Wastes from such materials are handled and disposed of in accordance with regulations established by the Department of Energy. None will be produced and stored at the operating bases or in the deployment area. Weapons requiring replacement or major maintenance will be returned to and processed at a central facility dedicated to the purpose, near San Antonio, Texas.

Hazardous wastes generated during construction and operation of the M-X system must be handled and disposed of in accordance with the Resource Conservation and Recovery Act of 1976, as amended. Strict control of hazardous wastes is required from the time that they are generated, through any intermediate storage or transportation, to ultimate disposal. Regulations implementing the Act are issued and administered by the Environmental Protection Agency (EPA).

The Act defines hazardous waste as "a solid waste or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may -

- cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating, reversible illness; or
- pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed."

In broad terms, wastes are classified as hazardous if they present fire hazards, are corrosive, are highly chemically reactive or can generate toxic fumes, are potentially explosive, or are inherently toxic. (Some wastes may exhibit more than one class of hazard.) Regulations establishing procedures for identifying hazardous wastes and listing specific hazardous wastes and substances have been published by the EPA (40 CFR 261).

Authorizing Actions

AUTHORIZING ACTIONS

Tables 1.6-1 and 1.6-2 describe authorizing activities which may be necessary for land acquisition, and regulatory compliance, including permit acquisition, and funding.

Acquisition of any property whether public or private requires authorization by law. Public land will be acquired under the Engle Act (P.L. 85-337 et seq.) and the Federal Land Policy and Management Act (FLPMA) (P.L. 94-574). FLPMA also controls acquisition of rights-of-way, temporary use permits, and free use permits. Private land acquisition must comply with the Uniform Relocation Assistance and Real Property Policies Act of 1970 (42 USC 4601 et seq.)

After land is obtained and before project construction commences, consultations, permits, and other compliance procedures must occur. Permits will be required under federal and state pollution control laws and state water appropriations laws. The proposed action is also subject to DOD and Air Force regulations. Finally, military construction funds must be obtained.

Table 1.6-1. Federal authorizing actions.

	PROJECT FEATURE	FEDERAL PERMIT LICENSE ENTITLEMENT	AUTHORIZING AGENCY	AUTHORITY
PUBLIC LAND	Operating Base(s), Technical Facilities, Protective Structures	Withdrawal of Public Land for Defense Purposes	Bureau of Land Management (BLM)/Department of Interior (DOI); also U.S. Congressional action	Federal Land Policy and Management Act (FLPMA), 43 USC 1714, Engle Act, 1958, 43 USC 155-158
	Designated Transportation Network, Cluster roads, Support Roads, Railroad	Rights-of-Way Grant/Consultation	BLM/DOI/Department of Transportation (DOT)	FLPMA, 43 USC 1767, Dept. of Transportation Act, 49 USC 1651 et seq.
	Power and Communication Distribution System, Pipelines	Rights-of-Way Grant	BLM/DOI	FLPMA, 43 USC 1767
	Equipment Storage & Marshalling yards, Construction Camps	Rights-of-Way Grant	BLM/DOI	FLPMA, 43 USC 1767
	Construction Materials for Roads, Protective Structures, Borrow Pits, Quarries	Free Use Permit	BLM/DOI	Materials Act 1947, 30 USC 601-604; (43 CFR 2300 et seq.)
	Well Sites	Rights-of-Way Grant	BLM/DOI	FLPMA, 43 USC 1767
	Construction Areas for Roads, Protective Shelters, Facilities	Rights-of-Way Grant	BLM/DOI	FLPMA, 43 USC 1767
	Community Expansion[1]	Transfer Control (Land Sale, Lease)	BLM/DOI	FLPMA, 43 USC 1713, 1716, 1761
	Land for Parks, Schools, Sewage Treatment Plants and Other Public Facilities[1]	Development Plan Approval	BLM/DOI	Recreation and Public Purposes Act, 43 USC 869 et seq.
PRIVATE LAND	Acquire State or Private Lands for Roads, Facilities, Protective Structures, Utilities, Construction Activities	Purchase, Eminent Domain, Gift	Department of Defense (DoD), Nevada, Utah, Texas, New Mexico, Private Owners; also requires U.S. Congressional action	Authorization and Appropriation Legislation, Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, 42 USC 4601 et seq.
ACTIONS COMMON TO USE OF PRIVATE OR PUBLIC LAND	Concrete Batch Plant (Municipal Incinerator, Boiler (Space Heating/Hot Water), Diesel Generator, Rock Crusher	Permit to Construct/Operate Prevention of Significant Deterioration-PSD/Non-Attainment	Environmental Protection Agency (EPA)	Clean Air Act, 42, USC 1701 et. seq.
	Storage of Toxic Substances, Explosives, Liquid Propellants, Petroleum Oil, Lubricants	Approval	DOD/Air Force	Department of Defense Ammunition and Explosives Safety Standards, Directive 5154.45, Air Force Reg. 127-100
	Transportation of Hazardous Materials	Registration Statement	DOT/Air Force	Hazardous Materials Transportation Act, 49 USC 1801, et seq., Air Force Reg. 127-100
	Airfield Construction	Notice of Intent	Federal Aviation Administration (FAA)	Federal Aviation Act, 49 USC 13 et. seq.
ACTIONS COMMON TO USE OF PRIVATE OR PUBLIC LAND	Buildings or Towers Greater Than 200 Feet in Height	Air Space Permit	FAA	Federal Aviation Act, 49 USC 1347 et. seq.
	Effluent Discharge into Navigable Waters	National Pollutant Discharge Elimination System (NPDES) Permit	EPA	Clean Water Act, 33 USC 1342
	Stream Crossings, Impoundment or Diversion of Stream Waters, Construction Activities in Wetlands	Sec. 404 Permit and Consultation	Corps of Engineers (COE), EPA, Fish and Wildlife Service (FWS)	Clean Water Act, 33 USC 1344, Memo of Understating COE/EPA: 4180; Fish and Wildlife Coordination Act 16 USC 661-666c; Rivers and Harbors Act of 1899, 33 USC 401 et. seq.
	Construction/Operation Activities on Flora and Fauna	Issue Opinion on Threatened and Endangered Species	FWS/DOI Endangered Species Comm.	Endangered Species Act (ESA); 16 USC 1531 et. seq.
	Impact of Construction Activities on Cultural Resources	Determination of No Adverse Effect/Memorandum of Agreement/Avoidance and Mitigation Permit to Remove/Excavate/Consultation	Advisory Council on Historic Preservation/State Historic Preservation Officer Federal Land Manager, BLM, Sec. of Interior, Sec. of Agriculture	National Historic Preservation Act, 16 USC 470 et. seq.; Ex. Ord. 11593 Archaeological and Historic Preservation Act, 16 USC 464 et. seq.; Historic Sites, Buildings and Antiquities Act, 16 USC 461 et. seq.
	Impact of Construction/Operation Activities on Native American Religious Practices and Sites	Consult with Native American Religious Leaders, Bureau of Indian Affairs, DOI		Native American Religious Freedom Act, 42 USC 1966 et. seq.
	Hazardous Waste/ Storage, Transportation, Disposal	Permit	EPA	Resource Conservation and Recovery Act, 42 USC 6901 et seq.
	Underground Injection	Permit	EPA	Safe Drinking Water Act, 42 USC 300 et. seq.
	Renewable Energy Supplies	Consult	Department of Energy	Federal Nonnuclear Energy Research and Development Act, 42 USC 5904
	Construction Activities in Floodplains	Consultation	Water Resources Council	Ex. Order 11988, 29 May, 1977
	Construction/Operation Activities on Historic Trails	Cooperative Agreement	DOI	National Trails System Act, 16 USC 1241 et. seq.

