AD-A236 774

(2)

Proposed Relocation of the

37th TACTICAL FIGHTER WING and Other Tactical Force Structure Actions

DTIC

Final Environmental Impact Statement

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United States Air Force

May 9, 1991

91-01886

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SUMMARY OF ACTIONS

ALTERNATIVE	ACTION
37th TFW/49th TFW	1. The 37th Tactical Fighter Wing will be relocated from Tonopah Test Range and relocated to Holloman Air Force Base beginning in Fiscal Year 92/3. 2. The 49th Tactical Fighter Wing will be inactivated at Holloman Air Force Base beginning in Fiscal Year 91/4.
HOLLOMAN	1. The 37th Tactical Fighter Wing will be withdrawn from Tonopah Test Range, and relocated to Holloman Air Force Base beginning in Fiscal Year 92/3. 2. The 49th Tactical Fighter Wing will be inactivated at Holloman Air Force Base beginning Fiscal Year 91/4. 3. The German Air Force will be withdrawn from George Air Force Base, and relocated to Holloman Air Force Base beginning in Fiscal Year 92/3. 4. A notional Tactical Reconnaissance Squadron will be relocated to Holloman Air Force Base as early as Fiscal Year 91/4. 5. A notional Suppression of Enemy Air Defenses squadron and F-4E/G trainers will be relocated to Holloman Air Force Base as early as Fiscal Year 92/3.
HOLLOMAN-NELLIS	1. The 37th Tactical Fighter Wing will be relocated from Tonopah Test Range, and relocated to Nellis Air Force Base beginning in Fiscal Year 92/3. 2. The 49th Tactical Fighter Wing will be inactivated at Holloman Air Force Base beginning in Fiscal Year 91/4. 3. The German Air Force will be withdrawn from George Air Force Base, and relocated to Holloman Air Force Base beginning in Fiscal Year 92/3. 4. A notional Tactical Reconnaissance Squadron will be relocated to Holloman Air Force Base as early as Fiscal Year 91/4. 5. A notional Suppression of Enemy Air Defenses squadron and F-4E/G trainers will be relocated to Holloman Air Force Base as early as Fiscal Year 92/3.
PREFERRED ACTION	1. The 37th Tactical Fighter Wing will be withdrawn from Tonopah Test Range, and relocated to Holloman Air Force Base beginning in Fiscal Year 92/3. 2. The 49th Tactical Fighter Wing will be inactivated at Holloman Air Force Base beginning Fiscal Year 91/4. 3. The German Air Force will be withdrawn from George Air Force Base, and relocated to Holloman Air Force Base beginning in Fiscal Year 92/3.

Final Environmental Impact Statement
Proposed Relocation of the 37th Tactical Fighter Wing and Other Tactical Force Structure Actions

Responsible Agency: United States Air Force

Action: In response to changing world threats and Congressionally mandated Department of Defense (DoD) budget reductions, DoD's Defense Management Review (DMR) Program necessitated extensive force structure reductions and realignments to improve overall operating efficiency. Under this initiative Tactical Air Command (TAC) realized relocating the 37th Tactical Fighter Wing (TFW) from Tonopah Test Range (TTR) Nevada, to an existing Air Force base with an infrastructure and supply network already intact, would save an estimated $70 million ($FY 1990) per year. The 37th TFW and Detachment 1, 57th Fighter Weapons Wing (FWW) possess 46 primary aircraft authorizations (PAA) F-117A and 8 PAA AT-38B aircraft. The inactivation of the 49th TFW would retire 72 PAA F-15A/B aircraft for additional saving. Due to the closure of George Air Force Base (AFB), the German Air Force (GAF) with their 18 PAA F-4E aircraft must relocate and Holloman AFB is being evaluated. This Environmental Impact Statement assesses three separate alternatives at TTR, Holloman AFB, New Mexico, and Nellis AFB, Nevada plus a no action alternative.

Contact for Further Information:

Captain David Clark
HQ TAC/DEVE
Langley AFB, VA 23665-5542
Telephone: (804) 764-7844

Designation: Final Environmental Impact Statement

Abstract: The United States Air Force proposes to relocate the 37th TFW from TTR, Nevada, to Holloman AFB, New Mexico, and other force structure actions at Holloman AFB, New Mexico. The Final EIS assesses the potential environmental impacts of four alternatives affecting TTR, Holloman AFB, Nellis AFB, and affected communities in New Mexico and Nevada. The preferred action would relocate the 37th TFW and the GAF to Holloman AFB while inactivating the 49th TFW at Holloman AFB. This is a subset of the Holloman alternative in the Final EIS. This action will result in significant adverse socioeconomic impacts that result in moderate land-use impacts in the vicinity of Tonopah. The 37th TFW's F-117A nighttime aircraft operations are not expected to significantly impact people or biota due to the altitudes flown. Although the Holloman alternative introduces GAF aircraft noise on modified Military Training Routes in southeastern New Mexico and western Texas, the preferred action in not expected to have significant adverse impacts. All remaining impacts to Holloman AFB are negligible or beneficial. Impacts to resources in the vicinity of Nellis AFB are insignificant.

The United States Air Force is scheduled to sign the Record of Decision on June 17, 1991.

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ACRONYMS AND ABBREVIATIONS

AATTC	Advanced Airlift Tactics Training Center
ACM	air combat maneuver
ADA	average daily attendance
ADT	average daily traffic count
AF	Air Force
AFB	Air Force Base
AFR	Air Force Regulation
AFS	Air Force Station
AFESC	Air Force Engineering and Services Center
AFY	acre-feet per year
AGL	above ground level
AICUZ	Air Installation Compatible Use Zone
ANG	Air National Guard
AQAM	Air Quality Assessment Model
AQCR	Air Quality Control Region
AQIP	Air Quality Implementation Plan
ARC	Air Reserve Component
ARTCC	air route traffic control center
ATA	airport traffic area
ATC	air traffic control
ATCAA	air traffic control assigned airspace
ATCT	air traffic control tower
BASH	Bird Aircraft Strike Hazard
BEA	Bureau of Economic Analysis
BLM	Bureau of Land Management
BLS	Bureau of Labor Statistics
BX	Base exchange
Ca	calcium
CCHD	Clark County Health District
CCSD	Clark County Sanitation District
CCTW	Combat Crew Training Wing
CDNL	C-weighted average day/night sound level
CE	Critically endangered
CEQ	Council on Environmental Quality
CHAMPUS	Civilian Health and Medical Program of the Uniformed Services
CO	carbon monoxide
COE	Corps of Engineers
CONUS	Continental United States
CRC	Colorado River Commission
CY	calendar year
CY	Cactus and Yucca Law
dB	decibel
dB(A)	decibels, A-weighted

Acronyms and Abbreviations (continued)

Det	Detachment
DMR	Defense Management Review
DNL	A-weighted average day/night sound level
DoD	Department of Defense
DOE	Department of Energy
DOPAA	Decription of Proposed Action and Alternatives
DPS	Department of Public Safety
DRMO	Defense Reutilization Marketing Office
E	endangered
EA	Environmental Assessment
EC	Electronic Combat
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ERIS	Economic Resource Impact Statement
F	Fahrenheit
FAA	Federal Aviation Administration
FEIA	Federal Education Impact Aid
FFCA	Federal Facilities Compliance Agreement
F.I.R.E.	finance, insurance and real estate
FL	flight level
ft	feet
FWS	U.S. Fish and Wildlife Service
FWW	Fighter Weapon Wing
FY	fiscal year
GAF	German Air Force
gpd	gallons per day
gpm	gallons per minute
H&N	Holmes & Narver
HAFB	Holloman Air Force Base
HC	hydrocarbon
HMA	housing market area
HMO	housing management office
HSWA	Hazardous and Solid Waste Ammendments
HQ	Headquarters
IFR	instrument flight rules
IR	instrument routes
IRP	Installation Restoration Program
I/O	input/output
K	Kindergarten
kv	kilovolts
KVA	Kilovolt-amperes
L	Local time
LA&SL	Los Angeles & Salt Lake railroad

Acronyms and Abbreviations (continued)

LATN	low-altitude tactical navigation
LOS	level of service
LQ	location quotient
L_{cdn}	day-night average sound level (C-weighted)
L_{dn}	day-night average sound level
L_{dnmr}	Noise exposure metric day-night average sound level
m^3	cubic meter
m^2	square meter
MAC	Military Airlift Command
max.	maximum
MEA	Mean Enroute Altitude
MFH	military family housing
mg	million gallons
Mg	magnesium
mgd	million gallons per day
mgy	million gallons per year
mg/L	milligrams per liter
min.	minimum
MOA	military operations area
MSA	metropolitan statistical area
MSL	mean sea level
MTR	military training route
Na	sodium
NAAQS	National Ambient Air Quality Standard
NAF	non-appropriated fund
NAFB	Nellis Air Force Base
NAFR	Nellis Air Force Range
NATO	North Atlantic Treaty Organization
NE	northeast
NEPA	National Environmental Policy Act
NFS	National Forest Service
NM	New Mexico
nm	nautical miles
NMSU	New Mexico State University
NOAA	National Oceanic and Atmospheric Administration
NOISEMAP	Air Force Noise Exposure Computer Model
NO_2	nitrogen dioxide
NO_x	nitrogen oxide(s)
NPS	National Park Service
NV	Nevada
NWR	National Wildlife Refuge
O_3	ozone
OEA	Office of Economic Adjustment
ORNL	Oak Ridge National Laboratory

Acronyms and Abbreviations (continued)

P	protected
PAA	primary aircraft authorizations
Pb	lead
PIC	Planning Information Corporation
PM	particulate matter
PM_{10}	particulate matter of 10 micron diameter
PN	persons
ppm	parts per million
psf	pounds per square foot
R	rare
R&D	research and development
RAPCON	radar approach control
RCRA	Resource Conservation and Recovery Act
REECO	Reynolds Electric and Engineering Corporation
RIF	reduction in force
RIMS	Regional Input/Output Modeling System
ROD	Record of Decision
ROI	region of influence
ROUTEMAP	Air Force Noise Exposure Estimation Computer Program
S	sensitive
SAC	Strategic Air Command
SAIC	Science Applications International Corporation
SEAD	suppression of enemy air defense
SECDEF	Secretary of Defense
SEL	Single Event Level
SF	square feet
SHPO	State Historic Preservation Office
SIC	Standard Industrial Classification
SiO_2	silicon dioxide
SO_2	sulfur dioxide
SOx	sulfur oxides
SR	State Route
SUA	Special Use Airspace
SW	southwest
SY	square yards
T	threatened
TAC	Tactical Air Command
TAF	Tactical Air Force
TCA	terminal control area
T.C.U.	transportation, communications, and utilities
TDS	total dissolved solids
TDY	temporary duty
TFG	Tactical Fighter Group
TFS	Tactical Fighter Squadron

Acronyms and Abbreviations (continued)

TFTS	Tactical Fighter Training Squadron
TFW	Tactical Fighter Wing
TFWC	Tactical Fighter Weapons Center
THC	total hydrocarbons
TRS	Tactical Reconnaissance Squadron
TSP	total suspended particulate
TTR	Tonopah Test Range
TTW	Tactical Training Wing
ug/m^3	micrograms per cubic meter
UPH	unaccompanied personnel housing
USAF	United States Air Force
USFS	United States Forestry Service
USGS	United States Geological Survey
UST	underground storage tank
VFR	visual flight rules
VA	Veterans Administration
VMC	Visual Meteorological Conditions
VOC	volatile organic compound
VOR	VHF omnidirectional range
VR	visual routes
WHA	Walk, Haydel & Associates
WRC	Water Resources Center
WSMR	White Sands Missile Range
WSNM	White Sands National Monument
WWTS	Waste Water Treatment System
$\mu g/m^3$	micrograms per cubic meter

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EXECUTIVE SUMMARY

This Environmental Impact Statement (EIS) is prepared in accordance with Air Force regulations, the National Environmental Policy Act (NEPA), and the President's Council on Environmental Quality (CEQ) guidelines to assess the impacts of the proposed relocation of the 37th Tactical Fighter Wing (TFW) and F-4 units in conjunction with the inactivation of the 49th TFW. This analysis addresses the specific impacts to Tonopah Test Range (TTR), Holloman Air Force Base (AFB), Nellis AFB, and their environs.

This EIS is projected to be completed in spring 1991, and will conclude with a Record of Decision (ROD). The ROD will include decisions regarding the impacts of (1) relocating 45 primary aircraft authorizations (PAA) F-117A and 8 PAA AT-38B aircraft of the 37th TFW and 1 PAA F-117A of the Detachment 1, 57th Fighter Weapons Wing, (2) removing of the 72 PAA F-15A/B aircraft associated with the 49th TFW, and (3a) 18 PAA F-4E German Air Force (GAF) aircraft, (3b) 18 PAA RF-4C tactical reconnaissance squadron (TRS) aircraft, (3c) relocating of 36 PAA F-4E/G suppression of enemy air defense (SEAD) aircraft.

Changing world threats and Congressionally mandated Department of Defense (DoD) budget reductions have necessitated proposals for extensive force structure reductions and realignments. In response, DoD has initiated efforts under its Defense Management Review (DMR) Program to improve overall operating efficiency. Under this initiative, Tactical Air Command (TAC) analyzed its organizational functions and responsibilities to streamline and reduce operational costs. Cost savings associated with the relocation of the 37th TFW are estimated to be about $70 million ($FY 1990) per year. Review of these options indicated that their impacts could be evaluated in terms of 4 alternatives. These are designated as follows:

1. The 37th TFW, 49th TFW Alternative

2. The Holloman Alternative

3. The Holloman-Nellis Alternative

4. No Action Alternative

Figure 1.3-1 shows the affected facilities encompassed by these alternatives. Table ES-1 briefly characterizes each alternative.

TAC has determined that the preferred action is actually a subset of the Holloman alternative. The preferred action includes relocation of the 37th TFW and German Air Force (GAF) unit to Holloman AFB and inactivation of the 49th TFW. Table ES-1 also briefly characterizes the preferred action.

The 37th/49th TFW alternative would have slightly beneficial impacts to the biophysical environment in the vicinity of TTR. Significant socioeconomic impacts are

Table ES-1 Summary of Projected Actions

	Aircraft	Construction ($000)	Manpower Authorizations	Contractor Employees	Acres Disturbed on base	Acres Disturbed off base
37th TFW/49th TFW Alternative						
Tonopah Test Range	-46 F-117A -8 AT-38B			-1,130		
Holloman AFB	+46 F-117A +8 AT-38B -72 F-15	86,000	-185/-489*	0/-528*	58	2
Nellis AFB			-2,696			
Holloman Alternative						
Tonopah Test Range	-46 F-117A -8 AT-38B			-1,130		
Holloman AFB	+46 F-117A +8 AT-38B +72 F-4 -72 F-15	106,000	+2,316/2,012*	0/-528*	70	7
Nellis AFB			-2,696			
Holloman-Nellis Alternative						
Tonopah Test Range	-46 F-117A -8 AT-38B			-1,130		
Holloman AFB	+72 F-4 -72 F-15	20,000	+269/-35*	0/-528*	10	7
Nellis AFB	+46 F-117A +8 AT-38B	159,000	-649		130	
Preferred Action						
Tonopah Test Range	-46 F-117A -8 AT-38B			-1,130		
Holloman AFB	+46 F-117A +8 AT-38B +18 F-4 -72 F-15	87,500	-57/-361*	+278/-250*	62	2
Nellis AFB			-2,696			

* Due to alternative / cumulative, including Reduction of the 479th TTW

predicted for the town of Tonopah, Nevada, arising primarily from a reduction in employment opportunities at TTR. Under worst-case conditions, direct and indirect impacts can amount to a 20 percent reduction in employment in Tonopah and may result in an out-migration of as much as 38 percent of the total population. Major impacts to local schools and the local housing market would result. In addition, this alternative would result in a loss of revenue and expenditures in Tonopah associated with decreased tax revenue and state and federal subvention. Individual tax burdens are projected to increase due to out-migration. Personnel reductions at Nellis AFB associated with this alternative would have negligible effect on the impact on biophysical and socioeconomic environments because of the size of the Las Vegas community and its rapid growth in recent years. The 37th/49th TFW alternative is not expected to have significant impact on biophysical, cultural, or socioeconomic resources in the vicinity of Holloman AFB or on the ranges and land underlying special use airspace affected by this alternative. A significant beneficial impact is expected from the reduction of the amount of land contained within the 65 decibel (dB) contour in the approach area near Holloman AFB.

Under the Holloman alternative impacts associated with TTR and Nellis AFB would be the same as those experienced with the 37th/49th TFW alternative. This alternative would have no significant impact on air quality, biota, and water resources in the vicinity of Holloman AFB and special use airspace. Noise analysis indicates a decrease in the area encompassed by the 65 dB contour at Holloman AFB as a result of this alternative, and no adverse noise-related impacts at the base are projected. In general, there would be no substantial increase in the noise exposure to communities. As a result of this alternative, there would be an increase in nighttime (2200 local time to 0700 hours) sorties due to the introduction of the F-117A operations. (No nighttime sorties are projected for the F-4 aircraft.) Increased nighttime use of affected ranges are projected to have 8 to 10 dB noise increases. The new segment of a modified Instrument Route to support F-4 operations would result in overflight of a wilderness study area. Noise impacts are expected to be reduced by operational requirements to fly 9,800 feet mean sea level in the area. Increased activity in special use airspace and Military Training Routes would result in minor noise-related impacts to the community of Willard and sensitive wilderness locations. The Holloman alternative would result in an increase in aircraft operations at Holloman AFB but no significant impacts are predicted for special use airspace. The alternative is projected to result in an 11 percent cumulative population increase in the Alamogordo area following the reduction in force of the 479th TTW. Neither the housing market nor community services are expected to be adversely affected in the long term. Impacts to archaeological resources on the Red Rio and McGregor bombing ranges are possible but not likely, due to operational procedures. Other ranges are not expected to experience significant impacts to these resources, either because of negligible changes in air-to-ground mission activity or because of the absence of significant resources in the area.

Under the Holloman-Nellis AFB alternative, biophysical, socioeconomic impacts at Tonopah would be similar to those incurred under the 37th/49th TFW alternative. Impacts to the biophysical environment are not expected at Tonopah. Population and additional noise impacts at Nellis are projected to be small. No significant biophysical, noise, and socioeconomic impacts are predicted at Holloman AFB and in the associated

special use airspace. Due to the additional construction requirements associated with the 37th TFW at Nellis, a one year's delay in moving the wing to Nellis AFB would result with an associated one year delay in operational savings.

Under the no-action alternative, the 37th TFW would continue to operate from TTR, and personnel would continue to commute from Nellis AFB on a weekly temporary duty basis. Since there would be no change in activities, no changes to the biophysical and socioeconomic environments are predicted and projected cost savings would be foregone. The 49th TFW would continue to operate from Holloman and associated cost savings would be forgone. The GAF and notional F-4 aircraft would not be consolidated at Holloman, resulting in reduced training and response capabilities and forgone efficiencies.

Based on review of the 37th/49th TFW and the Holloman alternatives, the preferred action is not expected to have significant adverse biophysical or socioeconomic impacts. Noise impacts in and around Holloman AFB and special use airspace are not expected to increase over baseline conditions. MTR noise is also not expected to increase over baseline conditions except on modified IR-134. IR-134 would experience new low level noise due to approximately 500 annual sorties.

1.0 INTRODUCTION

1.1 BACKGROUND

Changing world threats and Congressionally mandated Department of Defense (DoD) budget reductions have necessitated extensive force structure reductions and realignments. In response, DoD has initiated efforts under its Defense Management Review (DMR) Program to improve overall operating efficiency. Under this initiative, Tactical Air Command (TAC) analyzed its organizational functions and responsibilities to streamline and reduce operational costs. This Environmental Impact Statement (EIS) addresses one set of actions proposed by TAC to meet DMR goals. The proposed actions are described in this section and aggregated into EIS alternatives in Section 1.3. The proposed actions are:

Relocation of the 37th Tactical Fighter Wing (TFW). This is planned for as early as Fiscal Year 1992 (FY 92), and includes relocation of Detachment (Det) 1, 57th Fighter Weapons Wing (FWW). The mission of the 37th TFW is to develop and maintain the capability to deploy and employ F-117As worldwide to conduct low-visibility night operations in a high-threat environment. The mission of Det 1, 57th FWW is to conduct follow-on tests and evaluations of the F-117A aircraft. The relocation of the 37th TFW would result in the transfer of 45 primary aircraft authorizations (PAA) F-117A and 8 PAA AT-38B aircraft possessed by the 37th TFW, and 1 PAA F-117A possessed by Det 1, 57th FWW, causing a loss of 2,696 manpower authorizations at Nellis Air Force Base (AFB) supporting Tonopah Test Range (TTR). NOTE: THROUGHOUT THE REMAINDER OF THIS DOCUMENT, ALL REFERENCES TO RELOCATION OF THE 37th TFW WILL IMPLY THE RELOCATION OF DET 1, 57th FWW.

Inactivation of the 49th TFW. This is planned for the fourth quarter of FY 91 (91/4) to FY 92/3. The mission of the 49th TFW is all-weather air superiority. The wing possesses 72 PAA aircraft, and is composed of three combat coded squadrons, each with 24 PAA F-15A/B aircraft. Inactivation of the 49th TFW would result in a loss of 2,232 manpower authorizations at Holloman AFB.

Relocation of the German Air Force (GAF) F-4 training program. This is planned for FY 92/3. The mission of the program is to provide GAF F-4 training in support of the Foreign Military Sales program. The proposed relocation would involve 18 PAA F-4E aircraft, and approximately 509 manpower authorizations.

Relocation of a notional Tactical Reconnaissance Squadron (TRS). For the purposes of this EIS, the term notional indicates that the Air Force, at present, has not identified a specific squadron or losing location. The Air Force is evaluating the feasibility of bedding down these types of aircraft at Holloman AFB to assist in future force structure decisions. This EIS uses a date as early as FY 91/4 for analysis of this action. The mission of this unit would be to provide tactical reconnaissance to battlefield commanders. A typical squadron consists of 18 PAA RF-4C aircraft, and 765 manpower authorizations.