[1]Authorizing actions not applicable to the U. S. Air Force but which may be applicable to government agencies (state, local) and private interests for project implementation.

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Table 1.6-2. State authorizing actions.

PROJECT FEATURE	STATE PERMIT LICENSE ENTITLEMENT	AUTHORIZING AGENCY	AUTHORITY
Water Appropriation - surface water	Permit	Nevada State Engineer	Nev. Revised Stat. (NRS), Sec. 533 et. seq.
	Permit	Utah State Engineer	Utah Code Ann. (UCA), Sec. 73-3-1
	Permit	Texas Water Commission	Texas Water Code Ann. (TWCA), Title 2, Sec. 5.021, et. seq.
	Permit	New Mexico State Engineer	New Mexico Stat. Ann. (NMSA), Sec. 75, et. seq.
Groundwater and wells	Permit	Nevada State Engineer	NRS, Sec. 534, et. seq.
	Permit	Utah State Engineer	UCA, Sec. 73-3-1
	Permit (Local	Texas water conservation districts	TWCA, Title 4, Sec. 52 et. seq.
	Permit	New Mexico State Engineer	NMSA, Sec. 75 et. seq.
Storage containers of gasoline, petroleum, distillate, volatile organic compounds; concrete batch plants, incinerators, boilers, rock crushers, diesel generators	Registration Certificate/ Operating Permit	Nevada Commission Environmental Protection/Clark County; Air Pollution Control District (APCD)	NRS, Sec. 445, et. seq.
	Notice of Intent to Construct/ Order to Construct	Utah Air Conservation Commission	Utah Air Conservation Act, UCA, Sec. 26-24.9
	Permit to Construct/Operate	Texas Air Control Board	Texas Clean Air Act, Texas Stat. Ann. (TSA), Title 71, Art. 4477-5, Sec. 3.27, 3.28
	Permit to Construct	New Mexico Air Quality Bureau	New Mexico Air Quality Act, NMSA, Sec. 74-2, et. seq.
Disturbance of 10 acres or more of land/topsoil	Registration Certificate/ Operating Permit	Nevada Commission of Environmental Protection, Clark County APCD	Nevada Air Pollution Control Law, NRS, Sec. 445, et. seq.
Construction of roads, facilities	Notice of Intent to Construct/ Order to Construct	Utah Air Conservation Commission	Utah Air Conservation Act, UCA, Sec. 26 et. seq.
Effluent discharge to navigable waters	NPDES Permit	Nevada Commission of Environmental Protection	Nevada Water Pollution Control Law, NRS, Sec. 445 et. seq.
	Certification of NPDES Permit/ State Permit	Utah Water Pollution Committee	Utah Water Pollution Control Act, UCA, Sec. 73-14-5
	Certification of NPDES Permit/ State Permit	Texas Water Commission	TWCA, Title 2, Sec. 26 et seq.
	Notice of Intent to Discharge/ State Permit/Certification of NPDES Permit	New Mexico Water Pollution Control Bureau	New Mexico Water Quality Act, NMSA, Sec. 74-6-5 et. seq.
Effluent discharge into or below surface of the ground; underground injection of waste	Permit	Nevada Commission of Environmental Protection/Nevada Division of Health	Nevada Water Pollution Control Law, NRS, Sec. 445 et. seq.
	Permit	Utah Water Pollution Committee/ Utah Division of Health	Utah Water Pollution Control Act, UCA, Sec. 73-14-5
	Permit	Texas Water Commission	TWCA, Title 2, Section 26, et seq.
	Notice of Intent to Discharge/ Discharge Plan Approval	New Mexico Water Pollution Control Bureau	New Mexico Water Quality Act, NMSA, Sec. 75-39-1, et. seq.
Sanitary Landfill Site	Approval/Permit	Nevada Commission of Environmental Protection/Nevada districts (Health)	Nevada Solid Waste Disposal Law, NRS, Sec. 444.440, et. seq.
	Approval	Utah Division of Health/ Bureau Solid Waste Mgmt.	Utah Solid Waste Management Act, UCA, Sec. 26-35-1, et. seq.
	Permit/License	Texas Department of Health Resources/County	Texas Solid Waste Disposal Act, TSA, Title 71, Art. 4477-7
	Registration Certificate	Solid Waste Management Unit	New Mexico Hazardous Waste Act, NMSA, Sec. 24-1-3, et. seq. Solid Waste Mgmt. Regs.
Wastewater Treatment Works	Permit	Nevada Commission of Environmental Protection	Nevada Water Pollution Control Law, NRS, Sec. 445 et. seq.
	Permit	Utah Water Pollution Committee/Div. of Health	Utah Water Pollution Control Act, UCA, Sec. 73-14 et. seq.
	Design Approval Preconstruction Approval	Texas Dept. Water Resources/ Dept. Health	Texas Water Quality Act, TWCA Title 2, Sec. 26 et. seq, TSA, Title 71 Art. 4477-1, Sec. 12
	File Plans, Specifications/ Notice Intent to Discharge	New Mexico Water Pollution Control Bureau	New Mexico Water Quality Act, NMSA, Sec. 74-39-1 et. seq.
Potable Water Supply	Permit	Dept. Human Resources/Local Health Board	NRS, Sec. 445 et. seq.
	Design Approval	Div. of Health	UCA, Sec. 26-36 et. seq.
	Design Approval	Dept. of Health	TSA, Title 71, Art. 4477-1 Sec. 12
	Design Approval	Environment Improvement Division	New Mexico Water Supply Regulation, Sec. 103
Hazardous Waste Disposal	Permit	Texas Dept. Water Resources/ Dept. of Health	Texas Solid Waste Disposal Act, TSA, Title 71, Art. 4477-7

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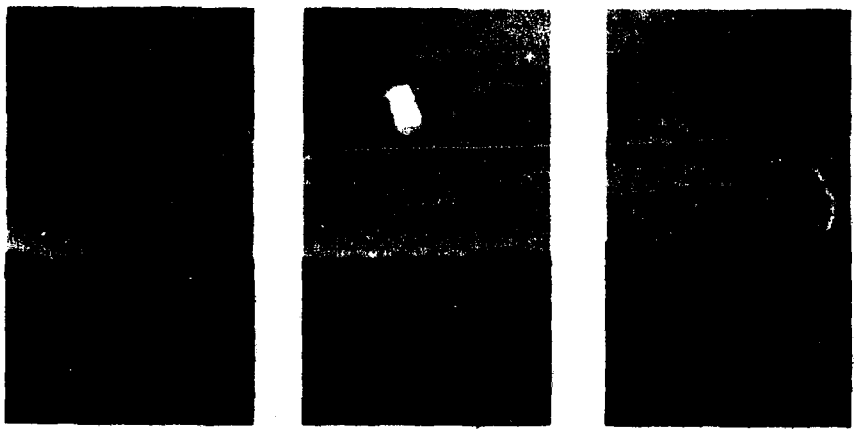
Environmental Impact Analysis Process



ENVIRONMENTAL IMPACT ANALYSIS PROCESS

BACKGROUND (1.7.1)

This draft environmental impact statement (DEIS) has been prepared by the United States Air Force in compliance with the National Environmental Policy Act, 1969 (P.L. 91-190, 1970) (NEPA) to assist in making decisions where to deploy the M-X, which includes operating bases, roads, protective shelters, and other support facilities, and to be part of the application for the withdrawal of public lands and to be considered in a decision to acquire private property.

TIERED DECISION MAKING (1.7.2)

As previously discussed, this EIS provides environmental information to aid in making two major decisions: selection of the DDA and of the OB suitability zones. It does not, however, contain all of the information which will become available over the next few years for selection of each specific facility site. This process of step-by-step analysis and decision making is called "tiering" and is authorized by the Council on Environmental Quality regulations implementing NEPA. Tiering is appropriate when the sequence of analysis is from an EIS at an early decision stage, such as this DDA selection and OB vicinity selection, to a later stage of selecting specific facility construction sites.

This EIS presents the environmental consequences of conceptual missile deployment layouts and conceptual operating base layouts. These conceptual layouts have been tentatively sited within suitability zones. Zones were determined to provide suitable alternative layout potential considering system operation, geologic features, and support requirements, desirable features, and avoiding known, sensitive environmental areas. This area-wide EIS (Tier 1) will not be used to decide irrevocably the sites of each individual facility or the OB boundary within the suitability zones. Decisions regarding the siting of each individual facility and the OB boundary, as well as site-specific location of construction camps and their attendant life support facilities, will follow further, more site-specific analysis in subsequent tiers. This area-wide EIS is used in the first decision (Tier 1) and will follow the conventional Draft to Final EIS process shown in Figure 1.7.2-1.

Considering this EIS (Tier 1) and other factors, the decisionmaker will irrevocably select a missile deployment regional suitability zone or zones in one or two regions and will select suitability zones for the two OBs. These zones are identified in Section 2.1.3.3. The environmental consequences of siting conceptual layouts within their respective suitability zones are contained in Chapter 4 of this EIS and compared in Chapter 2. In the event subsequent site-specific studies reveal unsuitabilities not previously known, it may become necessary to adjust the sitings shown by the conceptual layout. The system may expand or contract from the conceptual layout, within or between hydrologic subunits, but will remain within the zone identified in this EIS. In the event that it becomes necessary to move to a hydrologic subunit outside this suitability zone, a supplemental EIS will be required. To be certain that the consequences of the specific sitings in subsequent tiers are known before the final site is selected, engineering and environmental field studies for the specific site will be conducted. These continuing studies will provide information for subsequent selection of specific sites in Tiers 2, 3, 4, etc.