Relocation of a notional F-4G Suppression of Enemy Air Defense (SEAD) Squadron. This EIS uses a date as early as FY 92/3 for analysis of this action. The mission of this squadron would be to provide suppression of enemy air defenses. This proposed action would beddown F-4G aircraft with a limited ability to meet training requirements. A typical squadron consists of 24 PAA F-4G combat coded aircraft, 6 PAA F-4G training coded aircraft, 6 PAA F-4E training coded aircraft and 826 manpower authorizations.

1.2 PURPOSE AND NEED

Following cost and operational analyses, TAC concluded that improved cost efficiency could be achieved by relocating the 37th TFW from TTR, near Tonopah, Nevada to Holloman AFB near Alamogordo, New Mexico. Central to this conclusion are the facts that the existence of the F-117A has been publicly announced, security requirements have been reduced, TTR is a remote desert facility, and operations out of TTR require considerable logistics support via commercial air and trucking. All military personnel are permanently assigned to Nellis AFB, Nevada, and are transported once each week by air to and from TTR. The conclusion of the DMR was that relocation of the 37th TFW can realize approximately $70 million ($FY 1990) per year in savings for DoD by reducing the logistics support necessary for functioning at TTR (GAO 1991). The proposed relocation is not to satisfy a change in mission requirements for the 37th TFW; rather, the relocation is a cost-reduction measure made possible by a change in security requirements for the wing.

Accelerated reduction of older, less cost-effective systems provides a portion of the necessary budget reductions while minimizing impact on force capabilities. Inactivation of the 49th TFW reduces the number of older F 15A/B model aircraft from the active component inventory. This action will decrease operating costs for TAC.

The GAF has a continuing need to train F-4 aircrews to fulfill their North Atlantic Treaty Organization (NATO) commitment and national defense needs. The United States Air Force (USAF) is committed to supporting the GAF training requirement at a Continental United States (CONUS) location. The programmed closure of George AFB forces relocation of GAF training assets to another location with compatible facilities. The Draft EIS for the Realignment of Mountain Home AFB analyzed the impacts of relocating GAF training assets to Mountain Home AFB. This EIS now addresses the impacts of relocating GAF assets to Holloman AFB, which is now the location desired for the Germans.

The structure of this document was formulated during a crucial turning point in the tactical air force structure. Operations Desert Shield and Desert Storm both accentuated the need for certain tactical USAF systems. As a result of these world events, Tactical Air Forces (TAF) commanders made proposals (reversing previous proposals) to retain SEAD and the TRS assets in the active component inventory. These proposals required basing decisions for which Holloman AFB was a primary candidate. For this purpose, notional F-4 units (one SEAD and one TRS) were included in the Holloman alternative for environmental analysis.

Most tactical aerial reconnaissance forces (TRS) had already transferred to the Air Reserve Component (ARC) at the inception of this document. However, the need for tactical reconnaissance forces had been validated by TAF commanders. To best satisfy this mission requirement, TAC proposed an active component TRS unit would provide maximum combat capability with minimum response time. TAC has since determined that this mission requirement could be satisfied through use of either active component follow-on tactical reconnaissance systems or ARC TRS units. Thus, the TRS was evaluated as part of the Holloman alternative but has not been included in the preferred action.

The USAF has a continuing requirement for accomplishment of the SEAD mission and the F-4G Wild Weasel aircraft is the only aircraft currently capable of performing this role. The SEAD role supports the TAF mission and the F-4Gs must be maintained until a follow-on aircraft is developed. At the time, the Holloman alternative was developed, but the sourcing for the active component SEAD unit had not been determined. TAC has since determined that the SEAD mission could best be accomplished by ARC units until follow-on aircraft are fully capable of performing this mission. Therefore, TAC proposes to base ARC SEAD units at Reno, Nevada and Boise, Idaho to support mission requirements. These actions will be assessed in separate environmental documents. While the SEAD unit was evaluated for possible basing at Holloman AFB, the decision to transfer the SEAD mission to the ARC alleviates the need for maintaining an active component SEAD unit. Therefore, the SEAD mission has not been included in the preferred action.

1.3 ALTERNATIVES CONSIDERED

1.3.1 Alternatives Examined In Detail

Several options are available for implementation of the TAC proposals identified in Section 1.1. Review of these options indicated that their impacts could be evaluated in terms of 4 alternatives. These are designated as follows:

1. The 37th TFW/49th TFW Alternative

2. The Holloman Alternative

3. The Holloman-Nellis Alternative

4. No Action Alternative

Figure 1.3-1 shows the affected facilities encompassed by these alternatives. A single proposed action has not been designated. The full range of impacts can be completely assessed within the scope of the four alternatives identified above. With respect to the F-4 units, it is assumed that all units are relocated to the same location. This is considered advantageous since the aircraft have similar maintenance requirements, and their co-location permits various economies of scale. Co-location of these units is not, however, assured because of differences in mission requirements. It might be possible that the SEAD or TRS units would be proposed to be relocated to as yet unidentified bases, while the GAF unit would be relocated to Holloman AFB. This EIS

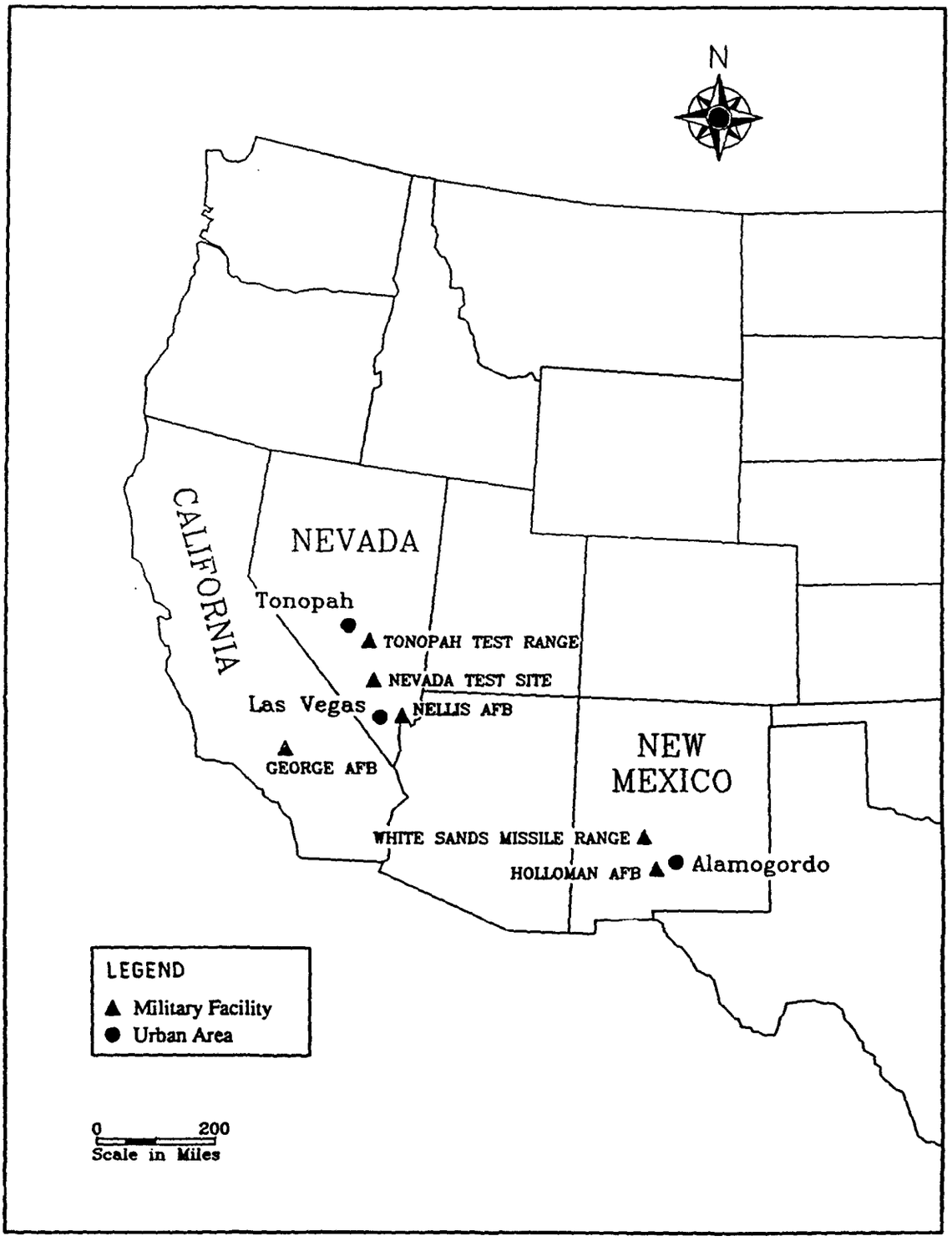

Figure 1.3-1 Location of Facilities

does not explicitly assess each permutation in basing options for the F-4 units. This EIS establishes and addresses the range of impacts which would be experienced at TTR, Holloman AFB, and Nellis AFB. Impacts at any as yet unidentified locations would be assessed in an independent National Environmental Policy Act (NEPA) document. The following briefly characterizes each alternative. Detailed characterization of these alternatives is presented in Section 2.

The 37th TFW/49th TFW Alternative. Under this alternative the 37th TFW would be relocated to Holloman AFB, and the 49th TFW would be inactivated.

The Holloman Alternative. Under this alternative, the 49th TFW would be inactivated at Holloman AFB, and the 37th TFW and one or more F-4 units (GAF, TRS, SEAD) would relocate from their current location to Holloman AFB.

The Holloman-Nellis Alternative. Under this alternative the 49th TFW would be inactivated at Holloman AFB, the F-4 units would be relocated to Holloman AFB, and the 37th TFW would be relocated to Nellis AFB, near Las Vegas, Nevada.

The No Action Alternative. Under this alternative all units would remain in place at their present locations or relocate under previously approved proposals. This alternative represents a continuation of existing conditions.

1.3.2 Other Force Structure Actions for Cumulative Analysis

The Reduction of the 479th Tactical Training Wing (TTW), although independent of the proposed actions in this EIS, is relevant to this analysis because a reduction of aircraft and personnel at Holloman AFB must be considered in the cumulative impacts. This reduction will be completed prior to the relocation of the 37th TFW beginning in FY 92. Baseline environmental conditions at Holloman AFB have been established by adjusting for the changes due to the planned reduction of the 479th TTW.

Recently proposed manpower reductions resulting from DMR and other management initiatives at Holloman and Nellis AFBs have been considered, but not qualitatively addressed in this EIS. These reductions are small in magnitude and would not significantly affect either the impacts or conclusions.

The USAF plans to reduce its size while continuing modernization and maintaining readiness -- to provide a smaller, but balanced, ready, and sustainable warfighting force. These recently announced proposed realignments will affect force structures at Nellis and Holloman AFBs. The 57th Fighter Weapons Wing at Nellis AFB would lose 2 A-10A aircraft in late 1991, 3 A-10A aircraft in late 1992, and 3 F-15E aircraft in mid-1993. These reductions would further reduce noise, air emissions, and generation of hazardous materials and wastes at Nellis AFB. The cumulative impact of these reductions would slightly improve the biophysical environment. Socioeconomic impacts of this action are insignificant in a rapidly growing community like Las Vegas. While these proposals were considered, they were not qualitatively addressed in this EIS due to the negligible cumulative impacts they would have on the community when compared to the proposals considered for the 37th TFW.

Under a separate proposal, Holloman AFB would receive 4 MH-60G Military Airlift Command (MAC) helicopters in mid-1993, and activate the 48th Air Rescue Squadron. This action would add small amounts of air emissions, aircraft noise, and generate hazardous materials and wastes at Holloman AFB. The socioeconomic impacts of this action, while beneficial to Alamogordo, are insignificant in light of other actions proposed for Holloman AFB. While this proposal was considered, it was also not qualitatively addressed in this EIS due to the negligible cumulative impacts when compared to the Holloman alternative.

A recent proposal by the 162nd Tactical Fighter Group (Air National Guard), Tucson, Arizona, was considered but not included in this EIS. The 162nd Tactical Fighter Group proposal is to develop new facilities and increase flying operations in southern Arizona and southwestern New Mexico for the Advanced Airlift Tactics Training Center (AATTC) based at Libby Army Airfield, Ft. Huachuca, Arizona. The affected project areas included in this EIS and for AATTC do not overlap. Therefore, these separate proposals will not have cumulative impacts on the biophysical environment.

An ongoing proposal by the 1550th Combat Crew Training Wing (CCTW), Military Airlift Command (MAC), Kirtland AFB, NM was also considered but not qualitatively addressed in this EIS. The 1550th's CCTW has two proposals using HC-130 and MC-130 aircraft. The first is to lower the floor on five existing slow routes from 300' above ground level (AGL) to 250' AGL. The second proposal is to create five new slow routes. Both proposals affect airspace in and around Kirtland AFB with at most one sortie per day, per slow route. These slow routes do not coincide with any MTR proposals studied under this EIS, but would crossover one another. There are two cumulative impacts at these crossover locations. The first impact is the additional C-130 noise event. The F-4 proposal looks at roughly two sorties per day on any of the MTRs with crossovers. The cumulative impact is an increase from two events per day to three, an insignificant increase due to the low frequency and the 10 mile route widths. The second impact is the single event noise. The F-4 single event noise at 500' AGL is 106 dB(A) while the C-130 is 96 dB(A). The noise at the crossover locations is most influenced by the fighter which is included in this EIS. While there could be increased startle effect due to the C-130 operations, the fighters impose the greater impact. Therefore, the C-130 operations have not been assessed in this EIS.

1.3.3 Alternatives Considered But Not Evaluated In Detail

Several other alternatives were examined but were considered infeasible, and did not warrant detailed evaluation. The alternatives considered to be infeasible include, 1) expansion of infrastructure at TTR to support the 37th TFW, 2) relocation of the 37th TFW to Indian Springs Air Force Station (AFS), 3) relocation of the 37th TFW to another installation, 4) selection of aircraft other than the F-15A/B for retirement, and 5) delayed action.

1.4 SCOPING AND PREPLANNING ANALYSIS

The alternatives may result in various impacts in the general vicinity of Tonopah, Nevada; Las Vegas, Nevada; and Alamogordo, New Mexico. Public scoping meetings for the proposed relocation of the 37th TFW were held during the week of March 5, 1990, at these locations. The USAF is currently carrying forward Section 7 consultation with the appropriate agencies under the Endangered Species Act for the various alternatives. Appendix I provides copies of correspondence pursuant to this process.

Review of the public comments received at those meetings, summarized in Appendix G, as well as additional written input received by Headquarters (HQ) TAC, indicates that the primary public concerns at all three locations are related to socioeconomics. Potential effects of the realignment on employment, income, public finance, housing, and local economic activity accounted for almost 36% of the total number of comments. Tonopah and Las Vegas respondents were primarily concerned about potential adverse impacts from a reduction in economic activity. Alamogordo respondents supported the positive economic impacts of the relocation of the 37th TFW but were concerned about the negative effects of reducing the 479th TTW. Potential impacts on the biophysical environment accounted for about 3% of the total comments. Noise and air quality emerged as the issues of greatest concern.

These findings were used to shape the impact analysis presented in the draft environmental impact statement (DEIS). The DEIS was released for public comment on 15 February 1991. Public Hearings on the DEIS were held in Tonopah, Las Vegas, and Alamogordo, between 12 March and 14 March 1991, respectively. Transcripts of these hearings are provided in Appendix H, along with other comment documents received by TAC during the Public Comment period ending 1 April 1991. Comments made during the Public Hearings, or presented in the comment documents have been evaluated and used as the basis for revision of the EIS, where appropriate. Appendix H.3 presents a categorical summary of responses to comments.

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2.0 DESCRIPTION OF ACTIONS

As described in Section 1, TAC has proposed several force structure changes in response to the changing world threat and congressionally mandated DoD budget reductions. This document addresses the environmental consequences of four actions that might be taken at Holloman AFB starting FY 91. For analytical purposes these actions are assessed in terms of three alternatives and the no-action alternative. Following publication of the Draft EIS, the USAF recently announced several other actions involving F-4s. In light of those actions, the USAF's proposed action is now a subset of the Holloman alternative analyzed in the Draft and Final EISs. Although these developments have occurred too late to restructure the entire Final EIS, impacts due to the USAF's preferred action are encompassed within the range of impacts presented in this document. A Section 2.7 has been added to assist in understanding the preferred action and its impacts. The alternatives are described in Sections 2.1 to 2.4. Section 2.5 describes other alternatives that were examined, but were considered infeasible and were not evaluated in detail. Section 2.6 provides a comparative summary of impacts associated with these action alternatives.

2.1 THE 37th/49th TFW ALTERNATIVE

Under this alternative the 37th TFW would be relocated from TTR to Holloman AFB, while the 49th TFW currently based at Holloman AFB, would be inactivated. These actions would affect operations, facilities, and staffing at TTR and Holloman AFB. The actions taken at these locations are described in Sections 2.1.1 and 2.1.2, respectively.

2.1.1 Actions at Tonopah Test Range

TTR is located approximately 150 miles northwest of Las Vegas, Nevada (Figure 2.1-1). The facility is on federally owned property withdrawn from the public domain by the Air Force and operated by Sandia National Laboratories for the Department of Energy (DOE). The Air Force began using TTR for aircraft testing and evaluation in 1979. Construction at TTR for the 37th TFW began in 1981 and continued through 1989. Construction worth approximately $370 million has been completed at TTR.

2.1.1.1 Operations

The 37th TFW would leave TTR in FY 92. This would involve the departure of 18 PAA F-117As in FY 92/3, and 28 PAA F-117As with 8 PAA AT-38Bs in FY 92/4. While at TTR, the 37th TFW has conducted training flights in the special use airspace near the installation and at the adjacent Tactical Fighter Weapons Center (TFWC)/Nellis Range complex. These would no longer be conducted in the area. There are no plans for changes in land ownership or special use airspace designated at TTR or the TFWC Range complex as a result of the relocation of the 37th TFW. Land unit boundaries and special use airspace associated with these installations were not established specifically for the 37th TFW and are used for other ongoing programs.

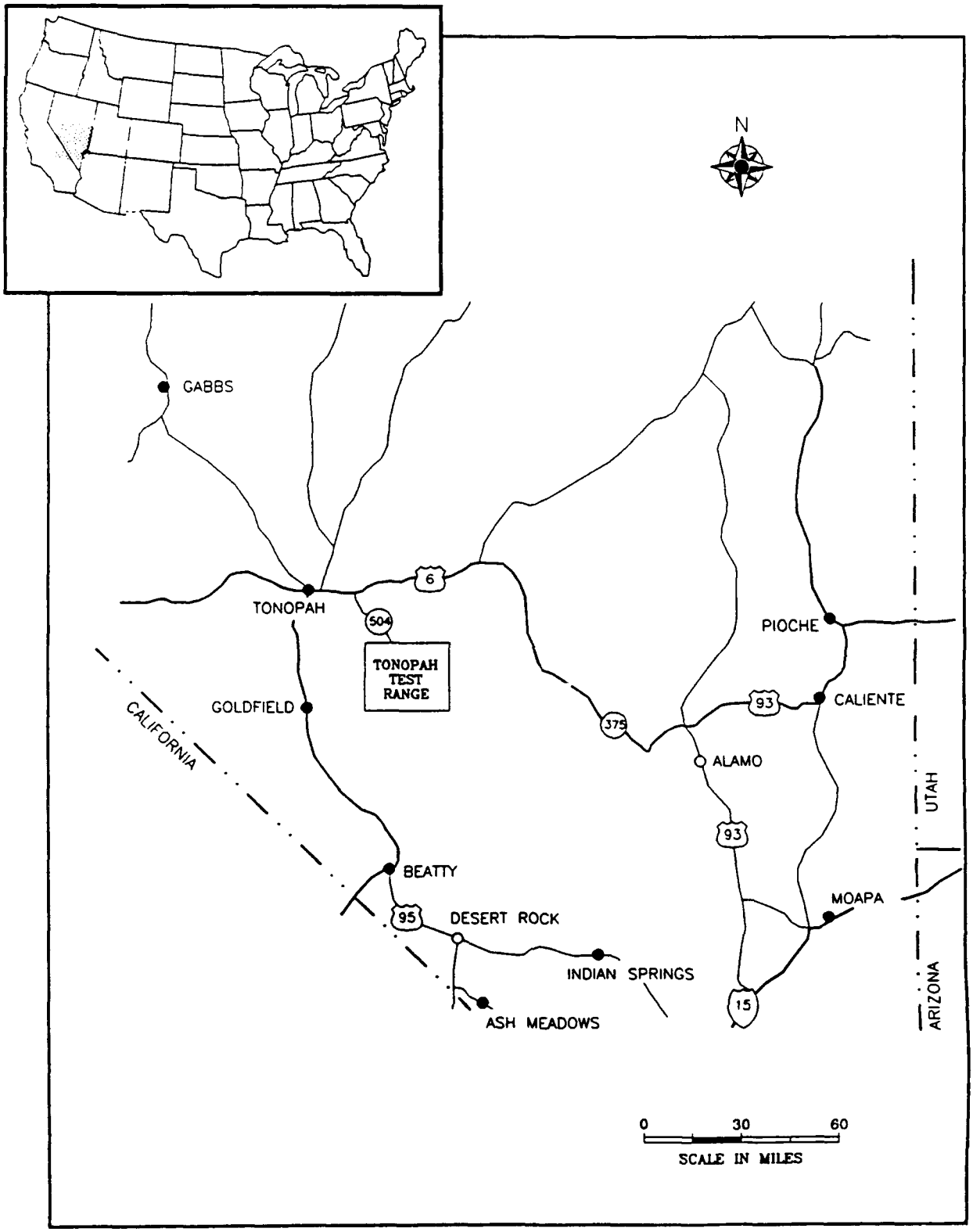

Figure 2.1-1 Tonopah Test Range

2.1.1.2 Facilities

The facilities presently occupied by the 37th TFW would be vacated and available for other use. No specific plans have been made for reuse of these facilities, although several options are being investigated. If plans for reuse of the facilities are developed, they will be evaluated separately from this proposal. For the purposes of this analysis, it is assumed that the facilities would be vacant and temporarily maintained in caretaker status. Caretaker operations would be covered through a new memorandum of agreement between the Air Force and DOE and would require a small maintenance work force, as described in Section 2.1.1.3. The estimated cost would be about $7.5 million a year, compared to the current $40 million per year in base operations and maintenance cost. TTR reuse considerations have not been included in this environmental analysis and the Record of Decision for the relocation of the 37th TFW will not address reuse of TTR.