Tier 2 includes the development of an operating base comprehensive plan (BCP), which is a physical development plan in narrative and graphic form (Figure 1.7.2-2). It illustrates operational economic, social, environmental and legal aspects of all current and projected land use for the OB and its off-base sites, including the DDA, OBTS, ASCs, DTN, etc. The development of the BCP in Tier 2 includes input from, and coordination with, state and local planning agencies and the Department of Defense's Office of Economic Adjustment (OEA). The BCP development process will select a specific site for the OB and its off-base sites within the suitability zone designated in this EIS (Tier 1). The BCP will initially show the boundary of the base and include boundaries of specific sitings required for IOC, as well as some immediate follow-on facilities. The BCP at the Tier 2 stage will also identify the entire base development pattern and the major road network, including runway orientation, industrial area, community center, recreation areas, housing, etc., as well as the total DDA layout. The Tier 2 decision will also include specific site selections for the offbase OBTS and DTN connecting the base, the OBTS and the DDA. Construction marshalling yards and life support facility sitings will also be identified. The BCP development process at the Tier 2 stage will produce three principal products as shown in Figure 1.7.2-3.

Site-specific environmental field studies will be conducted to verify the consequences of these facility sitings, and a report assessing these findings will be prepared. The site selections will be accomplished by an interdisciplinary facility siting team of operational and environmental planners from the Air Force, the Corps of Engineers, and the Bureau of Land Management, including contractual assistance, who will work in coordination with state and local planning agencies.

In developing proposals for specific site selections in Tier 2, the facility siting team will consider the environmental consequences predicted in this EIS (Tier 1). The specific site selection process of Tier 2 will carefully consider enviroinmental and suitability factors found in the the field studies, and the site selection team may have the opportunity to avoid adverse environmental consequences predicted in this EIS (Tier 1). A report predicting the environmental consequences of sitings proposed by the facility siting team will be documented in a site-specific Environmental

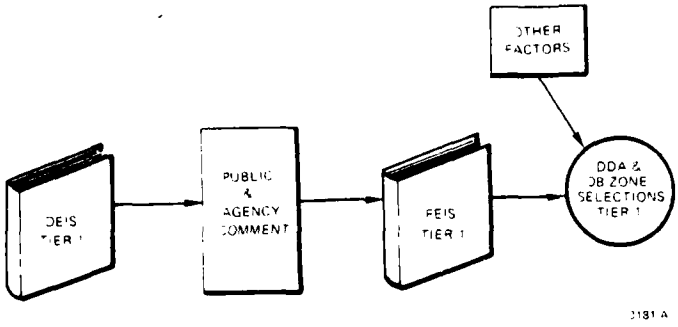


Figure 1.7.2-1. Tiering process--
Tier 1 selections.

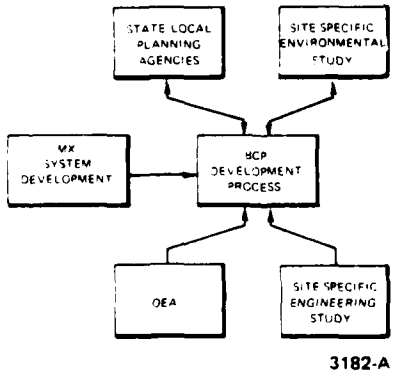


Figure 1.7.2-2. Tier 2--
base comprehensive plan
(BCP) development process.

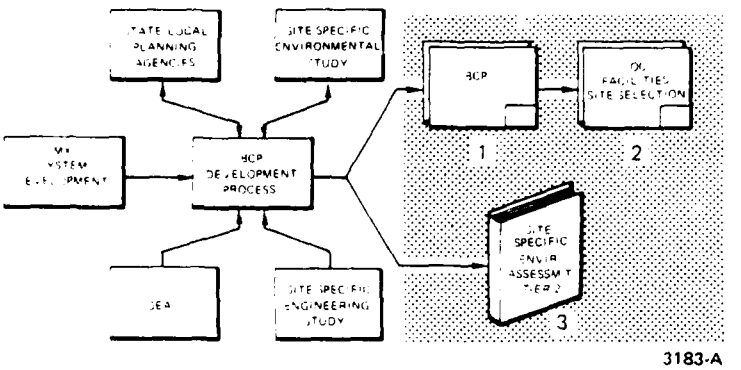


Figure 1.7.2-3. Tier 2--base comprehensive plan products.

Assessment (EA) for use in Tier 2 site-specific decisions. The findings in the EA for the Tier 2 decision will be compared with the impacts predicted in this EIS (Tier 1), as shown in Figure 1.7.2-4.

If the impacts are found to be less adverse, or substantially the same for sitings within that hydrological unit, the Air Force will prepare a Finding of no Significant New Impact (FONSNI), officially documenting this comparison (See Figure 1.7.2-5.)

This FONSNI would be provided to BLM or the Corps of Engineers to proceed with the public land withdrawal or private land acquisition. Public hearings would be held on the withdrawal of land for the Tier 2 sites, as well as an invitation for the public to comment on the FONSNI. The FONSNI for acquisition of land would be available to the public for comment on request. Following public comment and in consideration of those comments received, a decision will be made to proceed with the land withdrawal or acquisition in accordance with enabling legislative procedures or to amend the site selection of the Tier 2 proposals. This sequence is shown in Figure 1.7.2-6.

On the other hand, should the comparison of the Tier 2 environmental assessment and the area-wide EIS (Tier 1) reveal that the predicted adverse impacts are substantially worse, then a draft supplemental EIS will be prepared. See Figure 1.7.2-7 for this sequence. Follow-on site-specific decisions would be grouped in subsequent tiers and similarly processed.

RESOURCE IDENTIFICATION (1.7.3)

This EIS focuses on a set of environmental resources related to the proposed action and alternatives. Potentially significant resources were identified during a process of agency and public scoping supplemented by the review of an interdisciplinary professional team.

Scoping (1.7.3.1)

The Council on Environmental Quality Regulations implementing NEPA states that there shall be an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action. This process is termed scoping. As part of the scoping process, the lead agency invites agency and public participation to determine the scope and the significant issues to be analyzed in the environmental impact statement. Those issues which are not significant or which have been covered by prior environmental review are identified and eliminated from detailed study.

In November 1979, January 1980, November 1980, and December 1980, [illegible] conducted a number of federal agency, state agency, and public [illegible] input on significant resources to be addressed in the EIS. Over [illegible] meetings and approximately 500 letters were received.

[illegible] environmental analysis were identified:

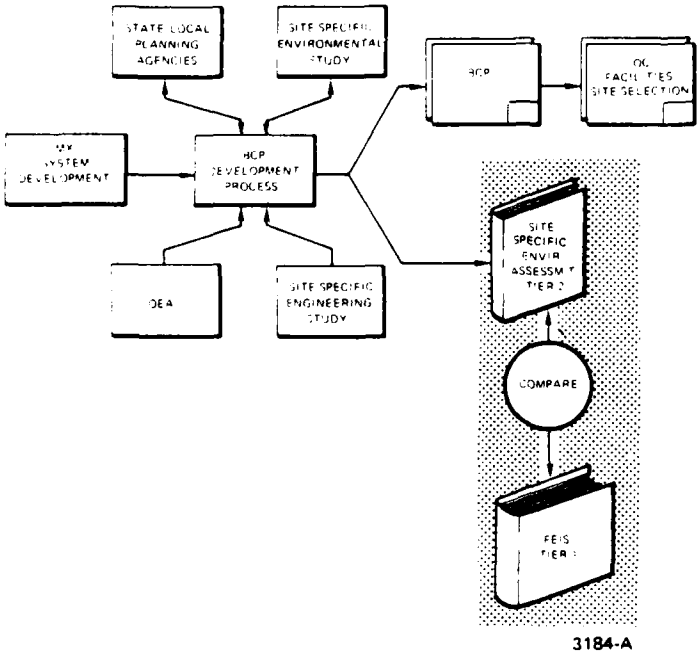


Figure 1.7.2-4. Tier 1 and Tier 2--comparisons of environmental analysis.

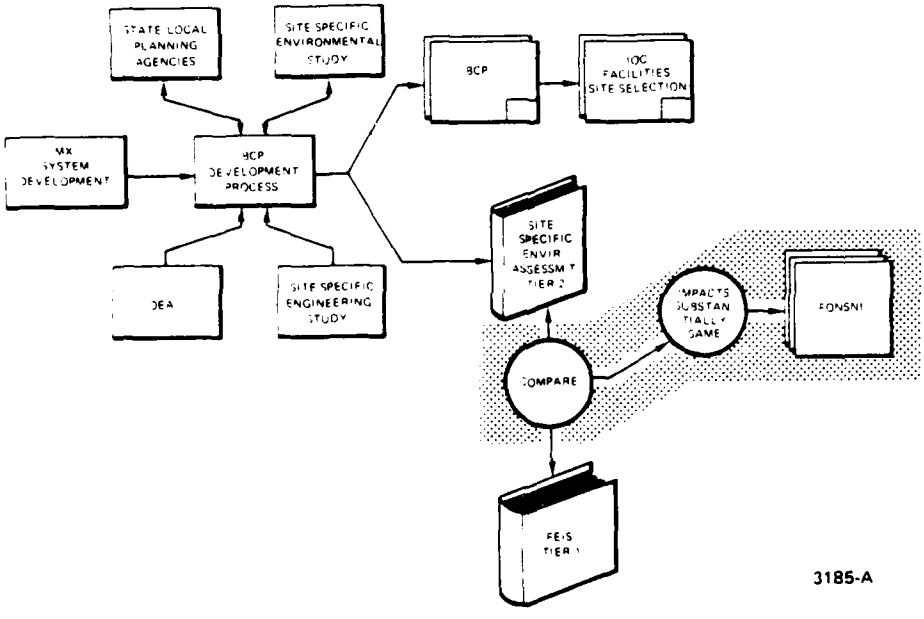


Figure 1.7.2-5. Finding of no significant new impact (FONSNI).

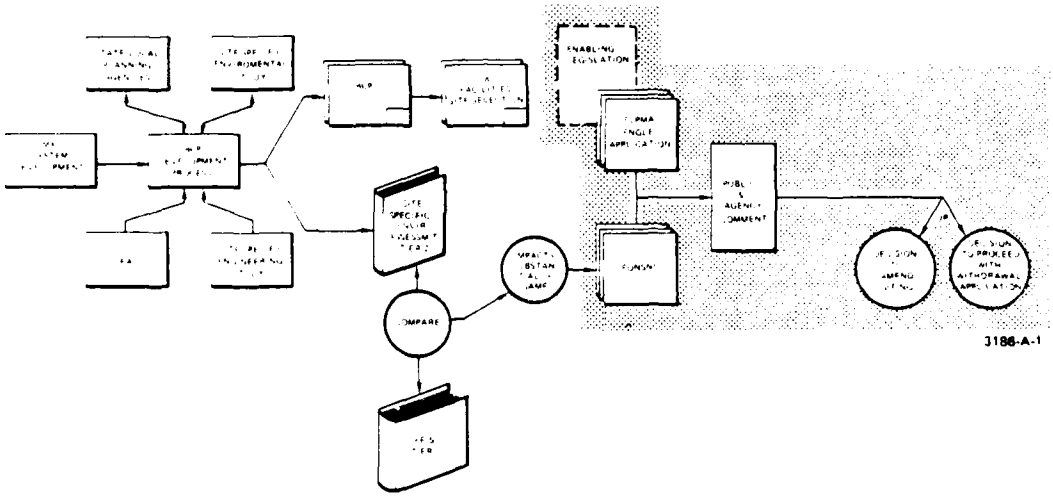


Figure 1.7.2-6. Public and agency review of application and FONSNI.