2.1.1.3 Personnel

Personnel affected include military personnel assigned to the 37th TFW and contractor personnel operating and maintaining TTR. A total of 2,696 active-duty military personnel and civilians associated with the 37th TFW would no longer be assigned to support TTR after FY 92. These personnel are currently assigned to Nellis AFB and perform duties at TTR on temporary duty (TDY) status. Their permanent residences are primarily in the vicinity of Nellis AFB and Las Vegas, Nevada. Unaccompanied by dependents, they are transported to TTR weekly by chartered airline for their duty assignments and are returned to the Las Vegas area during off days. The airline runs daily round trips between Nellis and TTR, at an estimated cost of about $21 million per year in FY 91/92. While at TTR, the personnel are quartered in dormitories.

Activities related to the 37th TFW are supported by a number of contractors at TTR. TTR is operated and maintained by Sandia Corporation, through the DOE, Albuquerque, which is outgranted from the TFWC Range Complex withdrawal. Reynolds Electrical and Engineering Corporation (REECO) provides contracted support to both the DOE and the 37th TFW, and is the largest TTR contractor with 1,032 employees as of March 1990. As of 1 September 1990, Holmes and Narver (H&N), (since replaced by Raytheon Services Nevada), the second largest contractor associated with the 37th TFW, employed 98 personnel. Of the 1,130 employees of REECO and H&N, 440 live in Tonopah, 71 live in other Nye County communities, 547 commute from Clark County, and 72 commute from elsewhere.

Until a reuse proposal has been finalized, the long-term effect on contractors can not be determined. Personnel providing general security at TTR are not expected to be affected by the relocation. It is estimated that between 160 and 220 personnel would be required to maintain the facilities in caretaker status. This EIS assumes a reasonable worst case reduction of 1,130 employees. Any reuse proposal is likely to result in retention of some contract employment.

2.1.1.4 Other Actions Considered in Cumulative Impacts

The town of Tonopah has passed a $30-million bond issue to build a new high school, scheduled for completion in 1991. No other major projects or developments are known to be planned for the Tonopah area over the next 5 years. However, a reduction in employment at two area mines (200 positions at Candelaria Mine, and 300 positions at Cypress Mine) have been recently announced. These reductions are planned for

December 1990, and February 1991. The cumulative effect of these losses has been addressed in this assessment.

2.1.2 Actions at Holloman AFB

Holloman AFB is a TAC installation located 8 miles west-southwest of Alamogordo, New Mexico, and contiguous to White Sands Missile Range (WSMR). Figure 2.1-2 shows special use airspace associated with Holloman AFB.

2.1.2.1 Operations

Table 2.1-1 shows the changes in equipage at Holloman AFB. Also shown are the changes in equipage associated with the expected reduction of the 479th TTW. The actions involved are sequential; reduction of the 479th TTW will be completed by the FY 91/4; the inactivation of the 49th TFW by FY 92/3; and the relocation of the 37th TFW by 92/4.

Table 2.1-2 summarizes existing and projected sortie data for various airspace units and ranges affected by the alternative. The 37th TFW would use the existing special use airspace for its training missions. No changes in the dimensions of special use airspace or in terminal airspace procedures are planned for this relocation. The mission of the F-117A is to conduct night operations. Approximately 70% of the 37th TFW missions would be conducted after dark. Although 27% would occur between 10:00 p.m. and 7:00 a.m. (2200 local time [L] to 0700L), normal night flying would only extend to 2:00 a.m. (0200L) several nights a month. This would result in more night time use of some special use airspace. Operations would be subsonic and at high to medium altitudes, occasionally down to 2,000 feet above ground level (AGL). The majority of the 37th TFW training operations would be conducted in the special use airspace near Holloman AFB, including Oscura, Red Rio, and McGregor Bombing Ranges, and the Beak and Talon Military Operating Areas (MOAs). Some sorties would be flown on other existing bombing ranges outside the area, including Melrose Bombing Range in eastern New Mexico (Figure 2.1-3) and Barry M Goldwater Bombing Range in Arizona (Figure 2.1-4). Some late night operations would be flown in Oscura, Red Rio, and Melrose Bombing Ranges and the Beak MOAs. These night operations would normally be completed by 0200L. The McGregor Bombing Range and Talon MOA would be used only during daytime hours. Most operations would involve the use of inert and training ordinance within existing target areas at the bombing ranges listed above. Live ordinance would be used only on approved bombing ranges. The 37th TFW does not require or regularly use Military Training Routes (MTRs).

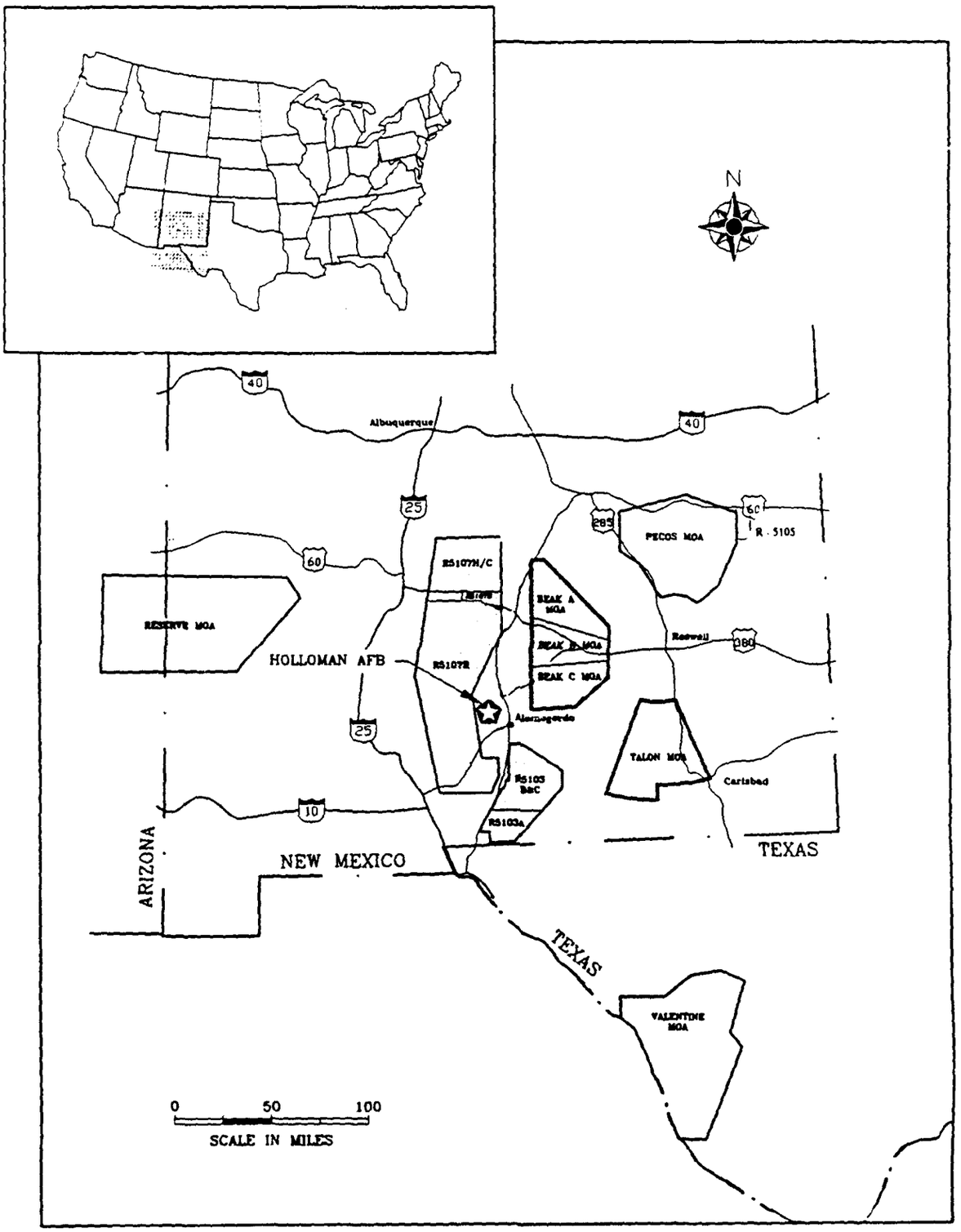

Figure 2.1-2 Military Operating Areas and Special Use Airspace in the vicinity of Holloman AFB

Table 2.1-1 Changes in Equipage at Holloman AFB due to the Reduction of the 479th TTW, inactivation of the 49th TFW, and beddown of the 37th TFW

Action	Aircraft	91/1	91/2	91/3	91/4	92/1	92/2	92/3	92/4
479th TTW [1]	AT-38A/B	111	84	57	30				
49th TFW	F-15A/B	72			48		24	0	
37th TFW	F-117A	0						18	46
	AT-38B	0							8

Source: TAC 1990b

1. A scheduled action with separate National Environmental Policy Act documentation, included here for reference.

2. All aircraft counts are cumulative.

Table 2.1-2 Annual Airspace Events/Sorties at Holloman AFB Associated with the 37th/49th TFW Alternative

	Current				Proposed			
	AT-38	F-15	Other	Total	F-117A[1]	AT-38	AT-38 Top-off	Total[2]
Holloman AFB (AICUZ)								
Takeoff/Land	105,534	50,822	2,117	158,473	23,518	7,338	26,384	59,357
Sorties [3]	35,100	17,500	2,117	54,717	6,406/ 2,386	2,000	8,460	18,983/ 2,386
MOAs								
Beak MOAs	17,857	711	110	18,678	3,467/ 840	1,082	3,529	8,188/ 840
Talon MOA	6,496	880		7,376	829	259	3,535	4,623
MTRs								
IR 134	493	111		604				
IR 133/111	331	251	502	1,084				502
VR 176	112	112	1,224	1,448				1,224
Bombing Ranges								
Oscura	4,451		712	5,163	2,872/ 840	896	681	5,161/ 840
Red Rio	1,971		370	2,341	3,942/ 840	1,230	327	5,869/ 840
McGregor	1,494			1,494	900	281	114	1,295
Melrose			5,930	5,930	864/ 576			6,794/ 576
Restricted Areas								
R-5107	4,019	19,493		23,512	3,840/ 840	1,198		5,038/ 840

1. Day/Night (0700-2200/2200-0700).

2. "Proposed Total" column includes "Current Other" data.

3. Current sorties based on Revised 1988 AICUZ. Proposed sorties based on TAC March 1990b.

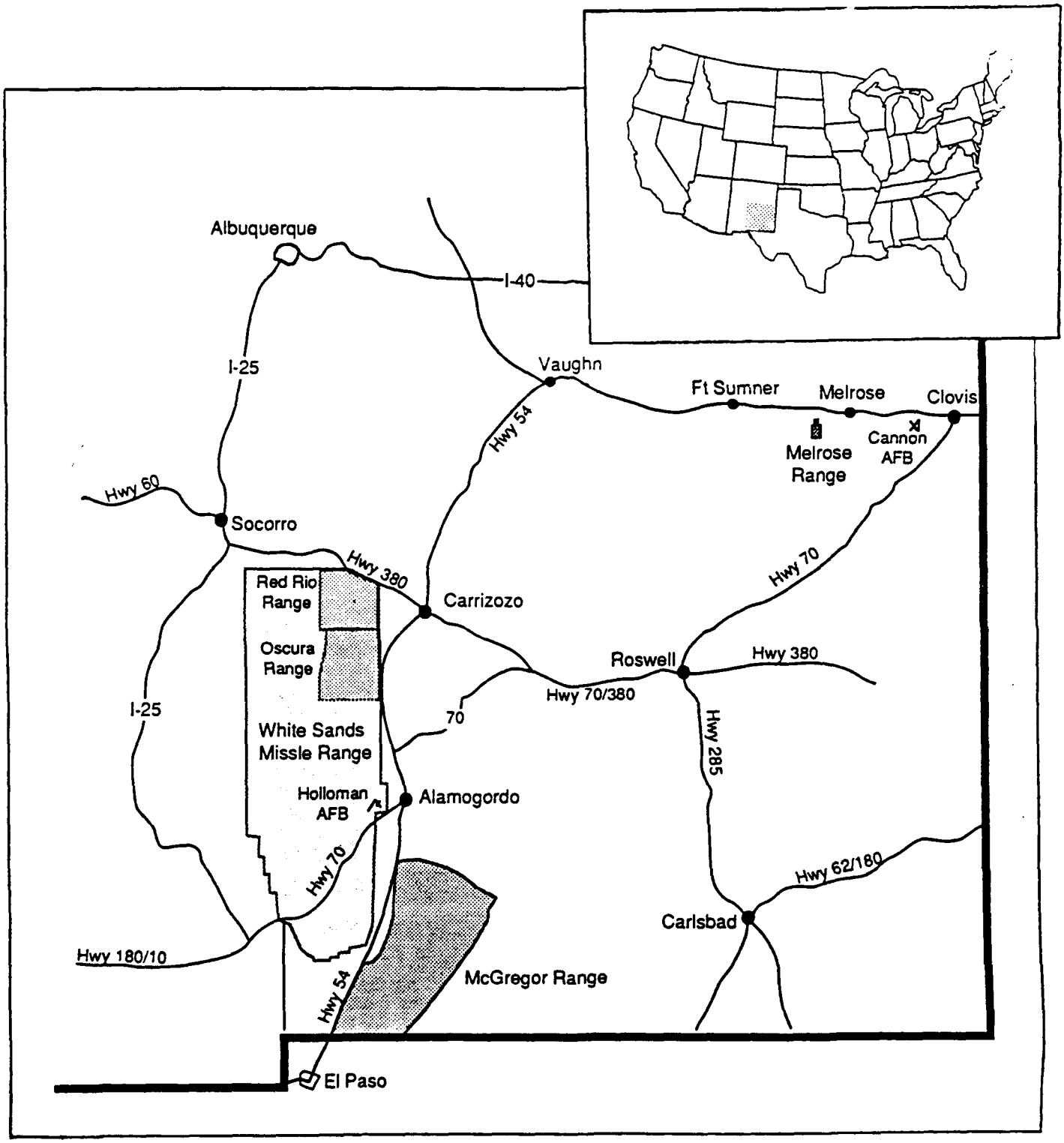

Figure 2.1-3 Location of Bombing Ranges in New Mexico Affected by Various Alternatives

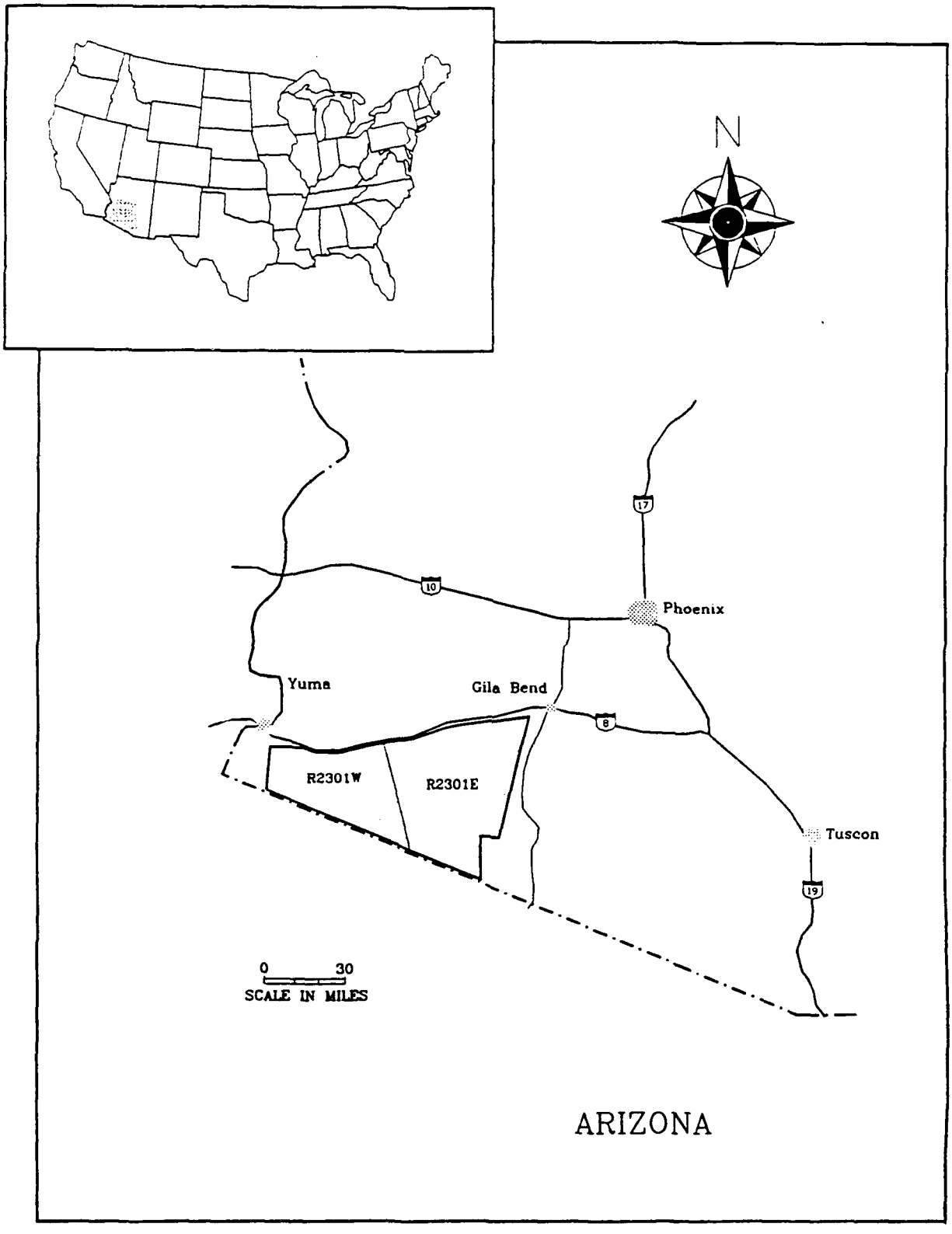

Figure 2.1-4 Barry M Goldwater Bombing Range (stippled) and Overlying Restricted Airspace

Table 2.1-2 only considers F-117A use of WSMR airspace related to Oscura and Red Rio Bombing Ranges. However, the 37th TFW may use the WSMR airspace prudently to meet their training needs. Because of the uncertainty of available WSMR airspace due to DoD scheduling priorities, the Table and subsequent analysis are based on use of Beak and Talon MOAs, which meet stated local training airspace requirements.

The 49th TFW currently utilizes a variety of MOAs and MTRs as indicated in Table 2.1-2. The inactivation would eliminate their use of these airspaces.

2.1.2.2 Facilities

The majority of operations and maintenance functions associated with this alternative, would be located in existing facilities at Holloman AFB. These facilities are made available by the scheduled reduction of the 479th TTW, and the proposed inactivation of the 49th TFW. The availability of these facilities enables the relocation to be accomplished economically and greatly reduces the construction required for the beddown. However, the existing facilities are not fully adequate for the relocated units; F-117A shelters, additional maintenance and support facilities need to be constructed, and some existing facilities need to be modified. No additional runways, or taxiways, would be required.

Appendix E provides detailed construction requirements at Holloman AFB to accommodate this alternative. Approximately 25 acres of land would be developed for new facility construction; a similar amount of land would be temporarily disturbed by construction activity. Construction of a 3 mile, 115 kilovolt-amperes (KVA) transmission line will be required to support the 37th TFW. Approximately one-half of the 3 mile route will lie on privately owned land, requiring a right-of-way easement. The remainder will lie on Holloman AFB property. Construction will involved the disturbance of approximately 20 acres of land. Total affected land area is estimated at approximately 70 acres. A limited amount of construction is expected to occur on less developed portions of the base. Most of this construction would take place on previously disturbed portions of the base. Construction costs would total approximately $86 million for the 37th TFW.

2.1.2.3 Personnel

Table 2.1-3 summarizes changes in personnel at Holloman AFB due to this alternative. Changes in personnel associated with the scheduled reduction of the 479th TTW are included for cumulative analysis. The net effect of these actions would be a decrease of 1,017 personnel at Holloman AFB.

2.1.2.4 Other Actions Considered in Cumulative Impacts

Holloman AFB has several other construction projects planned in the same time period as the proposed relocation. A multi-year dormitory alteration program is planned for FY 90 to FY 93, with 152 rooms scheduled for construction each year. A project to alter 143 units of family housing, started in 1990, may still be under construction in 1991.

Table 2.1-3 Personnel Changes at Holloman AFB Associated with the 37th/49th TFW Alternative

		Date (FY/Quarter)							
Action	Personnel	91/2	91/3	91/4	92/1	92/2	92/3	92/4	Total
Reduction[1] of the 479th TTW	Officer	-46	-47	-47					-140
	Enlisted	-41	-41	-41					-123
	Civilian	-13	-14	-14					-41
	Contractor	-176	-176	-176					-528
	Total	-276	-278	-278					-832
Inactivation of the 49th TFW	Officer			-38		-38	-103		-179
	Enlisted			-308		-292	-1,370		-1,970
	Civilian			-12		-12	-59		-83
	Total			-358		-342	-1,532		-2,232
Beddown of the 37th TFW	Officer						60	99	159
	Enlisted						682	1,135	1,817
	Civilian						26	45	71
	Total						768	1,279	2,047
TOTAL		-276	-278	-636	0	-342	-764	1,279	-1,017
CUMULATIVE		-276	-554	-1,190	-1,190	-1,532	-2,296	-1,017	

1. A scheduled action with separate National Environmental Policy Act documentation, included here for reference.

The total cost of the projects programmed for FY 91 to FY 93 is estimated to be $8.9 million.

In addition to construction planned for the base, two projects are anticipated for the Alamogordo area over the next 4 years. A $4 million bond issue was approved for construction of new facilities at the branch college of New Mexico State University. Construction is expected to begin in early 1991 and be completed by September 1992 (Reidlinger 1990). The Primate Research Institute of the New Mexico State University, located on Holloman AFB, is presently negotiating to lease a 64-acre tract for construction of research facilities and office buildings. The project is expected to cost $6.2 million and be constructed between July 1990 and February 1992 (Rhenquist 1990).