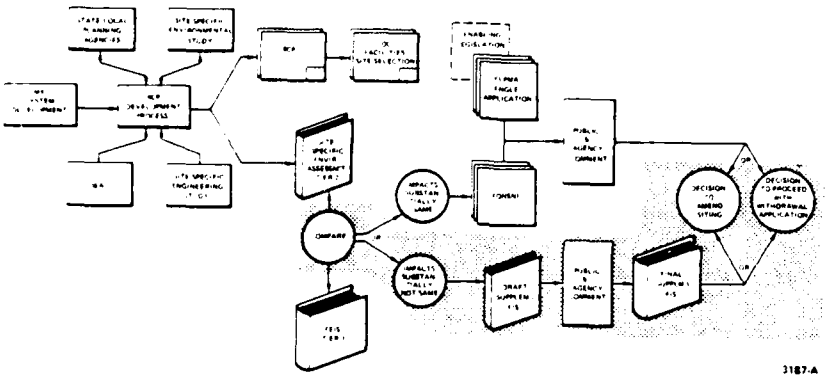


Figure 1.7.2-7. Tier 2--requirements for supplemental EIS.

- o Archaeological and historical resources
- o Energy and non-renewable resources
- o Terrestrial and aquatic biology
- o Air quality
- o Native Americans
- o Construction resources
- o Engineering

Table 1.7.3-1 details subdivisions of these issues and identifies which are outside the scope of the EIS. In general, the latter group focuses on national defense or matters beyond Air Force Control. Results of the scoping process are contained in the report "Summary of Scoping for the M-X: Deployment Area Selection/Land Withdrawal Environmental Statement (ETR-225)" originally published in April, and revised in December 1980.

Professional Interdisciplinary Review (1.7.3.2)

Subsequent to publication of the "Summary of Scoping for the M-X the issues were restructed for clarity of presentation. Table 1.7.3-2 shows resource categories formed by grouping environmentally similar resources. Each resource was then subdivided into attributes for further analysis. For example, the Wildlife "resource category" consists of pronghorn antelope, bighorn sheep, sage grouse, and waterfowl "resources," with attributes, key habitat and population levels.

Table 1.7.3-2 lists the significant resource categories, resources and attributes that are analyzed in Chapter 2 of the EIS. More extensive analysis of these resources and others which are not significantly impacted is included in Chapters 3 and 4.

MONITORING AND COMPLIANCE PROGRAM (1.7.4)

The Air Force will establish a monitoring/compliance plan. It will provide means for evaluating the accuracy of impact predictions, discovering unanticipated effects, identifying new mitigative requirements, and ensuring that mitigations planned for implementation in the decision paper are carried out. Potential mitigations are identified in Chapters 2 and 4 within discussions of impact on resources.

Table 1.7.3-1. Major key issue categories and issues raised at scoping process.

KEY ISSUE CATEGORY	DETAIL SCOPING ISSUE
Rapid, Large-Scale Growth	MX interaction with other projects; size of military and civilian employment; sewage/solid waste; local and small business opportunities; citizen/Air Force communications; education
Land Rights Land Use	Alternative deployment sites; recreation and wilderness areas; permitting and compliance with state/local laws and regulations; citizen/Air Force communications; air-space restrictions; grazing; agriculture
Water Resources	Surface hydrology; post-EIS inventories and monitoring; permitting and compliance with state/local laws and regulations
Public Health & Safety	Noise; security configuration
Archaeological/Historical Resources	Permitting and compliance with state, local laws and regulations
Energy and Nonrenewable Resources	Electrical energy and petroleum products
Terrestrial and Aquatic Biology	Protected species, post-EIS inventories and monitoring, hunting and fishing restrictions
Air Quality	Post-EIS inventories and monitoring permitting and compliance with state/local laws and regulations
Native Americans	Land, water, and cultural resource conflicts
Construction Resources	Cement, sand and gravel, and steel requirements
Engineering	Civilian co-use of military facilities, transportation, road maintenance.
Issues Outside Scope of EIS	Civil defense facilities, credibility of Air Force planning, studies, statements; extent of citizen influence on MX decision-making; MX vs. alternatives for national defense interaction of MX and SALT II; Sagebrush Rebellion, alternative deployment modes

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Table 1.7.3-2. Significant resources and their attributes included in Chapter 2 (Pg. 1 of 2).

I. NATURAL ENVIRONMENT		
RESOURCE CATEGORY	RESOURCE	ATTRIBUTE
Water	Surface water	Location (map) Level Runoff (acre-ft) Sediment load (tons) Total Dissolved Solids (parts/million) Flow (cubic ft/second) Use (acre-ft)
	Groundwater	Water table elevation (ft) Perennial yield (acre-ft) Storage (acre-ft) Total Dissolved Solids (parts/million) Use (acre-ft)
Protected Species	Aquatic Species	Habitat (water level/areal extent (index) Abundance (index)
	Rare Plants	Habitat (map, index)
	Utah Prairie Dog	Habitat (map, acres)
	Desert Tortoise	Habitat (map, acres) Population (number/index)
Wildlife	Pronghorn Antelope	Key habitat (map, acres) Population (number, index)
	Bighorn Sheep	Key habitat (map, acres) Population (number, index)
	Sage Grouse	Key habitat (map)
	Waterfowl	Habitat (map)
Vegetation	Natural Vegetation	Vegetated cover (acres Significant natural areas (map, acres)
Air Quality		Particulates (micrograms/meter^3) Nitrogen oxides (micrograms/meter^3) Carbon monoxide (micrograms/meter^3)
II. HUMAN ENVIRONMENT		
Population	Total Population	Size (number) Age distribution (table) Distribution (map, table)
	Civilian Labor Force	Size (number) Distribution (table)
	Military Labor Force	Size (number) Distribution (table, map) Income ($)
Land		Grazing (map, animal unit months) Mining claims (map) Mine accessibility (index) Claim developability ($) Cropland (acres, map, $) Private (acres, map) Wilderness (index) Recreation availability (index) Recreation demand (index)

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Table 1.7.3-2. Significant resources and their attributes included in Chapter 2 (Pg. 2 of 2).