2.2 THE HOLLOMAN ALTERNATIVE

This alternative is identical to the 37th/49th TFW alternative, except that it also includes the relocation of one or more F-4 units from their current location to Holloman AFB. This alternative was developed in response to inputs of TAF commanders resulting from world events (Desert Shield/Storm). Their decision reversed previous budget proposals which inactivated all SEAD units and transferred all TRS to the ARC. TAC incorporated these aircraft into the Holloman alternative to backfill other force structure changes at Holloman AFB (479th TTW drawdown and the 49th TFW inactivation). Section 1.2 provides additional historical details on the evolution of the Holloman alternative. The preferred action is actually a subset of the Holloman alternative and includes relocation of the 37th TFW and GAF unit, and inactivation of the 49th TFW. Section 2.7 details the environmental impacts of the preferred action.

2.2.1 Actions at Tonopah Test Range

Actions at TTR under this alternative are identical to the actions described for the 37th/49th TFW alternative in Section 2.1.1.

2.2.2 Actions at Holloman AFB

2.2.2.1 Operations

Table 2.2-1 summarizes changes in equipage at Holloman AFB under this alternative. Table 2.2-2 summarizes projected sortie data for various airspace units and ranges affected by this alternative. Operations information for the 37th TFW and 49th TFW are identical to those described in Section 2.1.2 for the 37th/49th TFW alternative. The following provides additional operations data for the F-4 units associated with this alternative.

Typical mission profiles for the RF-4C TRS unit would include sorties in MTRs and Special Use Airspace (SUA). MTR sorties would be flown within approved routes between 300 and 1,000 feet AGL. Sorties in special use airspace would range throughout the entire airspace parameters. Sorties in all areas would be conducted typically at an

Table 2.2-1 Changes in Equipage at Holloman AFB due to the Reduction of the 479th TTW, Inactivation of the 49th TFW, Beddown of the 37th TFW, and Beddown of three F-4 units

Action	Aircraft	91/1	91/2	91/3	91/4	92/1	92/2	92/3	92/4
479th TTW [1]	AT-38A/B	111	84	57	30				
49th TFW	F-15A/B	72			48		24	0	
GAF Unit	F-4E	0						18	
TRS Unit [2]	RF-4C	0			18				
SEAD Unit [2]	F-4E/G	0						36	
37th TFW	F-117A	0						18	46
	AT-38B	0							8

Source: TAC 1990b

1. A scheduled action with separate National Environmental Policy Act documentation, included here for reference.

2. Specific unit and location not identified and included here for reference only.

3. *All aircraft counts are cumulative.*

Table 2.2-2 Annual Airspace Events/Sorties Associated with Various Actions Proposed at Holloman AFB

	Current				Proposed						
	AT-38	F-15	Other	Total	F-117A[1]	AT-38	AT-38 Top-off	RF-4C	F-4E/G	(GAF) F-4E	Total[2]
Holloman AFB (AICUZ)											
Takeoff/Land	105,534	50,822	2,117	158,473	23,518	7,338	26,384	7,884	12,060	7,800	87,101
Sorties [3]	35,100	17,500	2,117	54,717	6,406/ 2,386	2,000	8,460	3,888	7,848	3,720	34,439/ 2,386
MOAs											
Beak MOAs	17,857	711	110	18,678	3,467/ 840	1,082	3,529	84	564	192	9,028/ 840
Talon MOA	6,496	880		7,376	829	25[a]	3,535	144	564	192	5,523
Pecos MOA		4,663		4,663				504	156	816	1,476
Valentine MOA		649		649							
Reserve MOA		183		183							
MTRs											
IR 134/modified	493	111		604				588	1,392	504	2,484
IR 133/111	331	251	502	1,084				588	1,392	504	2,986
VR 125			118	118					348	120	586
VR 176	112	112	1,224	1,448				288			1,512
VR 1233			392	392				192	348	120	1,052
VR 196			375	375				96			471
IR 144			418	418				96			514
VR 100			305	305				96			401
Bombing Ranges											
Oscura	4,451		712	5,163	2,872/ 840	896	681		1,920	1,104	8,185/ 840
Red Rio	1,971		370	2,341	3,942/ 840	1,230	327		228	180	6,277/ 840
McGregor	1,494			1,494	900	281	114		228	72	1,595
Melrose			5,930	5,930	864/ 576				2,808		9,602/ 576
Restricted Areas											
R-5107	4,019	19,493		23,512	3,840/ 840	1,198		1,176	1,284	1,224	8,722/ 840

1. Day/Night (0700-2200/2200-0700).

2. "Proposed Total" column includes "Current Other" data.

3. Current sorties based on Revised 1988 AICUZ. Proposed sorties based on TAC March 1990b.

airspeed of 480 knots. Approximately 30% of the sorties would deploy chaff and flares in approved airspace.

Typical mission profiles for the SEAD mission would include sorties in MTRs and special use airspace. MTR sorties would range from 100-500 feet AGL with most (95%) conducted between 300 and 500 feet AGL. Sorties in the special use airspace would range throughout the entire airspace parameters, from subsonic to supersonic speeds due to the wide variety of mission requirements. Electronic Combat training for Holloman AFB SEAD would require a range complex that electronically and physically replicates an enemy air defense and target array including both electronic emitters, ground targets, and the land and airspace around them. However, the Air Force long-term requirements for SEAD are yet to be determined. In the near-term, the Air Force must satisfy its training requirements with existing range facilities, with minor adjustments to schedule, equipment availability and some limited construction.

Typical mission profiles for the F-4E (GAF) unit would include sorties in MTRs and special use airspace. No sorties would be conducted below 300 feet in MTRs. F-4E sorties in special use airspace would range throughout the entire airspace parameters due to the wide variety of mission requirements. Supersonic activities would occur only in approved supersonic airspace.

This alternative will require increased usage of various MTRs in the vicinity of Holloman AFB. Sortie data for the various affected MTRs are presented in Table 2.2-2. No F-4 sorties are projected to be flown between 2200 and 0700 hours. Figure 2.2-1 shows the location of the existing MTRs that will be affected. Some modifications of existing MTRs would be required to accommodate F-4 mission requirements. These modifications include the expansion of Instrument Route (IR) 134 as shown in Figure 2.2-2. This revised MTR would be bi-directional with alternate entry and exit points along the route. Because the route is bi-directional, an additional route designation would be required (IR-XXX). On IR-134, military aircraft would fly a counter clockwise loop from west to east and back to the west to enter the McGregor Bombing Range. On IR-XXX the flow would be reversed from west to east and west again to enter the same range. On IR-134 there would be two alternate exits that would allow military aircraft to use less than the entire route. Similarly, an alternate entry and two alternate exits for IR-XXX would allow aircraft to use only a portion of the route. An alternate exit from the south loop of IR-134 includes a route segment that crosses a wilderness study area between Carlsbad Cavern national park and the Guadalupe Mountains National Park. Figure 2.2-3 shows additional MTR modifications. As shown, two existing but separate routes, IR-111 and IR-133, would be linked with a new route segment that would enable these two routes to be used either concurrently or separately. This IR-111/133 route would have an alternate exit to the Red Rio Bombing Range. A third MTR action associated with this alternative is the establishment of two alternate exits from Visual Route (VR) 100 to the Oscura and Red Rio Bombing Ranges. No night sorties (2200 to 0700L hours) are projected.

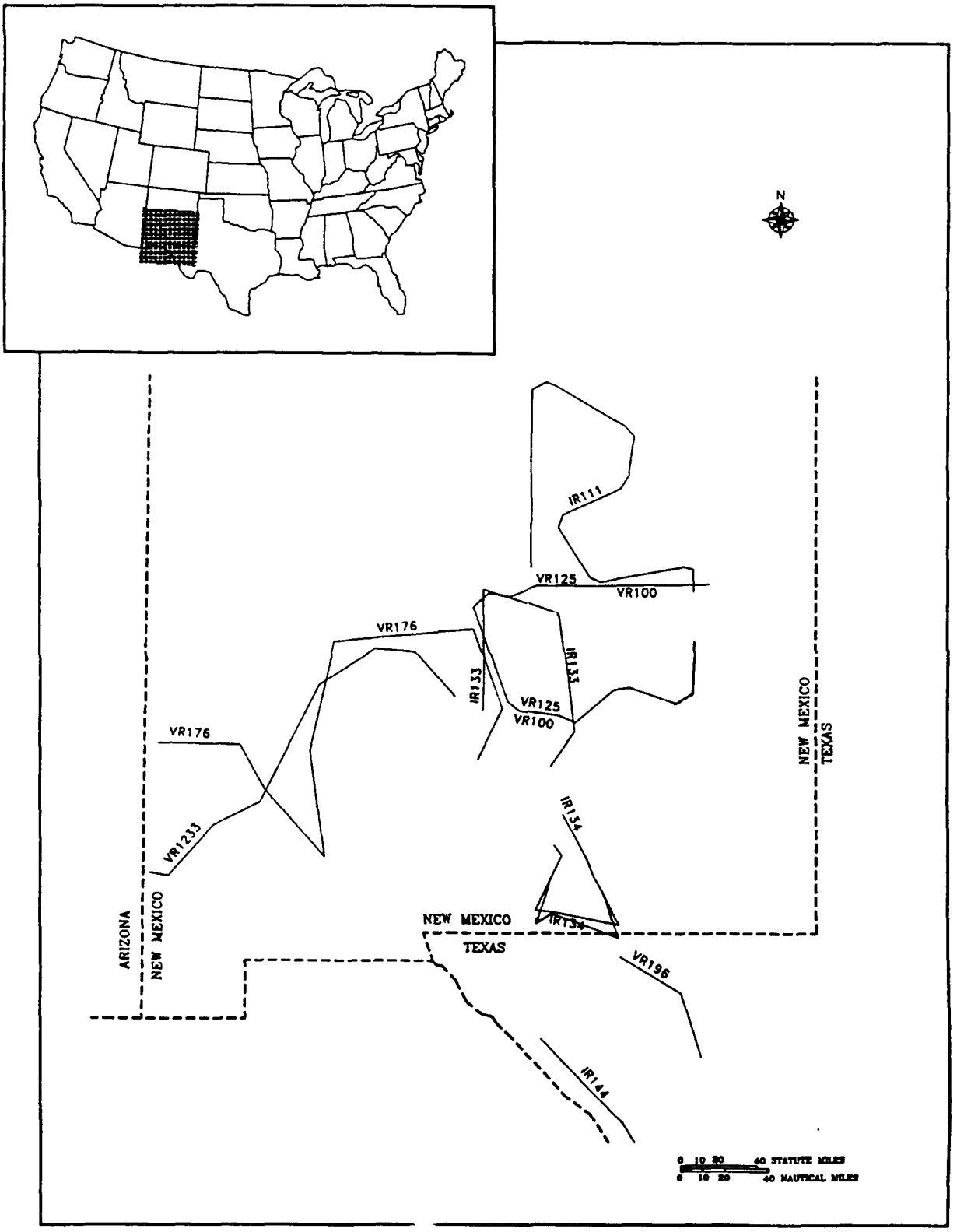

Figure 2.2-1 Existing MTRs in the Vicinity of Holloman AFB

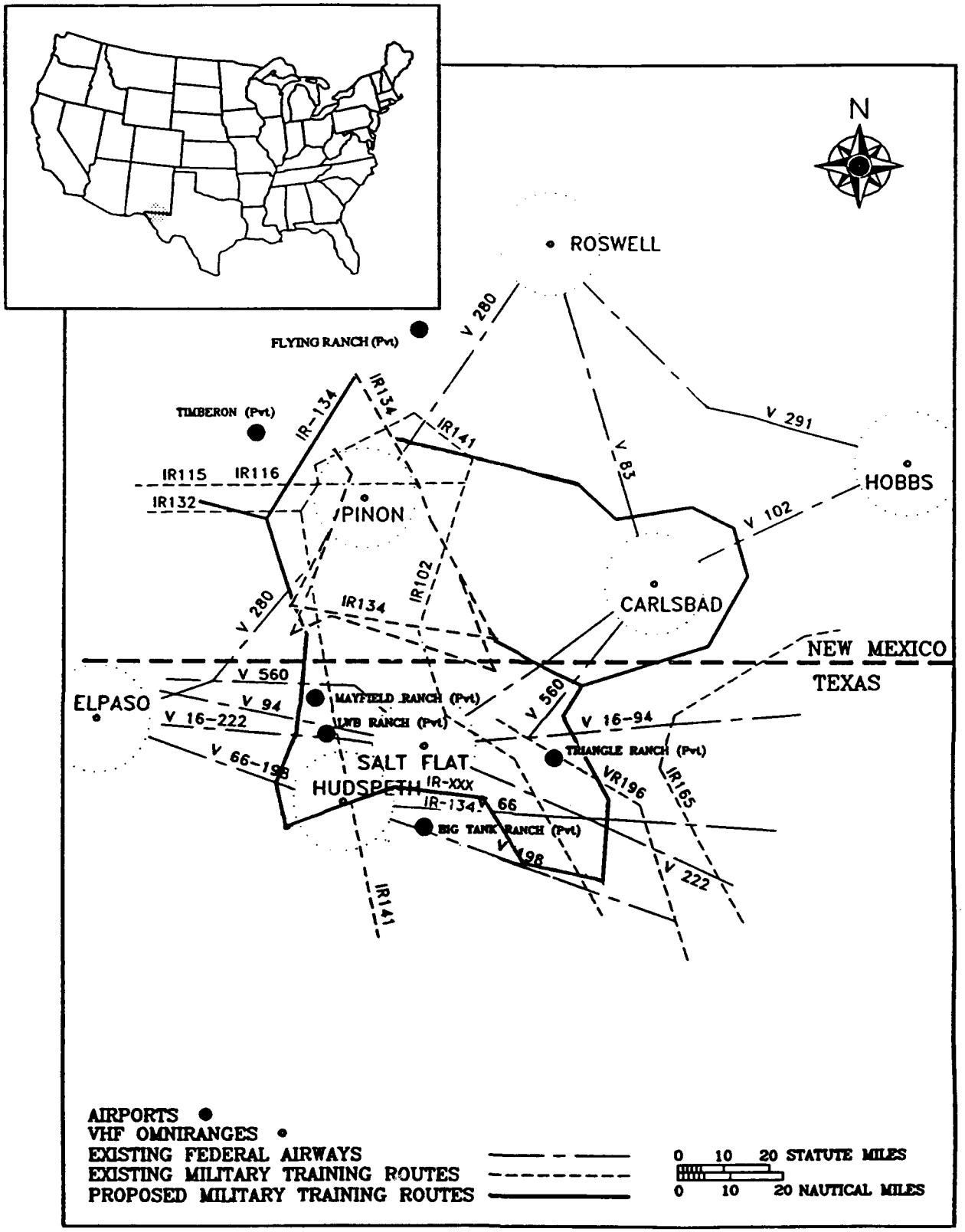

Figure 2.2-2 Modifications to MTR Airspace south of Roswell, New Mexico

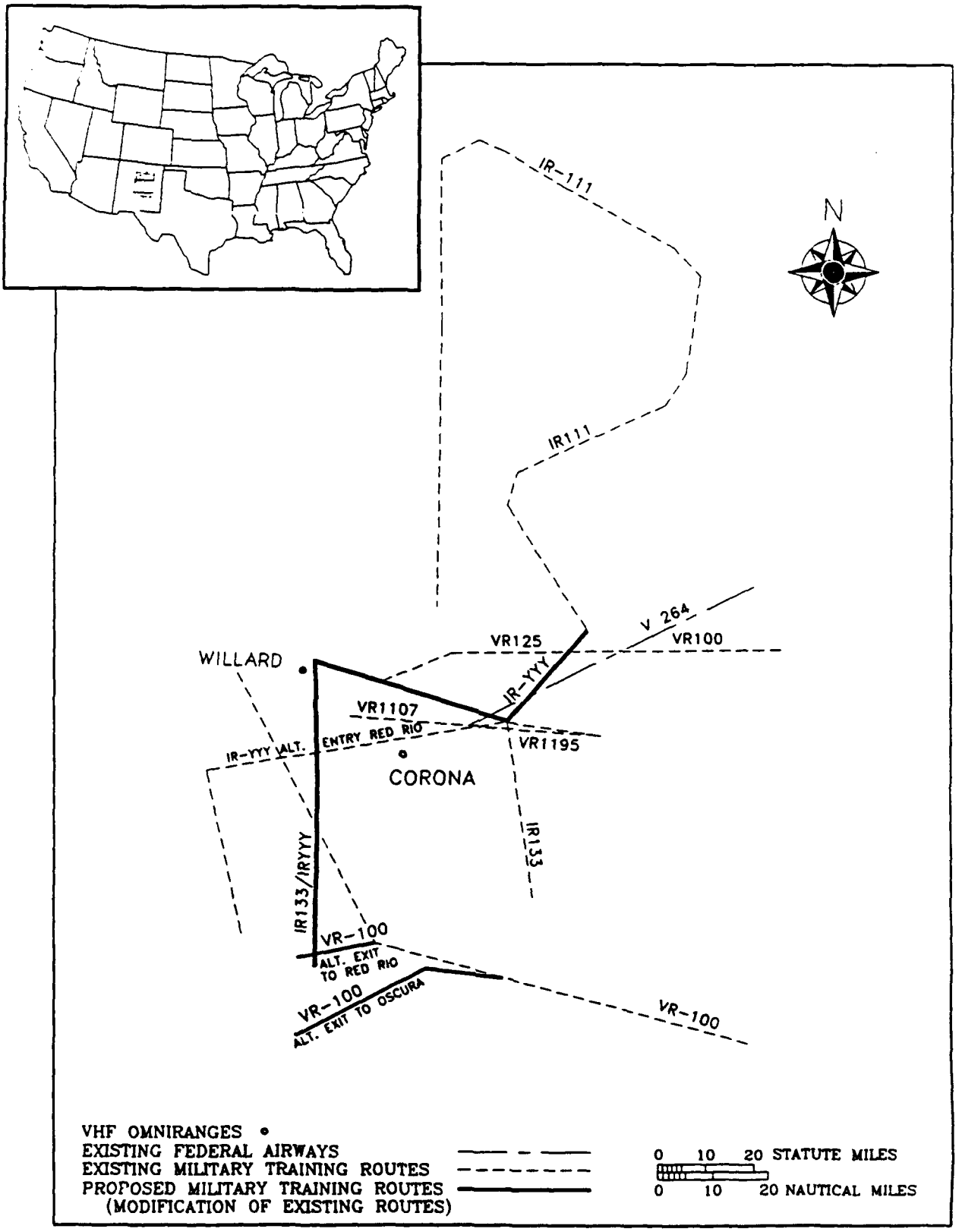

Figure 2.2-3 Modifications to MTR Airspace in the Vicinity of Corona, New Mexico

2.2.2.2 Facilities

Facility requirements at Holloman AFB for the 37th TFW under this alternative will be identical to those presented in Section 2.1.2.2. In addition, the relocation of the F-4 units to Holloman AFB would require the construction of target and generator sites in the Melrose Bombing Range to simulate enemy tactical air defense units. Requirements for these sites include disturbance of approximately 7 acres for construction of concrete pads and access road improvements. Precise location for these units have not been determined, but all locations would be within previously disturbed portions of Melrose Bombing Range.

2.2.2.3 Personnel

Table 2.2-3 summarizes changes in personnel at Holloman AFB due to this alternative, and due to the scheduled reduction of the 479th TTW. The net effect of these actions would be an increase of 1,484 personnel at Holloman AFB.

2.2.2.4 Other Actions

Other actions which may occur at Holloman AFB, and which should be considered in assessing impacts due to this alternative are identical to those described in Section 2.1.2.4.

2.3 THE HOLLOMAN-NELLIS ALTERNATIVE

This alternative is identical to the Holloman alternative except that the 37th TFW would be relocated to Nellis AFB, rather than to Holloman AFB. Specific actions at TTR, Holloman AFB, and Nellis AFB are described in Section 2.3.1, 2.3.2, and 2.3.3 respectively.

2.3.1 Actions at Tonopah Test Range

Actions that would occur at TTR under the Holloman-Nellis alternative are identical to those described in Section 2.1.1 for the 37th/49th TFW alternative. Utilization of special use airspace in the Nellis complex would remain the same as existing conditions.

2.3.2 Actions at Holloman AFB

Actions at Holloman AFB under this alternative would be limited to those associated with the inactivation of the 49th TFW and the relocation of the F-4 units to the base. The following summarizes these actions.

2.3.2.1 Operations

The schedule for equipage changes under this alternative is presented in Table 2.3-1. Flight operations at Holloman AFB under this alternative are presented in Table 2.3-2.

Table 2.2-3 Personnel Changes at Holloman AFB Associated with the Holloman Alternative

		Date (FY/Quarter)							
Action	Personnel	91/2	91/3	91/4	92/1	92/2	92/3	92/4	Total
Reduction[1] of the 479th TTW	Officer	-46	-47	-47					-140
	Enlisted	-41	-41	-41					-123
	Civilian	-13	-14	-14					-41
	Contractor	-176	-176	-176					-528
	Total	-276	-278	-278					-832
Inactivation of the 49th TFW	Officer			-38		-38	-103		-179
	Enlisted			-308		-292	-1,370		-1,970
	Civilian			-12		-12	-59		-83
	Total			-358		-342	-1,532		-2,232
Beddown of the 37th TFW	Officer						60	99	159
	Enlisted						682	1,135	1,817
	Civilian						26	45	71
	Total						768	1,279	2,047
Beddown[2] of TRS SEAD and GAF units	Officer			80			169		249
	Enlisted			661			1,501		2,162
	Civilian			24			66		90
	Total			765			1,736		2,501
TOTAL		-276	-278	129	0	-342	972	1,279	1,484
CUMULATIVE		-276	-554	-425	-425	-767	205	1,484	

1. A scheduled action with separate National Environmental Policy Act documentation, included here for reference.

2. Specific unit and location not identified and included here for reference only.

Table 2.3-1 Personnel Changes Associated with the Holloman-Nellis Alternative at Holloman AFB

		Date (FY/Quarter)							
Action	Personnel	91/2	91/3	91/4	92/1	92/2	92/3	92/4	Total
Reduction[1] of the 479th TTW	Officer	-46	-47	-47					-140
	Enlisted	-41	-41	-41					-123
	Civilian	-13	-14	-14					-41
	Contractor	-176	-176	-176					-528
	Total	-276	-278	-278					-832
Inactivation of the 49th TFW	Officer			-38		-38	-103		-179
	Enlisted			-308		-292	-1,370		-1,970
	Civilian			-12		-12	-59		-83
	Total			-358		-342	-1,532		-2,232
Beddown[2] of TRS SEAD and GAF units	Officer			80			169		249
	Enlisted			661			1,501		2,162
	Civilian			24			66		90
	Total			765			1,736		2,501
TOTAL		-276	-278	129	0	-342	204		-563
CUMULATIVE		-276	-554	-425	-425	-767	-563		

1. A scheduled action with separate National Environmental Policy Act documentation and included here for reference.

2. Specific unit and location not identified and included here for reference only.

Table 2.3-2 Annual Airspace Events/Sorties Associated with Various Actions Proposed at Holloman AFB for the Holloman-Nellis Alternative

	Current				Proposed				
	AT-38	F-15	Other	Total	AT-38 Top-off	RF-4C	F-4E/G	(GAF) F-4E	Total[2]
Holloman AFB (AICUZ)									
Takeoff/Land	105,534	50,822	2,117	158,473	26,384	7,884	12,060	7,800	56,245
Sorties [3]	35,100	17,500	2,117	54,717	8,460	3,888	7,848	3,720	26,036
MOAs									
Beak MOAs	17,857	711	110	18,678	3,529	84	564	192	4,479
Talon MOA	6,496	880		7,376	3,535	144	564	192	4,435
Pecos MOA		4,663		4,663		504	156	816	1,476
Valentine MOA		649		649					
Reserve MOA		183		183					
MTRs									
IR 134/modified	493	111		604		588	1,392	504	2,484
IR 133/111	331	251	502	1,084		588	1,392	504	2,986
VR 125			118	118			348	120	586
VR 176	112	112	1,224	1,448		288			1,512
VR 1233			392	392		192	348	120	1,052
VR 196			375	375		96			471
IR 144			418	418		96			514
VR 100			305	305		96			401
Bombing Ranges									
Oscura	4,451		712	5,163	681		1,920	1,104	4,417
Red Rio	1,971		370	2,341	327		228	180	1,105
McGregor	1,494			1,494	114		228	72	414
Melrose			5,930	5,930			2,808		8,738
Restricted Areas									
R-5107	4,019	19,493		23,512		1,176	1,284	1,224	3,684

1. Day/Night (0700-2200/2200-0700).

2. "Proposed Total" column includes "Current Other" data.

3. Current sorties based on Revised 1988 AICUZ. Proposed sorties based on TAC March 1990b.

Flight profiles for the units to be relocated to Holloman AFB would remain the same as described in Section 2.2.2.1.

2.3.2.2 Facilities

Under this alternative, approximately $20 million in construction would be required at Holloman AFB to support the relocation of the F-4 units. Approximately 5 acres of land would be developed for facility construction; a similar amount of land would be temporarily disturbed by construction activity. Total affected land area is estimated at approximately 10 acres. Off-base construction in support of the SEAD unit would be identical to that described under the Holloman alternative (Section 2.2.2.2).

2.3.2.3 Personnel

Table 2.3-1 summarizes personnel changes at Holloman AFB under this alternative. There would be a net decrease of 563 personnel.

2.3.2.4 Other Actions

Other actions which may occur at Holloman AFB, and which should be considered in assessing impacts due to this alternative are identical those described in Section 2.1.2.4.

2.3.3 Actions at Nellis AFB

As part of this alternative TAC would relocate the operations of the 37th TFW from TTR to Nellis AFB in FY 93. Nellis AFB is a TAC installation located adjacent to the Las Vegas Metropolitan Area, 5 miles from the city of North Las Vegas, Nevada (see Figure 2.1-1). The base supports the TFWC, which operates the Nellis Range complex stretching northwest to TTR, and hosts the Red Flag program, the largest and most realistic training exercises in the western world.

The cost savings of this alternative would be less than those of the 37th/49th TFW or Holloman alternatives. Approximately $10 million in estimated personnel relocation costs would be saved; but vehicles and other equipment and supplies would still need to be relocated from TTR. Construction would be approximately $73 million more than for the Holloman-based alternatives since Nellis AFB does not have facilities available for use by the 37th TFW as Holloman AFB does. Annual operating costs would be about the same as those for the Holloman alternative, with savings of approximately $70M ($ FY 1990) per year over current operations. However, because Nellis AFB does not have adequate facilities to support the beddown of the 37th TFW, the relocation would be delayed a year until spring 1993, thus losing the opportunity to save about $70M ($ FY 1990) annually.

2.3.3.1 Operations

Relocating the F-117A aircraft to Nellis AFB would result in aircraft operations and maintenance being conducted at Nellis AFB rather than TTR. Flight operations would take off and land at Nellis AFB rather than TTR, but range use would generally be expected to be the same as it has been in the past.

2.3.3.2 Facilities

Approximately 65 acres of land would be permanently disturbed at Nellis AFB if this alternative were selected. A similar amount of acreage would be temporarily disturbed by construction activity. Total affected land area is estimated at approximately 130 acres. This alternative would make negligible use of existing facilities (less than 0.1 acre of floor space). Although not in the built-up portions of the base, the areas affected are located in areas that would have been previously disturbed during runway and road construction. The total cost of this construction is estimated at $159 million. Facilities at TTR would continue to be used by the 37th TFW for about a year longer than with the Holloman alternative.

2.3.3.3 Personnel

Personnel requirements would be the same as for the 37th TFW components of the 37th/49th TFW alternative (Table 2.1-3). There would be a net decrease of 649 manpower authorization in the Las Vegas area. Basic installation operations and maintenance already exists at Nellis AFB; contracts that currently support the 37th TFW at TTR would not be needed at Nellis. Military personnel who currently travel on TDY from Nellis AFB to TTR would remain at Nellis AFB for their duty assignments.

2.3.3.4 Other Actions Considered in Cumulative Impacts

Nellis AFB is expected to undergo other mission changes during the same period as the proposed relocation of the 37th TFW. For example, a helicopter unit will activate in early 1991, and an aggressor squadron inactivation has been completed. This will involve removing 456 military and 19 civilian positions from the base, as well as 16 F-16 aircraft. It is anticipated that this process of change will continue for the period under consideration with minor fluctuations in manpower levels. For the purpose of this analysis, no net change is projected.

Other construction planned for Nellis AFB during FY 91 to FY 93 includes a 45,200-square-foot facility in the civil engineering complex (FY 92), an 18,625-square-foot child development center (FY 92), aircraft loading revetments (FY 93), and a sound suppressor (FY 93), as well as modifications to the electrical supply distribution (FY 91). The total cost of these projects is estimated at $16.35 million. Ongoing FY 90 projects that may still be underway in 1991 include construction of a taxiway, a 418,000-square-foot medical facility, and a 12,500-square-foot outdoor recreation center; alteration of 32 housing units; and an addition to the jet engine maintenance shop.

Nellis AFB is located adjacent to the Las Vegas, Nevada, metropolitan area. Las Vegas has experienced sustained growth in tourism over the past several years. Building permits issued in 1989 were valued at $1.8 billion, an increase of 8.6% over 1988. Construction of commercial structures is expected to decline, but this will be offset by increases in construction of single-family housing.

2.4 THE NO-ACTION ALTERNATIVE

Under the no-action alternative, the proposed relocation of the 37th TFW, inactivation of the 49th TFW, and the relocation of the GAF unit would not occur. All three units would continue to operate as they do now. Manpower and PAAs would remain unchanged, no construction would be undertaken, and no changes in airspace structure or utilization would occur. As a result, no change in environmental conditions would occur. Although this alternative would avoid any of the impacts, both adverse and beneficial, associated with the preferred action, it would also eliminate savings of approximately $70 million ($FY 1990) per year associated with reduced operating costs of the 37th TFW, as well as other annual savings associated with the inactivation of the 49th TFW. George AFB is scheduled to close and GAF training will move. The no-action alternative will not impact the discontinuation of GAF training at George AFB.

2.5 ALTERNATIVES CONSIDERED BUT NOT EVALUATED IN DETAIL

The relocation of the 37th TFW and other force structure changes are proposed as part of the DoD initiative to eliminate redundant functions, improve operational efficiency, and save costs. To be further evaluated, any alternatives in addition to those already presented must first meet these basic objectives of increasing efficiency and cost savings. The following subsections enumerate other alternatives considered and explain the basis for the decisions not to evaluate them in detail.

2.5.1 Expand Infrastructure at TTR to Support the 37th TFW

The existing TTR has the operational facilities necessary to support the 37th TFW but does not have the extensive support infrastructure or personnel facilities needed to make it a fully operational base. Making TTR an adequate support base for assigned personnel and their families would involve more than construction of housing. Extensive community services, medical facilities, recreation, administrative, and other facilities would be needed. The cost of the construction of the additional facilities required at TTR for this alternative would exceed the $86 to $159 million needed for construction if the 37th was relocated to Holloman AFB or Nellis AFB. In addition, this alternative would continue to require substantial logistics support because of the remote location of the facility. It was concluded that this option would not accomplish the cost objectives of the DMR process.

2.5.2 Relocate the 37th TFW to Indian Springs AFS

Like TTR, Indian Springs AFS, located approximately 45 miles northwest of Las Vegas in Clark County, is a minimal installation with almost no capability to house or support personnel and their families on a permanent basis. Neither the Air Force nor the

Nevada Air National Guard has plans to expand at Indian Springs AFS. Unlike TTR, Indian Springs AFS does not have the operational facilities needed by the 37th TFW. Relocating the 37th TFW to Indian Springs AFS would require construction of all the operational facilities needed at Nellis AFB as well as all the support facilities required at TTR, and it would involve additional relocation costs. In addition, operations and maintenance costs (e.g., fuel delivery) would be similar to TTR and significantly higher than at Holloman AFB or Nellis AFB. Because up-front costs would not be offset by savings in annual operating costs, this alternative would not offer any net savings to the Air Force. Since it does not meet the basic requirements of the DMR, this alternative was eliminated from further consideration.

2.5.3 Relocate the 37th TFW to Another Installation

The only installations that could provide the airfield and other support capabilities required by the 37th TFW are existing Air Force bases. The current basing structure and the proposed realignments are products of carefully matching operational requirements with available facility and training resources. New mission beddowns and unit relocations are generally constrained to bases with similar equipment and missions. In addition, the cost savings associated with a particular initiative may be canceled if there is a domino effect that displaces or disrupts other ongoing missions. Therefore, the primary objective of this initiative is to relocate the 37th TFW to an existing base with an established support infrastructure and compatible mission, where new facility construction and adverse mission impacts can be held to a minimum. Candidate bases must also offer nearby range capability to support training operations. The only bases found to meet those requirements are Holloman AFB and Nellis AFB.

2.5.4 Select Aircraft Other Than the F-15A/B for Retirement

Inactivation of the 49th TFW is guided by the decision to retire the F-15A/B aircraft in order to meet necessary force structure reductions. Inactivation of the 49th TFW might not be necessitated if other aircraft were selected for retirement.

As the Air Force draws down its overall force structure, it is imperative that remaining tactical forces maintain a prudent balance of air-to-air and air-to-ground forces. The actions considered here address needed reductions in air-to-air forces (concurrent proposals to reduce air-to-ground forces are being separately assessed at other locations). The F-15A/B is the oldest and least capable model aircraft currently dedicated to the air-to-air role, and therefore the logical choice for retirement. Therefore this alternative is not considered feasible.

2.5.5 Delay Action

Budget cuts imposed by the U.S. Congress require immediate action on the part of the Air Force and other services to reduce costs while maintaining the nation's defense capability. A delay in action would not accomplish the basic objectives of cost reduction or would result in decreased combat readiness; both are unacceptable. This alternative is not considered compatible with Congressional direction and is not further evaluated.

2.6 COMPARATIVE SUMMARY OF IMPACTS

Impacts to the biophysical, and socioeconomic environment are detailed in Section 4 for each of the alternatives. The following provides a comparative assessment of these impacts. Table 2.6-1 provides an overview of projected impacts. The no-action alternative is not expected to have significant impacts, either adverse or beneficial, at any of the affected locations.

The 37th/49th TFW alternative would have slightly beneficial impacts to the biophysical environment in the vicinity of TTR. Significant socioeconomic impacts are predicted for the town of Tonopah, Nevada, arising primarily from a reduction in employment opportunities at TTR. Under worst-case conditions, direct and indirect impacts can amount to a 20 percent reduction in employment in Tonopah and may result in an out-migration of as much as 38 percent of the total population. Major impacts to local schools and the local housing market would result. In addition, this alternative would result in a loss of revenue and expenditures in Tonopah associated with decreased tax revenue and state and federal subvention. Individual tax burdens are projected to increase due to out-migration. Personnel reductions at Nellis AFB associated with this alternative would have negligible effect on the impact on biophysical and socioeconomic environments because of the size of the Las Vegas community and its rapid growth in recent years. The 37th/49th TFW alternative is not expected to have significant impact on biophysical, cultural, or socioeconomic resources in the vicinity of Holloman AFB or on the ranges and land underlying special use airspace affected by this alternative. A significant beneficial impact is expected from the reduction of the amount of land contained within the 65 decibel (dB) contour in the approach area near Holloman AFB.

Under the Holloman alternative impacts associated with TTR and Nellis AFB would be the same as those experienced with the 37th/49th TFW alternative. This alternative would have no significant impact on air quality, biota, and water resources in the vicinity of Holloman AFB and special use airspace. Noise analysis indicates a decrease in the area encompassed by the 65 dB contour at Holloman AFB as a result of this alternative, and no adverse noise-related impacts at the base are projected. In general, there would be no substantial increase in the noise exposure to communities. However, there would be increased occurrence of nighttime operations. The new segment of a modified Instrument Route would result in overflight of a wilderness study area. Noise impacts are expected to be reduced by operational requirements to fly 9,800 feet mean sea level in the area. Increased nighttime use of affected ranges are projected to have up to 10 dB noise increases. Increased activity in special use airspace and Military Training Routes would result in minor noise-related impacts to the community of Willard and sensitive wilderness locations. The Holloman alternative would result in an increase in aircraft operations at Holloman AFB but no significant impacts are predicted for special use airspace. The alternative is projected to result in an 11 percent cumulative population increase in the Alamogordo area following the reduction in force of the 479th TTW. Neither the housing market nor community services are expected to be adversely affected in the long term. The potential exists for adverse vibrational impact to historic adobe buildings of White Sands National Monument headquarters; such impacts would be avoided with appropriate implementation of operational procedures. Impacts to

Table 2.6-1 Summary of Impacts by Alternative, Location, and Affected Resources

	37th/49th TFW			HOLLOMAN			HOLLOMAN-NELLIS		
	TTR	HAFB	NAFB	TTR	HAFB	NAFB	TTR	HAFB	NAFB
Land Use	-	o	o	-	o	o	-	o	o
Atmospheric Resources	o	o	o	o	o	o	o	o	o
Noise	o	+	o	o	-	o	o	-	o
Airspace Management	o	o	o	o	o	o	o	o	o
Socioeconomics	-	o	o	-	+	o	-	o	o
Biological Resources	o	o	o	o	o	o	o	o	o
Water Resources	o	o	o	o	o	o	o	o	o
Archaelogical/ Cultural	o	o	o	o	o	o	o	o	o
Hazardous Materials/Waste	o	o	o	o	o	o	o	o	o

+ = Significant Beneficial Impact
- = Significant Adverse Impact
o = No Significant Impact

TFW = Tactical Fighter Wing
HAFB = Holloman AFB
NAFB = Nellis AFB
TTR = Tonopah Test Range

archaeological resources on the Red Rio and McGregor bombing ranges are possible but not likely, due to operational procedures. Other ranges are not expected to experience significant impacts to these resources, either because of negligible changes in air-to-ground mission activity or because of the absence of significant resources in the area.

Under the Holloman-Nellis AFB alternative, biophysical, socioeconomic impacts at Tonopah would be similar to those incurred under the 37th/49th TFW alternative. Impacts to the biophysical environment are not expected at Nellis AFB and in the vicinity of Tonopah. Population and additional noise impacts at Nellis are projected to be small. No significant biophysical or socioeconomic impacts are predicted at Holloman AFB or in the associated special use airspace. Significant increases in noise levels in areas underlying affected Military Training Routes could be incurred. Due to the additional construction requirements associated with the 37th TFW at Nellis, a one year's delay in moving the wing to Nellis AFB would result with an associated one year delay in operational savings.

Under the no-action alternative, the 37th TFW would continue to operate from TTR, and personnel would continue to commute from Nellis AFB on a weekly temporary duty basis. Since there would be no change in activities, no changes to the biophysical and socioeconomic environments are predicted and projected cost savings would be foregone. The 49th TFW would continue to operate from Holloman and associated cost savings would be foregone. The GAF and notional F-4 aircraft would not be consolidated at Holloman, resulting in reduced training and response capabilities and foregone efficiencies.

The preferred action includes the GAF of the Holloman alternative with resultant impacts more closely aligned to the 37th/49th TFW alternative. Impacts to Tonopah Test Range and Nellis AFB are the same as those discussed under the 37th/49th TFW and Holloman alternatives. No significant biophysical or socioeconomic impacts are expected in and around Holloman AFB, or in associated special use airspace.

2.7 IMPACTS OF THE PREFERRED ACTION

As discussed in Section 2.2, the preferred action includes only one F-4 unit studied under the Holloman alternative. The preferred action would have the same impacts to Tonopah Test Range and Nellis AFB as presented under the 37th/49th TFW and Holloman alternatives, since all aircraft and personnel would leave Nevada. Impacts to Holloman AFB are bracketed between those discussed in the 37th/49th TFW and Holloman alternatives, but are closer in magnitude to the 37th/49th TFW alternative. The preferred action at Holloman AFB would have no change in the number of aircraft assigned, a small reduction of 57 manpower authorizations (when compared to baseline), and approximately $89.5M in construction impacting 62 acres.

The Holloman alternative defines the upper bounds of the biophysical impacts. The following resource areas under the Holloman alternative were not found to have significant adverse impacts despite greater levels of aircraft operations and construction:

land use, air quality, biota, water resources, archaeological, cultural and historic resources, and generation of hazardous materials and wastes.

The preferred action would require the modification to IR-133/111 and IR-134 as discussed under Airspace Management in the Holloman alternative. The annual airspace events/sorties will either remain constant or decrease (relative to baseline) around Holloman AFB, special use airspaces, and MTRs, except on Oscura and Melrose Bombing Ranges and modified IR-134. Due to the relatively low usage of Beak and Talon MOAs, the noise of each would increase by less than 1 dB over that discussed under the 37th/49th TFW alternative. The noise under Pecos MOA would be between 1 and 2 dB less than described under the Holloman alternative. IR-134 would experience new low level noise due to 504 annual sorties. The frequency of noise events would reduce from ten per day described under the Holloman alternative to approximately two per day under the preferred action. Due to reduced sorties, MTRs IR-134, IR-133/111, VR-125 and VR-1233 would experience 5 to 10 dB less noise than described under the Holloman alternative with no appreciable change in the single event noise levels. MTRs VR-176, VR-196, IR-144 and VR-100 would experience no change in noise levels or frequency of use relative to baseline. Noise under Red Rio and McGregor Bombing Ranges would see less than a 1 dB decrease in noise as discussed in the Holloman alternative. Oscura and Melrose Bombing Ranges and R-5107 would experience between 1 and 2 dB less noise than described under the Holloman alternative.

The 37th/49th TFW alternative defines the lower bounds of the socioeconomic impacts. The GAF would bring 128 military and civilian authorizations and approximately 278 contract positions over the number discussed in the 37th/49th TFW alternative. The GAF is expected to bring a total of 1,136 people, including 244 school children over the number discussed in the 37th/49th TFW alternative to Alamogordo. Since the 37th/49th TFW alternative was determined to have no significant impact and the preferred action would bring additional people into Otero County, the preferred action would also have no significant impact.

3.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT

3.1 TONOPAH TEST RANGE

3.1.1 Land Use

TTR is located in the northwestern portion of the Nellis Air Force Range (NAFR) in Nye County, Nevada. Nye County covers about 18,155 square miles and is the third largest county in the contiguous 48 states. The unincorporated town of Tonopah, the county seat, is about 45 miles northwest of TTR and is the nearest population center. Around TTR, land is used for the communities of Tonopah and Goldfield and for other military activities in NAFR. Land to the north of TTR is primarily vacant desert-type land. A district of the Toiyabe National Forest is also north of TTR.

Managed by DOE through a memorandum of understanding with the Air Force, TTR provides a secure training and testing facility for classified Air Force missions. Over the years the Air Force has built and improved the airstrip, warehouses, maintenance buildings, dormitories, hangars, fuel tanks, and infrastructure needs. TTR is closed to public entry, and no state or local land-use plans pertain to the area. Land usage on TTR is coordinated among the current users through a 1977 five-party cooperative agreement and interagency memorandums of understanding. The five-party cooperative agreement includes the Air Force, Bureau of Land Management (BLM), Fish and Wildlife Service (FWS), Nevada Department of Wildlife and DOE. It was instituted for the purpose of protecting, developing, and managing the natural resources, fish and wildlife, vegetation, watershed, wild horses, and burros on NAFR, the Nevada Test Site, and TTR. Wild horses freely roam NAFR. A horse relocation program was initiated to relocate horses from Area 10, the developed section of TTR (DOE and USAF 1988). In the NAFR, land is used for training areas for military activities, for the Nevada Test Site, and for a portion of the Desert National Wildlife Refuge (NWR).

NAFR is composed of TTR and the TFWC Range complex. TFWC Range complex includes restricted areas R-4806, R-4807, and R-4809 and the area underlying the Desert MOA. Encompassing over 3 million acres of public lands and supporting the heaviest sortie traffic in the world, the TFWC Range complex is the most sophisticated range in the Air Force's inventory. Its primary purpose is to provide an unprecedented opportunity to conduct training, testing, and weapons evaluation operations for the Air Force, Marine Corps, Army, Navy, National Guard, Reserve forces, DOE, and other federal agencies.