RESOURCE CATEGORY	RESOURCE	ATTRIBUTE
Communities	Public finance	Local government revenues ($) Local government expenditures ($) Local government capital expenditures ($) School district revenues ($) School district expenditures ($) School district capital expenditures ($)
	Infrastructure	Education (number of students, teachers, school facilities ($)) Public safety (number of public and fire personnel, facilities ($)) Health care (number of physicians, dentists, nurses, mental health personnel, hospital beds)
Housing		Single-family units (number, distribution) Multiple-family units (number, distribution) Mobile homes (number, distribution)
Native American	Cultural	Distribution (map)
	Water	Distribution (map) Water level (elevation)
	Population	Size (number) Distribution (map and table)
	Land	Reservations (map, acres) Grazing (map, acres, animal unit months)
Energy	Electricity	Generating capacity (megawatt hour/megawatt) Demand (megawatt hour/megawatt)
	Fuel	Demand (barrels/year) Allocation (barrels/year) Distribution (map)
	Natural Gas	Demand (cubic ft/year) Supply (cubic ft/year) Production (map, cubic ft/year)
	Bulk Oil	Demand (barrels/year) Supply (barrels/year) Production (barrels/year)
Archaeological & Historical		Distribution (map, index)
Construction	Cement	Production (tons) Price ($)
Transportation	Highways	Use (average daily traffic) Facilities (miles)

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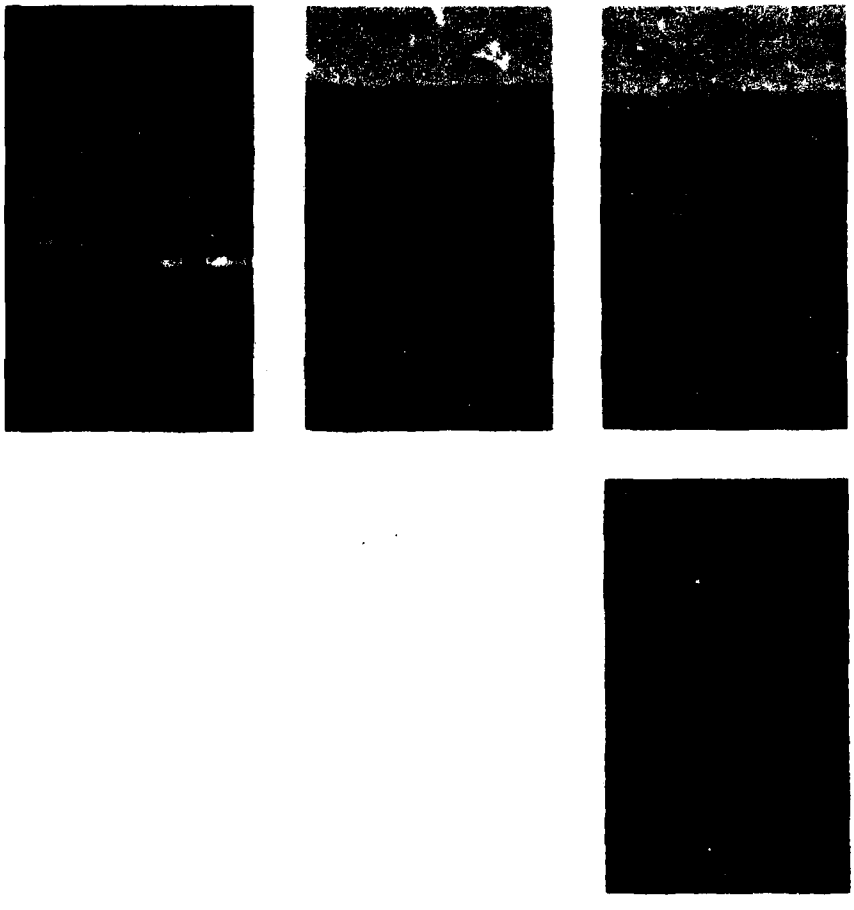
Land Withdrawal/Acquisition



LAND WITHDRAWAL/ACQUISITION

WITHDRAWAL (1.8.1)

Public land managed by the Bureau of Land Management (BLM), Department of the Interior (DOI) will be required under all alternatives. After Designated Deployment Area (DDA) and Operating Base (OB) suitability zone selections by the President, the Air Force will proceed with actions leading to withdrawal of all public lands required. The principal laws applicable to land withdrawal are the Federal Land Policy Management Act of 1976 (FLPMA) (43 USC 1701 et seq) and Defense Withdrawal Act of 1950, also known as the Engle Act (43 USC 155 et seq). The Engle Act requires an Act of Congress to withdraw more than 5,000 acres in the aggregate for any one defense project or facility of the Department of Defense.

The required land area ranges from 26,000 to 30,000 acres. In addition, approximately 70,000 to 80,000 acres of land will be required for rights-of-way. To the extent practical, the Air Force will locate roads, communication lines, and utilities within the same right-of-way corridors. The Air Force will minimize the land areas required to be withdrawn for its exclusive control and use (fenced off from public use) and maximize multiple use of those remaining public lands within the deployment area.

The Air Force will submit an application to the Secretary of Interior acting through the Bureau of Land Management (BLM) for the withdrawal of all public land required to fully deploy the missile system. The DOI, with the assistance and cooperation of the Air Force, will prepare in final form required legislation for requested withdrawal and related administrative actions. The Air Force withdrawal application will include real estate descriptions based on site-specific surveys approved by BLM (tier 2) for all IOC land requirements and real estate descriptions for all other land requirements based on information from tentative site locations plotted on maps with a scale of 1:62,500. The affected State Directors of BLM will evaluate the Air Force application for land withdrawal and provide a recommendation to the Director of BLM. The Director will submit his recommendation on the application to the Secretary of the Interior. Within 30 days of receipt by BLM of the withdrawal application, a notice of the application will be published in the Federal Register. The notice will identify which public lands, if any, the Air Force

has requested be segregated from settlement, sale, location, or entry under the public land laws, including the general mining laws, until final action on the withdrawal application is taken, but cannot exceed two years. It does not authorize use of any public land by the Air Force prior to enactment of specific withdrawal legislation. All leases, permits, and other existing uses authorized by the BLM will continue in effect during the period of segregation. Upon notice of the filing of the application in the Federal Register, the application will be available for public comment. Upon completion of the public comment period, and after modification of the Air Force proposal as necessary, the Secretary of the Interior will submit the application to the Office of Management and Budget along with the proposed withdrawal legislation. A land use plan for the management of the withdrawn and other public lands within the deployment area(s) will be submitted along with the proposed legislation and thereafter submitted to Congress.

The proposed legislation would withdraw all public land identified by real estate description that will have to be withdrawn for the IOC. In addition, the legislation would authorize administrative withdrawals by DOI for the balance of the project area land withdrawals. The proposed legislation will acknowledge that much of the tentatively identified land will be subject to change after detailed site-specific surveys. It is intended that the enabling legislation will grant DOI authority to alter such site locations provided the acreage does not increase and the new sites do not require land outside the suitability zones described in the EIS (tier 1). It is also intended that the enabling legislation will authorize the Secretary of Interior, in accordance with established BLM procedures, to issue public land orders immediately for IOC land requirements and the balance of the lands that are needed to be withdrawn incrementally as subsequent parcels are specifically identified from tiered decision-making described in Section 1.7.2. This withdrawal legislation will contain a description of the process to be used to precisely locate and implement the withdrawal of the incremental parcels of public land together with such other terms and conditions as are deemed necessary to implement the M-X project in relation to land use considerations.

Following enactment of the necessary legislation, the Secretary of Interior will be responsible for issuing incremental public land orders as derived from the tiering process (Section 1.7.2) and as the required land sites are identified to support the construction schedule.

In addition to the public lands withdrawn for exclusive use, there will be other public land requirements that probably will not require withdrawal. This will include rights-of-way for wells, roads, utilities, and communication lines; temporary rights-of-way for construction camps, construction and storage areas; and free use permits for material sites. These land uses will be located and evaluated in the decision tier of that portion of the system to which they are linked. The sites will be analyzed to mitigate adverse environmental impacts and by practical construction considerations. The use authorizations will be granted by the appropriate state offices of the Bureau of Land Management using existing procedures and only after enactment of the withdrawal legislation.

As an alternative to the process outlined above in order to reduce critical lead time, the Air Force is also pursuing with Secretary of Interior the possibility of proposing procedural legislation for M-X land withdrawals separate and apart from a withdrawal application. This would permit the Congress to consider legislation

concurrent with the processing of a withdrawal application. The legislation would grant DOI (BLM) authority to issue land orders for the withdrawal of land within suitability zones identified in the EIS (Tier 1). The specific land would be identified in incremental applications based on actual site surveys and subject to tiered review and decisions.

ACQUISITION (1.8.2)

The Air Force may also acquire private and state property rights, as necessary, to meet M-X deployment requirements. In the event acquisition of private or state lands is necessary, they will be included in the appropriate fiscal year military construction program as required to support phased construction. Authority to acquire property will be included and identified in the appropriate annual Military Construction Authorization Bill and funds to implement the authorized acquisition will be included in the appropriate Military Construction Appropriation Bill.

Subsequent to the enactment of the Military Construction Authorization and Appropriation Acts, the Air Force will direct the Army Corps of Engineers as the agent of the Air Force to acquire the private property. The Corps of Engineers will at the time appraise the fair market value of each individual tract of private property to be acquired and will then enter into negotiations with the owner. In those instances where negotiations are unable to resolve differences in value of the property or clear title cannot be conveyed, condemnation proceedings will be instituted by the Air Force. This judicial proceeding will vest clear title in the Federal Government and will establish the compensation to be paid to the property owner. The Air Force will request the court to grant immediate possession of the property when required to support the scheduled construction.

When siting the system on or adjacent to private land, the Air Force will take every reasonable action to mitigate environmental impacts and minimize adverse impacts on adjacent land uses. The acquisition of private property will be guided by uniform policies and procedures in accordance with the Uniform Relocation Assistance Act and Real Property Acquisition Policies Act of 1970 (42 USC 4610 et seq). Some of these are:

a. Every reasonable effort shall be made to acquire real property expeditiously by negotiation.

b. The owner of his designated representative shall be given an opportunity to accompany the appraiser during his inspection of the property.

c. The owner will be offered the full amount established as just compensation. In no event will this amount be less than the Government's approved appraisal of the fair market value of the property. The owner will be provided with a written statement of, and a summary of the basis for, the amount established as just compensation.

d. The owner of real property will be paid the agreed purchase price or a deposit will be made with the court for his benefit before the Government will take possession of the property.

e. The date of possession by the Government will be scheduled to the greatest extent practicable to give the owner at least 90 days written notice to move.

f. If the acquisition of real property would leave the owner with an uneconomic remnant, an offer will be made to acquire the entire property.

For those ownerships to be acquired where relocation will be required, relocation assistance in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. This law provides for uniform and equitable treatment of persons displaced from their homes, businesses, or farms. All persons to be displaced will be fully advised as to the relocation benefits available to them in order that there will be as little adverse impact upon them as possible. In general, the law seeks to provide displaced persons with housing at least equal to that which they were required to vacate. Persons living in substandard housing will be assisted in moving into other housing meeting minimum standards with respect to decency, safety, and sanitation. Relocation benefits ae entirely separate from, and in addition to, the price paid for the property acquired.

END 10-81