The Nevada Test Site is a high security area that is used for the design, development, and underground testing of nuclear weapons. A secondary mission of the area is the storage and disposal of radioactive wastes generated on site and off site at other DOE locations. The Desert NWR is the largest refuge in the 48 contiguous states. Approximately one-half of the refuge is in NAFR. Limited recreational activities, such as camping, backpacking, hiking, horseback riding, and picnicking, are permitted in the portion of the refuge outside the range's boundary.

Another potential land-use on NAFR is the proposed Yucca Mountain site. This site may be the first geological repository for the permanent disposal of commercial spent nuclear fuel and high-level radioactive waste. The proposed site is located on three adjacent parcels of federal land, under the separate control of DOE (Nevada Test Site), the Air Force (NAFR), and the BLM.

Tonopah businesses supporting local residents are located around the junction of U.S. Highway 6 and U.S. Highway 95. Town residents live throughout the small town. The most recent residential development is 2 miles northwest of the main part of town. Also, the nearby community of Goldfield is primarily a residential area.

Land ownership for Nye County and the other two counties that are involved in the alternatives is displayed in Table 3.1-1. Other land uses in Nye County, in addition to NAFR and Toiyabe National Forest, include a portion of the Humbolt National Forest, Berlin-Ichthyosaur State Park, Belmont Courthouse State Historic Site, Duckwater Indian Reservation, and a small portion of Death Valley National Monument. Land in the county is also used for mining and raising cattle. Many farmers graze their cattle on BLM land and grow alfalfa on their property. The southeastern corner of Nye County is experiencing growth due to the urban development in the Las Vegas Valley.

3.1.2 Atmospheric Resources

3.1.2.1 Climatology

TTR lies in a broad desert valley between two low mountain ranges. The climate is typically dry, with large nighttime and seasonal temperature changes. Clear, sunny days prevail, with light to moderate winds. Rainfall is 8 inches per year; the average annual snowfall is 12 to 13 inches. Most of the precipitation results from afternoon thunderstorms during the summer months. Dust storms are common in the spring, and dust devils occur frequently in the summer. The average temperature within the range is about 50° Fahrenheit (F), with maximum temperatures over 100°F and minimum temperatures below -20°F. The average relative humidity is approximately 40%. Surface winds are predominantly from the west-northwest or northwest in the winter season and from the south to southeast in the summer. The average annual wind speed varies from about 10 to 15 miles per hour.

3.1.2.2 Air Quality

Tonopah is located within the Nevada Intrastate Air Quality Control Region (AQCR), which comprises most of the state of Nevada. For the region surrounding Tonopah, Environmental Protection Agency (EPA) reports indicate that particulates and sulfur dioxide (SO_2) are within acceptable levels. Carbon monoxide (CO), nitrogen oxides (NO_x), and ozone (O_3) are lower than standards or cannot be classified because monitoring information is insufficient to make a designation as to attainment or nonattainment.

Table 3.1-1. Land Ownership in Nye and Clark Counties, Nevada, and Otero County, New Mexico

	Nye County[a]		Clark County[b]		Otero County[c]	
	Acres	% County	Acres	% County	Acres	% County
BLM	6,703,643	58.0	3,475,983.00		1,125,422	26.5
USFS	1,750,119	15.1	58,597.00		544,129	12.8
NPS	106,971	0.9	587,321.00		140,247	3.3
DoD,DOE	2,151,474	18.6	400,000.00[d]		889,229	20.9
Indian	9,273	0.1	75,599.04	1.5	460,167	10.8
State	10,496	0.1	60,578.04	1.2	543,012	12.8
County	295	-	7,740.46	0.2	N/A	
Private	822,711	7.1	254,040.90	5.1	546,114	12.9
City	N/A		3,698.22	-	N/A	
Schools	N/A		26,184.04	0.6	N/A	
Total	11,560,960	100.0	4,967,316.88	100.0	4,248,320	100.0

[a] Source: Williams 1990.

Note: There is a discrepancy in the total acreage of the *county* compared to the sum of all the numbers in the columns. This discrepancy may be due to the fact that the numbers in the column represent the number of acres that are exempt and nonexempt on the tax roll. The final total may represent the actual number of acres in the county.

[b] Source: Adair 1990.

Note: Based on acreage that is registered as nonexempt or exempt on the tax roll.

[c] Source: Barraza 1990.

Note: Based on acreage that is registered as nonexempt or exempt on the tax roll.

BLM Bureau of Land Management

USFS United States Forestery Service

NPS National Park Service

[d] Note: Portions of the Nellis South Range are also part of the U.S.Fish and Wildlife Service Desert National Wildlife Refuge. Acreage for DoD/DOE is estimated to be 350,000 to 400,000 acres.

Ambient concentrations of O_3 may approach the National Ambient Air Quality Standards (NAAQS) due to the transport of polluted air from southern California urban areas. Particulate concentrations may occasionally be high because of strong winds which entrain large amounts of soil particles into the air. The remaining criteria pollutants are not measured at the representative monitoring locations, but they are expected to be lower than the NAAQS.

The state of Nevada, through the Division of Environmental Protection, has also adopted the NAAQS, in addition to promulgating state standards for SO_2 and particulates.

3.1.3 Noise

TTR is located more than 30 miles from the nearest area of public access and is on lands owned and operated by the Federal Government. As a result of this isolated setting, the base operates under a waiver from HQ TAC/DEVE that does not require a periodic Air Installation Compatible Use Zone (AICUZ) study of the TTR terminal environment. Noise exposure (L_{dn}) contours have therefore not been developed for the TTR. However, estimates for the potential noise impact areas around the base would suggest that L_{dn} values of 65 decibels (dB) and above would be limited to about one mile sideline to TTR runway and would extend approximately six miles from the runway thresholds along the extended center line. These noise exposures are caused by current operations of the F-117A and AT-38B aircraft and, which include more night-time operations than would be envisioned for future proposed scenarios, together with a daily occurrence of various B-727 and C-12 transport aircraft operating between the TTR and Nellis AFB.

Operations by the 37th TFW outside of the TTR environment are primarily conducted in airspace associated with the Nellis Range Complex. These operations constitute a very small portion of the Nellis Range flight activity and are typically conducted at altitudes greater than 3000 feet AGL. The incremental noise exposure attributable to the 37th TFW operations is therefore very small (less than 1dB) relative to that caused by all other current flight activity on the range. The 37th TFW does not use low-level MTRs and there is therefore no impact by those aircraft on Nevada MTR noise exposures.

The Nellis Range complex, within which the 37th TFW primarily operates, was not modeled for noise levels. This is one of the most complex range environments in the United States. The vast array of target complexes and the thousands of square miles that comprise the range complex preclude the formulation of an accurate noise model.

3.1.4 Airspace Management

TTR is located within restricted area R-4809 in the northwest portion of the TFWC Range complex shown in Figure 3.1-1. Therefore, the airspace structure associated with the TTR airfield consists of the restricted area itself and areas delegated for the control of air traffic within R-4809 and the airfield environment. Due to the restrictive nature of this

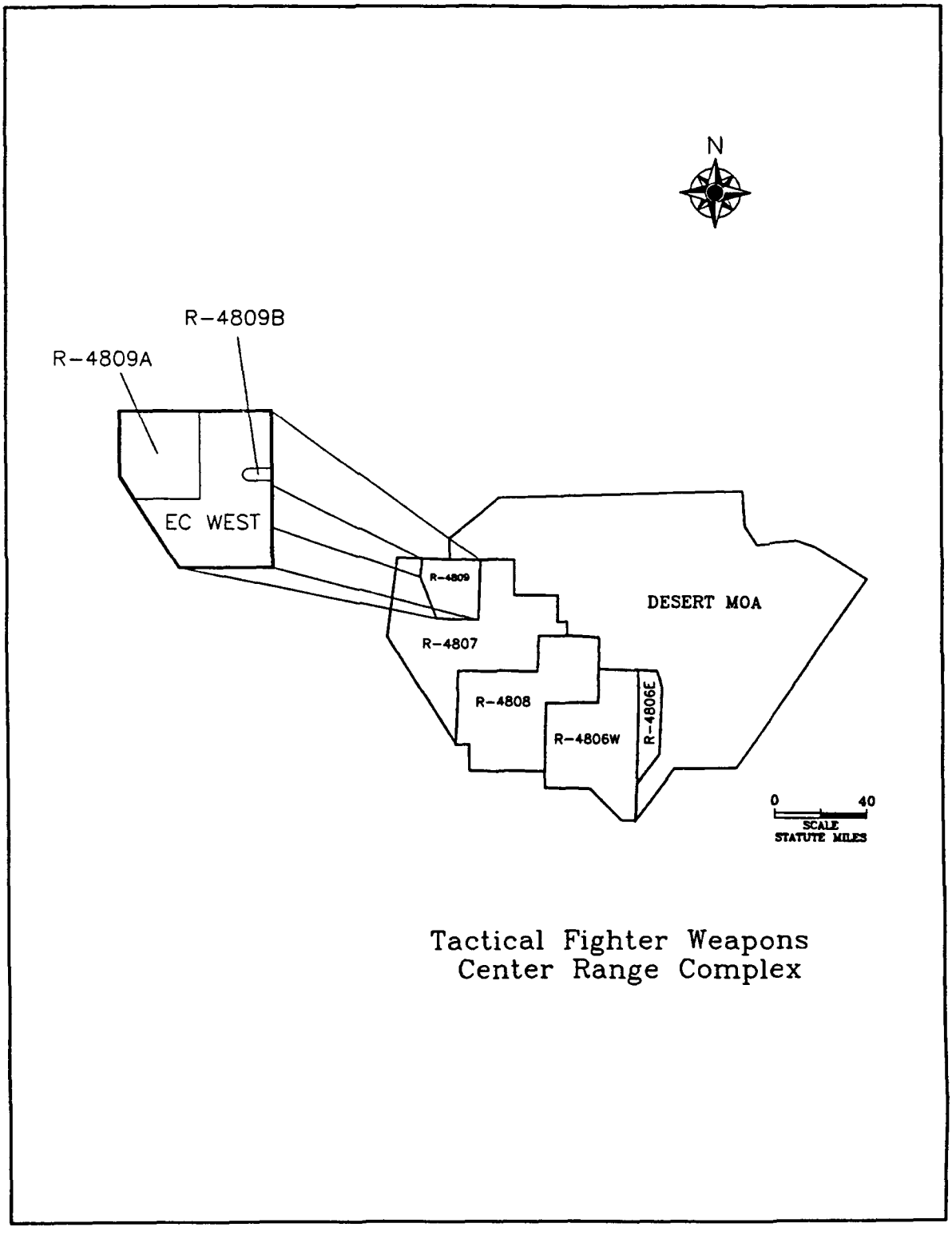

Figure 3.1-1 Tactical Fighter Weapons Center Range Complex

airspace and TTR operations, only defense-related aircraft are authorized to operate within this airspace.

3.1.4.1 Existing TTR Terminal Airspace Structure

Airspace delegated to the TTR Air Traffic Control (ATC) facilities consists of an approach control area and an airport traffic area. The approach control area, which includes R-4809 from the surface to infinity, is used to provide radar sequencing and separation to TTR aircraft arrivals and departures. The Electronic Combat (EC) west portion of R-4809 is designated for joint use with Nellis AFB for TFWC Range tactical training operations. When EC west is in use by Nellis AFB, the approach control area is limited to R-4809A.

The TTR control tower has control responsibilities within an airport traffic area, which is a 5-statute-mile radius of the airfield from the surface to 3,000 feet AGL. This jurisdiction includes approximately 127,000 takeoffs and landings, practice landings (low approaches/touch-and-go landings), and the airfield traffic patterns.

3.1.4.2 Existing TTR Special Use Airspace Structure

Special use airspace includes restricted areas and MOAs that are designated by the Federal Aviation Administration (FAA) specifically for the conduct of defense-related activities. This airspace is defined in terms of lateral and vertical limits, and times of use in order to meet testing and training requirements and minimize conflicts with competing airspace users. Restricted areas contain hazardous activities such as bombing and gunnery operations and artillery firing. MOAs contain aircraft activities that are not determined to be hazardous, such as practice combat maneuvers and air-to-air intercepts. TTR is located in R-4809, where all airfield operations are conducted. Joint use of this restricted area by civil or nonscheduled military aircraft is not authorized at any time. The majority of the 37th TFW flight operations are conducted in the TFWC Range Complex (see Figure 3.1-1).

3.1.5 Socioeconomics

Nye County is the socioeconomic region of influence (ROI) for the proposed realignment from TTR. It is presently home to 85% of the 37th TFW-related contractor personnel living in Nye County, Tonopah. A small percent of contractor personnel live in Esmeralda County.

3.1.5.1 Population

The estimated 1990 population in Nye County is 17,781 (Table 3.1-2). The population grew 64% from 1980 to 1985. Growth from 1985 to 1990 is estimated at 35% and from 1990 to 1995, 2%. Population in Tonopah was estimated at 3,621 for 1989 (PIC 1990). Tonopah's population almost doubled between 1980 and 1985. Growth from 1985 to 1989 was estimated to be approximately 15%.

Table 3.1-2. Population in the Region of Influence, Nye County

	1980	1985	1990 [a]	1995
Nye County[b]	9,048	14,850	17,781	20,400
Tonopah	1,952[c]	3,765[d]	3,621	N/A

Sources:

[a] Based on 1990 Census data.

[b] Vaidyanaphan 1990.

[c] Walker and Cowperthwaite 1988.

[d] PIC 1990.

3.1.5.2 Employment and Income

The economy of Nye County depends primarily on services, including contract-related services for military activities, gaming and tourism, and mining activities. The services industry accounted for 63% of the total 10,860 jobs in Nye County in 1988, as shown in Table 3.1-3. The next largest sectors were mining, which represented 14% of total employment, and government, which represented 9%. The seasonally adjusted unemployment rate in Nye County was 4.8% as of March 1990 (Nevada Employment Security Department 1990).

Total payrolls distributed across industrial sectors in Nye County are summarized in Table 3.1-4. Payrolls totaled about $325 million in 1988. Service industries accounted for approximately 68% of total earnings. Mining earnings represented 15% of total payroll, and government earnings represented 7%. Per capita income in the county was $12,742 in 1987, a 12% nominal increase from 1985 (BEA 1989).

Employment and income data for Tonopah are not available from the Nevada Employment Security Department. However, estimates provided by Planning Information Corporation (PIC 1990) indicate a total of approximately 2,524 jobs, which include 508 tourist-related jobs, 1,125 mining jobs, 451 service and government positions, and 440 TTR contractors.

3.1.5.3 Housing

3.1.5.3.1 Off-Base Housing

Housing includes all houses, apartments, and mobile homes available within the housing area, whether they are owned, rented, or vacant. As shown in Table 3.1-5, Nye County has a total of 3,802 housing units. Approximately 50% of the total housing inventory in the county consists of mobile homes. Detached, single-family units represent 40%, and attached, single-family units (condominiums and townhouses) represent 2%. Multifamily housing is defined as two-, three-, or four-plexes and apartments and comprises 8% of total housing.

There are 1,588 housing units in Tonopah as of March 1990 (Table 3.1-6). Single-family homes represent almost 50% of the housing stock. Mobile homes make up 33%, and multifamily units make up about 14% of the total. Extended transient housing is also available at local hotels. There are 610 hotel rooms in Tonopah, 103 of which are efficiency units.

Vacancy rates are difficult to determine for permanent housing since there are no zoning laws, and substandard housing is not condemned and demolished. Units that are substandard or marginal may only be filled when local housing demand is high (e.g., during a mining or construction boom) and remain vacant at other times (Rivero 1990).

Currently, rental vacancy rates are unusually low due to the influx of construction workers associated with the building of the new high school in Tonopah (Rippie 1990).

Table 3.1-3. Employment by Industry, Nye County

Industry	1985	1988	1988 Percent of Total
Mining	884	1,533	14
Construction	249	420	4
Manufacturing	89	107	1
Transportation, communications, and utilities	135	202	2
Wholesale and retail trade[b]	514	594	5
Finance, insurance, and real estate	216	227	2
Services[a,b]	6,904	6,811	63
Government	792	966	9
Total	9,783	10,860	100

Note: [a] Includes agricultural services and firms not elsewhere classified.
[b] Tourism and gaming activities are included in the retail trade and services industrial sectors.

Source: Nevada Employment Security Department 1985, 1988; reported by place of work.

Table 3.1-4. Distribution of Payrolls by Industry, Nye County

Industry	1988 Payroll ($1000)	Percent of Total
Mining	48,952	15.0
Construction	13,111	4.0
Manufacturing	1,266	0.4
Transportation, communications, and utilities	5,967	2.0
Wholesale and retail trade	7,223	2.0
Finance, insurance, and real estate	5,179	1.6
Services[a]	222,067	68.0
Government	21,453	7.0
Total	325,218	100.0

Note: [a] Includes agricultural services and firms not elsewhere classified.

Source: Nevada Employment Security Department 1988; reported by place of work.

Table 3.1-5. Permanent Housing in Nye County (as of July 1, 1989)

	Units	Percent of Total County
Single-family detached	1,532	40
Single-family attached	71	2
Multifamily	300	8
Mobile homes	1,889	49.7
Agricultural residences	10	0.3
Total units	3,802	100.0

Source: Vaidyana[illegible]an 1990.

Table 3.1-6. Housing Inventory, Tonopah (1990)

	Units	Percent of Total
Single family	758	47.7
Two-plex	46	3.0
Three-plex	3	0.2
Apartments	173	10.9
Townhouses	11	0.7
Mobile homes	528	33.2
Available trailer hookups	69	4.3
Total	1,588	100.0

Source: Rivero 1990.

Construction is expected to be completed by fall 1991. A summary of the Tonopah real estate market is shown in Table 3.1-7.

3.1.5.3.2 On-Base Housing

On-base housing at TTR has approximately 3,600 bed spaces in serviceable condition. Rates for civilians to stay on site are $10.50 per week or $1.50 per night. Meals are subsidized at 1962 prices. Approximately 850 DOE contractor civilians associated with the 37th TFW stay in TTR quarters during the work week (Krumm 1990).

3.1.5.4 Community Facilities and Services

3.1.5.4.1 Education

All school districts in Nevada are organized under terms of legislation enacted in 1956. There is one school district in each county with responsibility for all public education from kindergarten through the twelfth grade. The Nye County School District consists of 12 schools. Schools that specifically service the Tonopah area are the Tonopah School, which offers grades kindergarten (K) to 12, and the Silver Rim Elementary School, which offers grades K to 5. Historical enrollment figures for the Nye County School District are provided in Table 3.1-8. The district reported an enrollment of 3,266 students in April 1990. The district employs 373 persons. The pupil to teacher ratio in the Nye County School District was 20:1 in 1987 (Nevada Department of Education 1988).

Currently, there are no dependents of military personnel enrolled in Tonopah Public School or the Silver Rim School. Therefore, Federal Education Impact Aid (FEIA) funds in lieu of taxes are not made available to the Tonopah public schools. The operating revenues of school districts in Nevada are primarily derived from local and state sources. The district's local operating revenue sources are comprised largely of a county-wide seventy-five cent property tax and a sales tax equal to 1.5% of the taxable sale. Other local operating sources to the general fund include motor vehicle privilege taxes, utility franchise fees, and earnings on investment. The state revenue sources consist of payments from the state distributive school account, pursuant to the Nevada Plan for School Finance. The plan is designed to compensate for wide local variation in resources and in cost per pupil. The Nye County School District receives revenues in accordance with this plan. The 1989/1990 per pupil budget is $3,356 (Nye County School District 1990).

The district reached enrollment capacity in 1985. In subsequent years, the district has maintained a 5% to 6% annual growth rate. In response to overcrowding, the district received voter approval of a $30 million bond issue to finance a county-wide building program. A new 500-student school, grades 9 to 12, is currently under construction in Tonopah and will be completed by the fall of 1991.

Table 3.1-7. Summary of Residential Sales, Tonopah (1989)

	Single-Family Residences	Mobile Homes	Two Single-Family Units[a]
Units sold	68	7	3
Total sales	$4,090,287	$166,000	$143,200
Average price	$60,151	$23,714	$47,733

Note: [a] May include a residence or a real or personal property mobile home.

Source: Rivero 1990.

Table 3.1-8. Historical Enrollment Figures: Nye County School District

Year	Elementary	Secondary	Total
1985	1,569	1,180	2,749
1986	1,597	1,127	2,724
1987	1,539	1,093	2,632
1988	1,652	1,226	2,878
1989	1,805	1,275	3,080
1990	1,924	1,351	3,275

Source: Nevada Department of Education 1988-90.

3.1.5.4.2 Police and Fire Protection

Law enforcement in Nye County is provided by the county sheriff's department, which has 71 commissioned officers. Additional law enforcement is offered by the state highway patrol, which has 6 officers. Personnel located in Tonopah currently includes the following: one sheriff, one under-sheriff, one captain, one lieutenant, two sergeants, one detective sergeant, one animal-control officer, one truant officer, two jailers, and five deputies. The Nye County sheriff also operates a substation at TTR. This facility employs one lieutenant, one sergeant, three deputies, and one dispatcher (Perez 1990). Police protection is currently at, or slightly under, capacity.

Fire protection is provided by the fire department in Tonopah. Equipment for fire protection is provided by the county, the community, and associations affiliated with volunteer fire departments. The fire department in Tonopah has four paid personnel and is supported by volunteer fire fighters. This level of service (LOS) is sufficient for current needs.

3.1.5.4.3 Health Services

The city of Tonopah is served by the Nye County Regional Medical Center, which has 45 beds, 21 reserved for acute care and 24 for extended care. The medical center serves an area that is 100 miles in radius. Total employment for the facility is 100 full-time personnel and 15 part-time personnel, including 6 full-time physicians, 1 full-time physician's assistant, 1 nurse-anaesthetist, 16 registered nurses, and 43 licensed practical nurses. Employment increases in the summer months when local students are hired as summer help. A county-owned-and-operated ambulance service is based at the medical center. In addition to the local physician care, specialists regularly visit the area from Reno and Las Vegas. Although the medical center is currently operating at full capacity, there are no plans for expansion because funds are limited or unavailable.

3.1.5.4.4 Utilities

Water Supply. Municipal water is supplied to Tonopah by Tonopah Public Utilities. The utility services approximately 1,550 accounts in Tonopah, representing 2,500 equivalent residential units. Potable water is obtained from a well field in East Ralston Valley. The capacity of this field is approximately 1.2 million gallons per day (mgd); daily use amounts to 1 mgd. According to the acting director of Public Works, the current water system is operating near peak capacity. The utility recently added an additional well to augment supplies.

Wastewater. The public sewerage facility in Tonopah is located just north of the city, west of the cemetery. The area is served by a joint collection system with one rapid-infiltration bed complex. The current capacity of the system is 1 mgd with daily use amounting to 50% of capacity (Howerton 1990). In 1989, the treatment system was expanded to meet increased demand. The project, paid for by the utility as a capital improvement, cost approximately $250,000 for engineering design and construction.

Solid Waste. Tonopah maintains a private contract with Hoss Disposal, Incorporated, to collect solid waste and transport it to the landfill, which is owned and operated by Tonopah. The landfill is located 3 miles east of Tonopah. Since, the landfill is not currently nearing capacity, it should remain operational into the future. Hoss Disposal employs one full-time driver in Tonopah. The landfill also employs one full-time person.

Power. Commercial power is provided to Tonopah by the Sierra Pacific Power Company. The utility provides electricity to 1,722 residential units and 329 commercial units. Power is transmitted to Tonopah by Utah Power and Light via a 230-kilovolt powerline.

Propane is used by Tonopah residents as the primary source of commercial heat in the winter months. There are two propane distributors in Tonopah: Suburban Propane and Cal-Gas Propane Gas Service. These distributors are able to meet or exceed demand for propane in Tonopah.

3.1.5.5 Public Finance

Public finance is related to the revenues and expenditures of county and city governments and special districts in the ROI. Budgets in these jurisdictions are established to allocate a broad spectrum of services to residents, including public health and safety services, public works programs, administrative and legal operations, and education and recreation programs. Revenues for these services are drawn from an equally large number of sources, including property taxes, sales taxes, local taxes and fees, and various subventions from state and federal sources. Total revenues for Nye County in 1987, 1988, and 1989 were $10,186,321; $12,967,702; and $12,198,628, respectively. Total expenditures for those years were $9,939,396; $11,817,359; and $16,360,813. In all years, the categories of highest expenditure were general government, public safety, and public works.

3.1.5.6 Transportation

The two principal highways in the ROI are U.S. Highways 6 and 95 (Figure 3.1-2). U.S. 95 enters Nevada at the southern tip and runs along the western border through Las Vegas, Tonopah, and several other cities before connecting with I-80 just east of the Sparks/Reno area. U.S. 6, one of only three roads that traverse the state in an east-west direction, passes through Tonopah and is used by commuters en route to the range access road. Other notable roads in the area are State Route (SR) 376, which connects U.S. 6 with U.S.50 to the north, and SR 375, which intersects U.S. 6 with U.S. 93 to the southeast.

Because the range is remotely located, travel on transportation systems in the area is low. Most commuters to the range are REECO employees. About 500 commuters live in Nye County, and it is assumed many of these travel to TTR in buses, carpools or private vehicles. H&N also employs 17 people who commute daily to TTR by bus. Most personnel (550 including civilians) are flown in from Nellis AFB on a daily or weekly basis; thus, these commuters do not affect highway use in the ROI. Route 504, the two-lane

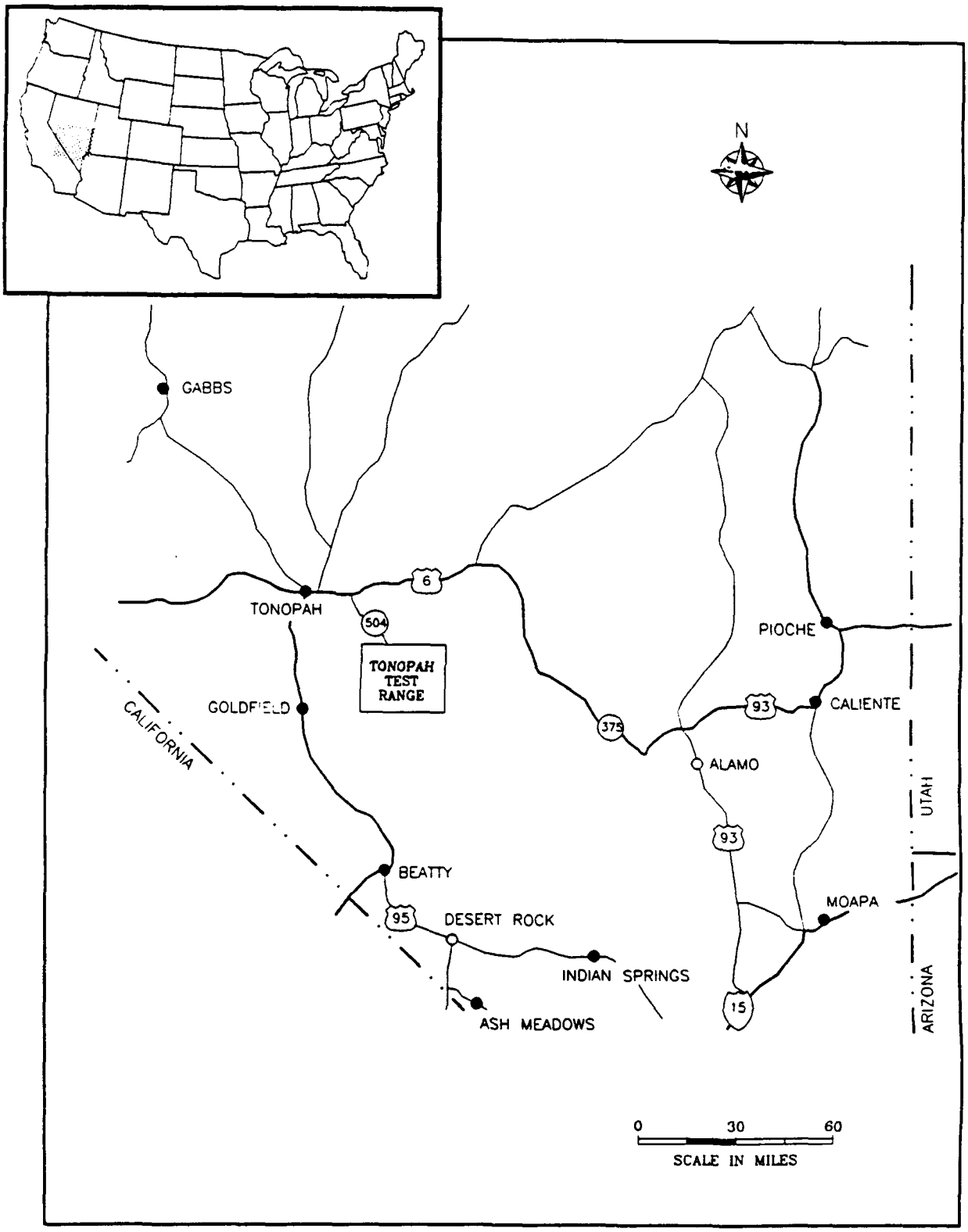

Figure 3.1-2 Tonopah Test Range Area Transportation System

access route to TTR from U.S. 6, provides adequate capacity for commuters. Although only a few miles of paved roads are found on TTR, numerous improved roads (dirt or gravel) are located throughout the area to access the various target areas and other remotely located facilities. Volumes of traffic on these roads are nominal.

The closest rail facility in the region is a branch line of the Southern Pacific Overland Route. This branch extends from the Reno/Sparks area to Mina, about 70 miles northwest of Tonopah. No lines exist to Tonopah or TTR. The Tonopah Airport is a small general aviation airport that has about 21,000 annual flight operations per year (Nevada Department of Transportation, 1990). The nearest commercial airline operations supporting Tonopah are located in Las Vegas or Reno, Nevada.

3.1.6 Biological Resources

3.1.6.1 Vegetation

Sagebrush dominates the vegetation of the lower elevations of TTR and the northern part of NAFR. Other plants, intermixed with the sagebrush, include shadscale, fourwing saltbush, rubber rabbitbrush, spiny hopsage, and horsebrush. The vegetation is adapted to varying degrees of alkalinity. This tolerance of alkalinity is essential to its survival on the poorly drained soils prevalent in this region. In areas with very high salt concentrations, these shrubs cannot survive and plant communities are dominated by greasewood saltgrass (Bailey 1980).

Sagebrush, the dominant plant in the region, probably occurs in abundance primarily because of overgrazing. In areas where fire and grazing have been excluded, grasses such as Palouse grass or mixed prairie-type grasses eventually become the dominant vegetation. In mountainous areas, ponderosa pine may dominate the vegetation.

The southern part of NAFR is located in the Mojave Desert, a region where vegetation is typically very sparse, with bare ground between individual plants. Various cacti and thorny shrubs are often conspicuous here, but many thornless shrubs and herbaceous plants are also present. Vegetation below 3,000 feet mean sea level (MSL) is dominated by creosote bush and chamiso. The desert mountains are almost devoid of vegetation. However, in the higher elevations along the northern limit of the Mojave Desert, Joshua trees are prominent; and at higher elevations various junipers and pinyons are encountered. The interior basins of the Mojave Desert are characterized by shallow, ephemeral playa lakes. Soils of the playas have high alkali concentrations. The alkalinity decreases away from the center of the playas, resulting in a distinct zonation of vegetation as a result of the variation in tolerance of the plants to high salt concentrations (Bailey 1980).

3.1.6.2 Fauna

Large mammals that are found occasionally in the area around TTR and the northern part of NAFR are the wild horse, mule deer, mountain lion, bobcat, and badger. The most common small mammals in the region are ground squirrels, jackrabbits, kangaroo

mice, wood rats, and kit fox. Some ground squirrels, especially the Belding and Townsend ground squirrels, become dormant during the hot dry summer.

Nocturnal burrowers, particularly kangaroo rats and pocket mice, dominate the southern part of the NAFR in the Mojave desert. Another common rodent, the Merriam's kangaroo rat, is closely associated with creosote bush. Other important species are the long-tailed pocket mouse and antelope ground squirrel. Common larger mammals of the region are the desert kit fox, coyote, and western spotted skunk (Bailey 1980).

According to a census made in August 1990 by the BLM, there are approximately 4,302 wild horses on the Nevada Wild Horse Range and adjacent areas, including the TTR (Durfee 1990). The number of animals in the population can vary considerably from year to year depending on a variety of environmental factors that control population size, the availability of water and food being the most important limiting factors. The movements of the animals are seasonal and depend primarily on the availability of water. In summer, the horses are found in the northern part of the TTR within 15 miles of a permanent water source. In winter, the population is found mostly in the southern part of the TTR where there is a greater abundance of food and water.

3.1.6.3 Endangered and Threatened Species

The state- and federally listed endangered, threatened, or otherwise protected species of the TTR include mammals, birds, fishes, reptiles, invertebrates, and plants. Twenty-eight federally listed species are identified in Table A-1 of Appendix A. Fifty-three state-listed species are identified in Table A-2. One hundred and twenty-eight candidate species are identified in Table A-3.

3.1.7 Water Resources

3.1.7.1 Surface Water

TTR is located in a region which has an arid climate. The average annual precipitation is about 8 inches, most of which occurs during summer thunderstorms. Winters are relatively dry, with an average annual snowfall of about 13 inches in a typical year. The mean annual open water evaporation rate in the vicinity of TTR is estimated to be 60 inches per year. The open water evaporation rate is used to estimate evapotranspiration rate and represents the upper limit of water loss from the hydrologic cycle by atmospheric conditions. The potential deficit in precipitation (average annual precipitation minus mean annual open water evaporation) for the TTR area is large, 52 inches.

TTR lies in a broad desert valley in the Basin and Range Physiographic Province along the northeast flanks of the northern Cactus Range, east of Cactus Peak. This area may be divided into playas (small temporary lakes), washes, and uplands. Most of the upland is composed of a moderately dissected pediment of the Cactus Range. Surface water is drained by shallow, ephemeral drainages to the northeast. Most of TTR lies within the Cactus Flat (a dry lake bed) Hydrographic Basin.

The land surface elevations at TTR range from 5,300 to 6,000 feet MSL. The dominant surface features in the area around TTR are dry lakes. There are two wastewater stabilization/evaporation basins which receive wastewater from TTR. The sewage system uses a combination stabilization/evaporation facility that has a surface area of approximately 17 acres (DOE and USAF 1988). Stormwater runoff from the runway and apron areas is directed into a series of detention ponds which allow solids to settle. The wastewater collection and disposal system for TTR is operated under a state of Nevada Permit, NEV 20001, for the discharge of effluent from the treatment facility to the groundwater of the state of Nevada via evaporation/percolation basins (WRC 1990). TTR has no permanent surface water features.

3.1.7.2 Groundwater

There is no permanent surface water in the Cactus Flat Basin near TTR; therefore, water resources in this part of Nevada are developed from three types of aquifers: alluvial, volcanic, and carbonate (Rush 1970). Wells drilled in Cactus Flat have all been completed in the alluvium. Wells have not been drilled deep enough to intersect a carbonate aquifer in Cactus Flat; however, exploratory drill logs show that carbonate rocks are present. Local volcanic rocks play an important role in transmitting precipitation to the alluvial aquifers, but there are no wells developed in volcanic rocks in Cactus Flat. The alluvial aquifer system is responsible for all water produced in Cactus Flat at TTR. The volume of groundwater in storage can be estimated based on the specific yield and volume of alluvial sediments. Rush (1970) estimated specific yield of sediments in Cactus Flat to range from 0.05 to 0.10. An average specific yield of 0.10 is reasonable (DOE and USAF 1988) based on well logs for Cactus Flat. This yield is consistent with values reported by Fetter (1980). There are approximately 1,800,000 acre-feet of groundwater in storage in the economically developable upper 100 feet of saturated alluvial sediments (DOE and USAF 1988). The depth of this reservoir of water averages approximately 250 feet at TTR, approximately 100 feet near area 10B, and approximately 480 feet near area 10A.

In the Cactus Flat hydrographic basin, very little water is discharged from the groundwater system by springs or evapotranspiration. Springs occurring in the mountainous regions are discharges from local perched aquifers. These mountain springs are not connected with the valley-bottom alluvial groundwater system (DOE and USAF 1988). The effect of these springs on the hydrographic system is not considered significant, and no further consideration will be given to them in the water budget. Several playas are present along the long axis of the basin. These playas have been characterized as nondischarge (groundwater recharge) playas (DOE and USAF 1988). The lack of phreatopphytic vegetation in Cactus Flat precludes losses from the water table due to transpiration. The only natural loss that can be occurring is basin underflow. It has been suggested that groundwater could be discharging (underflow) from Cactus Flat either to the adjoining Sarcobatus Flat System or to the Pahute Mesa System (Rush 1970). The estimated recharge to the Cactus Flat Hydrographic Basin is 600 acre-feet per year (AFY) (DOE, 1988). An estimated 503 AFY of water was withdrawn in 1986 (DOE and USAF 1988).

Water analyses at various times are available to characterize the water quality at ten locations within the study area (DOE and USAF 1988). None of the constituents analyzed exceeded the recommended health standards set by the Nevada Division of Health, with the exception of high pH levels at EH-1 well and Sandia #6 well. Although the pH values at these wells exceed the 8.5 pH cutoff (8.75 and 9.14, respectively), the waters do not pose health problems. There have been no significant changes in chemistry over time. The observed differences are all within the range of natural fluctuations and/or analytical accuracy (DOE and USAF 1988).

3.1.8 Archaeological, Cultural, and Historical Resources

3.1.8.1 Archaeological and Historical Resources

Southern Nevada has a long and varied record of occupation by prehistoric and historic peoples, ranging from Paleo-Indian groups, who focused on big game hunting and foraging for lakeside resources as early as 9000 B.C., to historic mining camps and towns that reflect the discovery of gold and silver near Tonopah and Goldfield in the early 1900s. Over the last 11,000 years, the area has been inhabited by a long succession of other groups characterized by a variety of adaptations to their natural environment. These adaptations include the "Western Archaic" pattern, which consisted of broad-spectrum hunting and gathering by small groups who moved frequently following the seasonal and geographical availability of food resources; Puebloan farming groups, who seem to have used the range area for hunting, gathering, and trading activities; and the protohistoric and historic Western Shoshone, who practiced a lifestyle similar to Western Archaic groups (Bergin 1979).

As a result of the long period of human use of the range area, archaeological and historic sites can be found in almost every environmental stratum. However, the spatial distribution and the density of sites are not uniform due to environmental differences in resource availability and abundance. A recent cultural resource sample survey of TTR and NAFR yielded site densities ranging from 16 sites per square mile near springs and wells to a low of 2.6 sites per square mile along lake terraces (Bergin 1979). Although the survey has examined only a small portion of TTR, a wide range of prehistoric and historic sites and isolated artifacts has been recorded. Prehistoric site types include rockshelters, lithic scatters, isolated features, and temporary camps (Crownover 1981; Bergin 1979). A number of the sites are thought to be eligible for listing on the National Register of Historic Places (Bergin 1979). TTR has five major historic mining camps and towns that collectively represent the early twentieth century mining boom in Nye County, Nevada. This common theme and their relative integrity of setting and condition suggest that these sites are eligible for listing as a discontiguous National Register District (Bergin 1979). Areas of particular sensitivity within the TTR include springs, Pleistocene lake terraces surrounding Antelope and Cactus Flat Playas, playa margins, and Breen Creek.

3.1.8.2 Native American Cultural Resources

The protohistoric and historic cultural tradition of the TTR/Nellis AFB area was established by Shoshonean groups who entered the area sometime after A.D. 1000 and

exploited it for over 900 years. Southern portions of the TTR/Nellis AFB area were also used by southern Paiutes. These Native American groups were removed to a number of distant reservations shortly before the end of the nineteenth century. Resources of cultural importance to modern day Shoshoneans include native flora and fauna; sacred areas, including certain environmental features (mountain peaks and ranges, lakes and springs, caves, and unique rock formations); rock art; trails used by prehistoric and historic Native Americans; and places of burial or cremation, including ancestral settlements.

3.1.9 Hazardous Materials and Wastes

The 1984 Hazardous and Solid Waste Amendments (HSWA) to the federal Resource Conservation Recovery Act (RCRA), requires generators to reduce the volume of and toxicity of waste generated. In response, DoD directed each Service to implement waste minimization programs consistent with the requirements under RCRA. DoD established a 50 percent volume reduction goal in hazardous waste generation by 1992 with 1986 as the baseline year. Air Force policies for waste reduction were published in AFR 19-11, Hazardous Waste Management and Minimization, in July 1989. In 1990 TAC established a Command waste minimization program and increased the hazardous waste reduction goal to 65 percent by 1995 based on a revised 1990 baseline.

Current hazardous waste management activities at TTR are performed by contractors in concert with the base civil engineer's office. Base and contractor personnel collect wastes at satellite accumulation points. From the satellite accumulation points, these wastes are taken to the hazardous waste accumulation facility and shipped to permitted off-base disposal facilities within ninety days (WRC 1990).

Actions are underway to clean up fuel (JP-4) contaminated soil at the base fire training pit area. The contamination does not pose an immediate threat to health. Clean-up actions are being coordinated with the Department of Energy and the Nevada Division of Environmental Protection. Final clean-up actions will be approved by all applicable federal and state agencies.

The operation and maintenance of military hardware, including aerospace ground-equipment maintenance, corrosion control, vehicle maintenance, and fire training activities, generates wastes directly related to the level of activity (i.e., amount of equipment supported). These wastes are disposed of on base by recovery or collection and disposal by contractors that are state-and EPA-approved.

3.2 HOLLOMAN AIR FORCE BASE

3.2.1 Land Use

Holloman AFB is located in Otero County, New Mexico, 8 miles west-southwest of the town of Alamogordo. Primary access to the base is from U.S. 70/82. Otero County does not have any formal zoning or land-use regulations. The city of Alamogordo has concurrent jurisdiction with the county for subdivision regulations within 3 miles of the

city's limit. The USAF has an AICUZ study for Holloman AFB that provides guidelines for land-use development around the base (USAF 1976, revised 1988).

Scattered commercial development is located to the east of Holloman AFB along U.S. 70/82 from the city boundary to the base. Land uses in the southwest portion of Alamogordo, which is near the base, include residential, light industry, commercial, and the Alamogordo/White Sands Regional Airport. Land use to the north, west, and south of the base consists mostly of undeveloped open rangeland. The majority of the land is on the WSMR, which is owned by the federal government and closed to the public. Some of the other rangeland is used for cattle grazing. Also to the west of the base is the White Sands National Monument. Activities in the monument include picnicking, a drive through the dunes, limited hiking trails, a visitor center, and seasonal interpretive programs.

Table 3.1-1 displays land ownership for Otero County. Other land uses in Otero County include the resort area around Cloudcroft, the town of Tularosa, the Mescalero Apache Indian Reservation, the Cloudcroft and Guadalupe districts of the Lincoln National Forest, the Oliver Lee State Park, the Fort Bliss Military Reservation, scattered agriculture, and vacant rangeland.

Activity on Melrose Bombing Range affects land in Roosevelt and Curry Counties in New Mexico. Zoning and land-use planning is not actively pursued by either county. Land surrounding the Melrose Bombing Range is classified as agricultural and used primarily for cattle grazing. There are a few inhabited dwellings in the vicinity of the Range. (TAC 1985).

Airspace associated with the evaluated alternatives are listed below. The areas are located in New Mexico, Texas and Arizona. The following discussion summarizes land uses of the areas underlying these airspace units.

R-5103B, C. Located primarily over McGregor Bombing Range, a portion of the Fort Bliss Military Reservation, the land is mainly vacant, high desert land. U.S. Hwy 54 borders the western edge of the reservation. Cattle grazing is permitted on certain lots within the area delineated by the boundaries of this airspace unit. The Culp Canyon Wilderness Study area lies at the northern portion of land underlying this unit.

R-5104A. This range is part of the Melrose Bombing Range, which is located west of Clovis, New Mexico. A large percentage of this range is owned by the Air Force. Access is limited, but cattle grazing and crop growing are permitted on sections of the land underlying this airspace unit.

R-5107A. This airspace unit is located over Dona Ana Range, which is a portion of the Fort Bliss Military Reservation west of U.S. 54.

R-5107B, C, D, E, H, J. Primarily located over WSMR, portions of which are not open to the public, these airspace units also overlie the White Sands National Monument, the Gran Quivira Unit of Salinas Pueblo Missions National Monument, and the San Andres NWR. The high, desert-type land is primarily vacant.

R-2301. Located over the Barry M Goldwater Bombing Range and Cabeza Prieta NWR in southwest Arizona, the area is primarily vacant, high desert land. Organ Pipe Cactus National Monument borders the southeastern edge of the area underlying this airspace unit, and the southern boundary extends to the Mexican border.

Beak MOAs. These MOAs cover a portion of the Lincoln National Forest, the resort areas of Ruidoso, the Mescalero Apache Indian Reservation, the Capitan Mountains Wilderness Area and several small communities that are primarily located in the national forest. Agricultural activities, such as orchards growing and ranching, are located under portions of this area.

Talon MOA. Located over Carlsbad and Artesia, New Mexico, this MOA lies over Bradley Dam State Park, Living Desert State Park, and a portion of the Guadalupe District of the Lincoln National Forest. Carlsbad Caverns National Park is south of the MOA. There are scattered agricultural, residential, and commercial land uses under the MOA, which is primarily vacant, high desert land.

Reserve MOA. This MOA lies over portions of western New Mexico and eastern Arizona. Most of the land under the MOA is part of the Gila and Apache National Forests and includes the Gila Wilderness Area, the Blue Range Wilderness, and numerous recreation areas. The MOA overlies some small communities and ranches, as well as the Plains of San Agustin.

Valentine MOA. This MOA overlies an area of southwestern Texas to the Mexican border. The primary land use under the MOA is ranching.

Pecos MOAs. This group of MOAs located west of R-5104 and R-5105 overlies grazing land between Santa Rosa to the north and Roswell to the south. The entire town of Ft. Sumner lies beneath the Pecos East MOAs. The Pecos East Low MOA has a floor of 1,500 feet AGL over the town. The Bitter Lake National Wildlife Refuge and Salt Creek Wilderness lie just outside the MOAs to the south.

Existing MTRs. Existing MTRs in the vicinity of Holloman AFB include IRs-133, 134, 111, and 144 and VRs-100/125, 176, 196, and 1233. They extend to the west, northeast, east, and southeast of WSMR as far as the Mexican border. Areas overflown west of WSMR are predominately public and state lands interspersed with private ranching. VR-176 passes over the Gran Quivera Unit of the Salinas Pueblo Missions National Monument, the Sevilleta NWR, the west side of the San Mateo Mountains in the Cibola National Forest, and the Gila National Forest. A portion of the MTR also passes over sparsely inhabited private lands west of Truth or Consequences and Hatch. VR-176 and IR-1233 pass over or near the Bosque del Apache NWR, Aldo Leopold Wilderness, the Gila Wilderness, the Gila Primative Area and a number of wilderness study areas. MTRs to the north and east of WSMR pass over rural, primarily private lands on the way to Melrose Bombing Range. VR-100/125 and IR-111 skirt the northern boundary of Lake Sumner State Park, and VR-100/125 touches the northeastern tip of the Bitter Lake NWR, Salt Creek Wilderness and the Capitan Mountains Wilderness. To the southeast, the MTRs pass over primarily public and state lands with some grazing.

Proposed Modified MTRs. Revisions of IR-134 are proposed. The MTR would pass between Roswell and Artesia, head south to the east of Artesia and Carlsbad into Texas, and come back north near the McGregor Bombing Range. A short leg would overlie a wilderness study area between Carlsbad Caverns National Park and Guadalupe Mountains National Park to tie into existing IR-134 which passes over the Brokeoff Mountains Wilderness Study area. The area under the proposed MTR consists of sparsely populated rural lands with public lands predominating along the southern portion of the route. IRs-111 and 133 will be tied together northeast of Holloman AFB. Additional segments from VR-100 to Red Rio and Oscura Bombing Ranges overfly ranch lands in proximity to Carrizozo.

3.2.2 Atmospheric Resources

3.2.2.1 Climatology

Holloman AFB is centered in the Tularosa Basin with mountain ranges to the east and west. The climate is arid with a low annual rainfall and low relative humidity. The mountain ranges to the east and west have a significant influence on the local weather.

The mountains cause vertical lifting of approaching air masses, which often produces rainshowers and thunderstorms. The San Andres Mountains to the west of Holloman tend to block advection of low-level moisture. The Sacramento range east of the AFB tends to block the intrusion of polar air masses that move south over the Great Plains. Occasionally, a strong storm system will push a cold front over the mountains and produce an east-to-west frontal passage. However, most cold fronts approaching this area will normally push south into eastern New Mexico and west Texas, remaining east of the Sacramento Mountains. Low-level moisture from the Gulf of Mexico is also blocked by the Sacramento Range. Holloman receives most of its total annual rainfall from thunderstorm activity during the period from May through October. These thunderstorms are due primarily to a combination of orographic lifting and convection. The storms are variable in location and intensity. Frontal and squall-line thunderstorms occur infrequently. Normally, the most favorable weather conditions for general base operations occur during late October through the end of November. The winter season is generally dry and is characterized by clear skies and erratic snowfall. Typically, the snow melts within 24 to 36 hours after falling. The period from March to May is characterized by a strong westerly wind, which results in blowing dust and sand. These strong winds cause the formation of turbulent mountain eddies in and around the basin areas.

The climate in this area is characterized as arid, and topographic effects from the mountains tend to alter the course of approaching weather systems. The average annual rainfall varies from a few inches in the desert areas to 12 or 13 inches in some local areas influenced by orographic lifting and thunderstorms. Generally, there is insufficient natural moisture to support the growth of any but the most hardy desert vegetation. The period between July and September furnishes almost half of the annual moisture, with most of the rain falling in the form of brief but heavy thundershowers. Prolonged rainy spells are practically unknown in this region. These summer showers tend to moderate the summer

daytime temperatures. Snowfall can average 10 inches or more annually, but snow rarely remains on the ground for more than 24 hours.

Temperatures in this region are characteristic of dry, continental climates. Daytime maximum temperatures average 90°F and will occasionally reach 100°F or higher. Daytime temperatures in the winter average in the 50s(F). Muggy days are unknown in this region. The typical humidity during the warmer portion of the day is around 30%.

Typical of the climate in this region are the large number of clear days and the high percentage of sunshine. Sunshine is recorded during more than three-fourths of the hours from sunrise to sunset. This high percentage of sunshine carries throughout the winter months. Wind movement throughout the year averages from 5 to 10 miles per hour. However, during the late winter and spring months, the average wind speed is somewhat higher, and occasional windy, dusty days result. Dust storms occur several times each year. Tornadoes and extremely damaging storms rarely occur in this region.

3.2.2.2 Air Quality

Table 3.2-1 summarizes federal (NAAQS) and state primary and secondary standards applicable for New Mexico. Historically, the air quality throughout this region has been good. The state air monitoring stations that underlie the MOAs and the ranges generally report that the ambient air is in attainment with NAAQS. Several areas (e.g., Grant County, 110 miles to the west, and Bernalillo County, 140 miles to the northwest of Alamagordo) are in nonattainment status for some parameters with respect to NAAQS. Activity from the evaluated alternatives would not take place in these areas.

Air quality monitoring has been conducted at one station in Alamogordo by the state EPA. Otero County is officially designated a Rural Fugitive Dust Area. This designation means high particulate matter concentrations are considered natural in origin and recognizes the lack of industral sources upon which to impose control measures (Blankenship 1991). The concentration of particulates in the area was evaluated using the highest and second-highest 24-hour averaging times. Table 3.2-2 shows the maximum concentrations for particulates during the period 1985 through 1988. No monitoring data are available for the other criteria pollutants for this region. No air quality monitoring has been conducted specifically in the region of the ranges and the MOAs. However, the state EPA also indicates that ambient concentrations of particulates and sulfur oxides in the vicinity of the Melrose Bombing Range are better than the national standards. Other pollutants including ozone, carbon monoxide and nitrogen oxides cannot be classified or are also better than the national standard (TAC 1985).

3.2.3 Noise

Aircraft noise in the vicinity of Holloman AFB had been addressed in the 1976 AICUZ study (revised in 1988). This study identified primary causes of noise to be flight and ground run-up operations of Holloman-based AT-38B aircraft of the 479th TTW, F-15 aircraft of the 49th TFW and a small number of other transient aircraft. Flight operations on a typical busy day at the base comprise 143 departures (and arrivals) of AT-38Bs,

Table 3.2-1

National and Nevada Ambient Air Quality Standards

Pollutant	Averaging Time	National Standards [a] Primary [b]	Secondary [c]	Nevada Standards
Oxidant (Ozone)	1-hour	0.12 ppm	Same	
Carbon Monoxide	8-hour	9 ppm (10 mg/m^3)	Same	
	1-hour	35 ppm (40 ug/m^3)	Same	
Nitrogen Dioxide	Annual average	100 ug/m^3 (0.05 ppm)	Same	
Sulfur Dioxide	Annual average	80 ug/m^3 (0.03 ppm)	Same	60 ug/m^3 (0.02 ppm)
	24-hours	365 ug/m^3 (0.14 ppm)	Same	260 ug/m^3 (0.10 ppm)
	3-hour	none	1,300 ug/m^3 (0.5 ppm)	
Total Suspended Particulates	24-hour			150d ug/m^3
PM_{10}	Annual	50 ug/m^3	Same	
	24-hour	150 ug/m^3	Same	
Lead	Quarter	1.5 ug/m^3	Same	

Notes:

a. National standards, other than those based on annual averages or annual geometric means, are not to be exceeded more than once per year.

b. National Primary Standards express the level of air quality necessary to protest the public health from any known or anticipated adverse effects of a pollutant, allowing for a margin of safety to protect sensitive members of the population.

c. National Secondary Standards express the level of air quality necessary to protect the public welfare preventing injury to agricultural crops and livestock, deterioration of materials and property, and adverse impacts on the environment.

d. The 24-hour TSP standard for Nevada is 150 ug/m^3, except the Las Vegas metropolitan area, which is 260 ug/m^3.

Table 3.2-2. Maximum Concentrations of Particulates for Alamogordo, New Mexico, 1985 - 1988

Year	High 24-Hour Average ($\mu g/m^3$)	2nd High 24-Hour Average ($\mu g/m^3$)	Annual Geometric Mean ($\mu g/m^3$)
1985	203	144	58
1986	615	233	64
1987	450	227	74
1988	264	215	73

about 73 departures (and arrivals) of F-15s, and about 9 arrivals (and departures) by transient aircraft. Less than 1% of these operations occur during night-time (2200 to 0700 hrs. local time) and are mainly by F-15 aircraft departing Holloman just prior to 0700 hours. Ground run-up facilities for engine maintenance and power checks are used for the based F-15 and AT-38B aircraft. Noise suppressors are used for engine tests.

An analysis of the current noise exposures around Holloman AFB has been performed by the U.S. Air Force Engineering and Services Center (AFESC/DEMP) at Tyndall AFB, Florida. This analysis uses the noise prediction capabilities of the Air Force NOISEMAP computer program and is based on a detailed description of the flight and ground maintenance operations at Holloman. The analysis provides mapped contours of the L_{dn} noise exposures around the base, depicted at L_{dn} values of 65 dB and above at 5dB intervals, and estimates of the total areas (in acres or square miles) within the respective noise contours. Estimates of noise impacted residential populations and the number of people expected to be "highly annoyed" by aircraft noise can be derived by demographic analysis of the areas within the L_{dn} noise contours and by use of established relationships between L_{dn} noise levels and annoyance criteria (CHABA, 1981).

This analysis has been performed for two operational conditions at Holloman AFB. The first analysis pertains to the operational conditions described above, which is representative of 1989/1990 conditions. The second analysis pertains to the near-future baseline case in which the 479th TTW will be reduced and AT-38B aircraft operations will be reduced to 25% of those described above. This latter scenario represents the baseline case for noise analysis and assessment of other potential actions discussed in Section 4.0 of this document.

Table 3.2-3 shows the amount of land areas within the L_{dn} noise exposure contours for each of the above cases. The reduction of the 479th TTW will reduce the contour areas from those currently exposed by 10% above L_{dn} 64dB, 14% above L_{dn} 70dB and about 20% above L_{dn} 75dB.

Figure 3.2-1 shows the L_{dn} noise exposure contours for the baseline case (1988 AICUZ condition after the reduction of the 479th TTW) (USAF 1976). Those contours do not enclose any civilian residential property. Aircraft noise from Holloman flight and maintenance operations will therefore be perceived in the land areas within the L_{dn} 65dB contour by base personnel, the travelling public and civilians working in the impacted areas. Outside of the L_{dn} 65dB contours, aircraft noise exposure will be at a level deemed to be acceptable for residential and other land uses (HUD, FAA, DoD).

Noise from military aircraft operations also occurs in other land areas within the region of Holloman AFB. These noise exposures are mainly associated with flight operations on MTRs, MOAs, and practice bombing ranges. Supersonic flight activity and consequent sonic boom occurrences are restricted to approved airspace above 10,000 feet MSL in the Lava/Mesa sectors over (approximately) the northern two thirds of the White Sands Missile Range and Valentine and Reserve MOAs.

Table 3.2-3. Land Areas Within L_{dn} Noise Exposure Contours at Holloman AFB

L_{dn} Contour	Land Area Within Contour (Sq.Miles) Current	Baseline	% Change
65	42.4	38.5	-9.2%
70	19.6	16.6	-15.3%
75	9.0	7.1	-21.1%
80	4.6	3.7	-19.6%

* After reduction in force of 479th TTW

1. Land areas are cumulative,

2. Land areas computed using NOISEMAP 6.0 Noise Exposure Model, and based on AICUZ analysis with modifications for baseline case (1988 revisions).

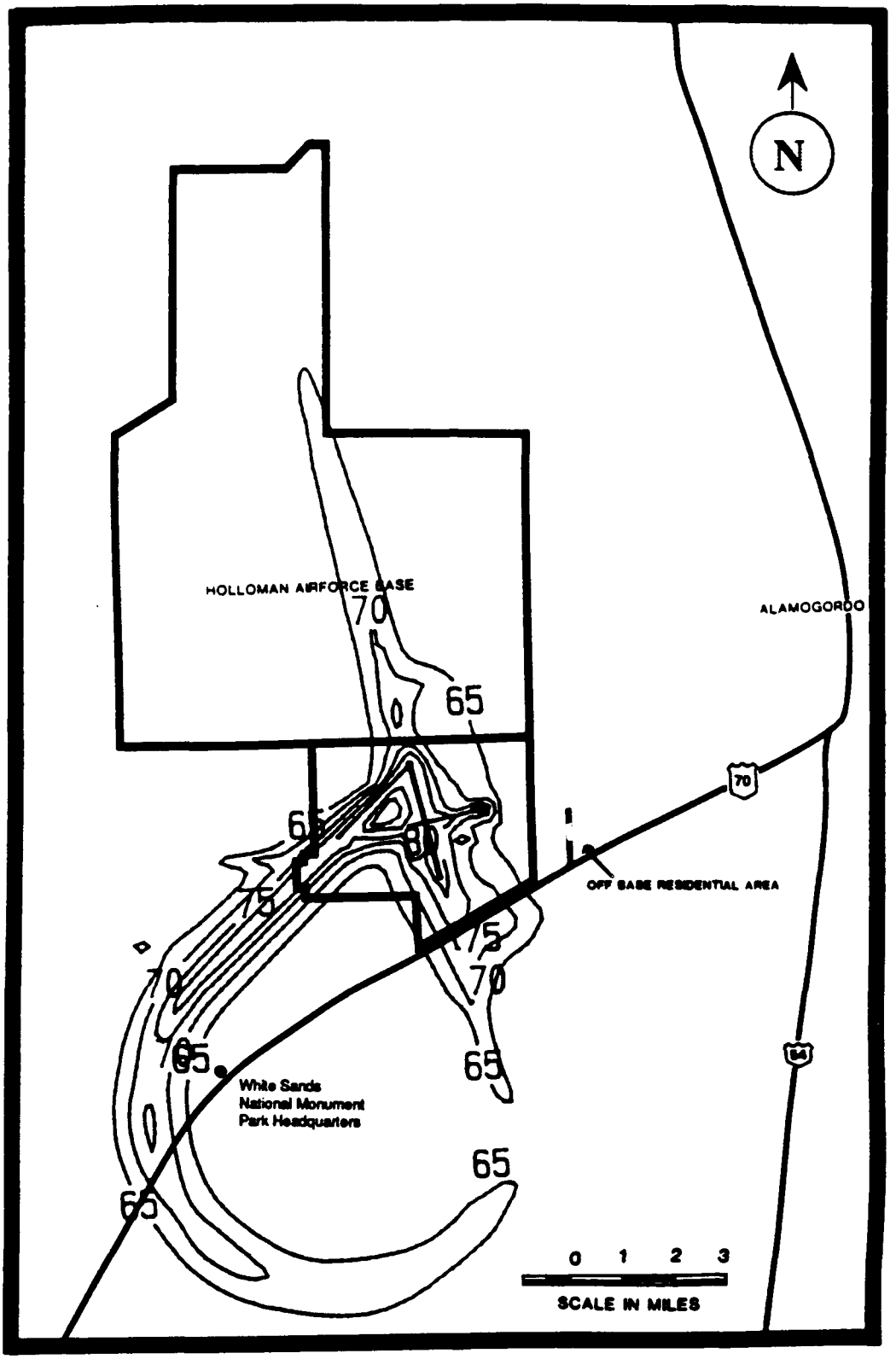

Figure 3.2-1 Baseline Noise Environment at Holloman AFB

Since the alternative actions would have various and differing effects on the noise exposures under the military airspaces, an estimate is made of the current noise climate for each potentially affected area as follows:

Beak MOAs. The Beak MOA comprises Beak A, B, and C airspace with a floor altitude of 12,500 feet MSL for flight activity. This corresponds to between 2,500 feet and 6,000 feet above the varying terrain elevations. Overflights of populated areas under the MOA are typically at altitudes above 5,000 feet AGL. Noise exposures under the Beak A, B, and C airspaces have been calculated based on a typical usage of the airspace by F-15, AT-38B, F-4, and F-16 aircraft on an average busy day. The noise exposure model evaluates the L_{dn} value that would be caused throughout the overflown land area if all flight operations occurred at 5,000 feet AGL and the flight time in each airspace is 15 minutes per sortie.

The estimated noise exposure for existing (current) and baseline (after the 479th TTW reduction) conditions are shown in Table 3.2-4 for each amount of flight activity. The L_{dn} values are shown to be less than 50 dB below the MOA. The reduction of the 479th TTW results in negligible change to L_{dn} values due to the dominance of F-15 noise levels in the overall exposure. The maximum single event noise level of 96 dB(A) is caused by an F-15 at 5,000 feet AGL. AT-38B noise levels are substantially lower than those of the F-15.

The land area under the Beak MOAs is about 2,670 square miles which includes a major portion of Lincoln county and the Mescalero Indian Reservation. The population under the MOA totals about 12,000 of whom 7,270 reside in the communities of Ruidoso, Ruidoso Downs, and Capitan, and 2,649 reside in the Indian Reservation. Less than 2% of the noise-exposed population would be expected to be "highly annoyed" by aircraft operations in the Beak MOAs.

Talon MOA. The Talon MOA airspace is used by AT-38B and F-15 aircraft above a floor altitude of 12,500 feet MSL. The estimated noise exposure level, L_{dn}, under this MOA is shown in Table 3.2-4 to be less than 50 dB with a maximum single event noise level of 96 dB(A) occurring during an F-15 overflight at 5,000 feet AGL.

The land area under the Talon MOA is approximately 1,930 square miles, most of which is in Eddy County, New Mexico. Two main population centers lie within the eastern boundary of this land area; the town of Artesia with a population of about 11,000 and the town of Carlsbad with a population of about 26,000. The total county population is of the order of 50,000. For L_{dn} noise exposure of 50 dB, about 2% of the population would be expected to be "highly annoyed" by the military aircraft noise.

Oscura Bombing Range. Flight activity on the Oscura Bombing Range is predominantly by AT-38B aircraft from the 479th TTW at Holloman AFB (90%), most of the remainder being A-7 aircraft from the 150th Tactical Fighter Group (TFG) at Kirtland AFB and F-111 aircraft from Cannon AFB. These aircraft perform bombing passes over a target area using two non-concentric, overlapping racetrack patterns which cover a

Table 3.2-4 Flight Activity and L_{dn} Noise Exposure Levels for the Beak A, B, C, and Talon MOA's

	Beak A	Beak B	Beak C	Talon
Existing Conditions				
Sorties/year				
AT-38	3,124	7,600	7,133	6,496
F-15	208	227	276	880
F4/F16	55	31	24	0
L_{dn}, dB	46	48	47	49
Baseline				
Sorties/year				
AT-38	1,175	1,177	1,177	3,535
F-15	208	227	276	880
F4/F16	55	31	24	0
L_{dn}, dB	46	47	47	49
Maximum Single-Event Sound Exposure Levels, dB	96	96	96	96

total (enclosed) land area 10.5 miles wide and 7.5 miles long (north-south). This area is inaccessible to the public. Worst-case noise conditions occur under segments of each racetrack pattern (less than 10 statute miles) where the aircraft accelerates at 500 feet AGL before performing a climb toward and over the target area. Noise levels under these segments exceed 102 dB(A) in maximum A-weighted sound level for each overflight of an AT-38B and 118 dB(A) for an A-7, which corresponds to an average active day L_{dn} value of the order of 83 dB based on a total of 250 passes on the daily designated pattern. The reduction of the 479th TTW will reduce the AT-38B operations and consequently reduce the L_{dn} value to 81 dB.

Red Rio Bombing Range. The Red Rio Bombing Range is also used by the 479th TTW and 150th TFG and has less than 50% of the activity of the Oscura Bombing Range. Flight activity comprises bombing runs on two non-concentric racetrack patterns which have a common straight segment of about 3 miles toward and over the target area. The land area enclosed by the patterns is about 12.5 miles wide and 7.5 miles long (north-south). Noise levels from a typical overflight at the lowest flight altitude segment of the patterns are identical to those estimated for the Oscura Bombing Range while the worst case L_{dn} would be 81 dB. The scheduled reduction of the 479th TTW will reduce the baseline L_{dn} to 79 dB although single event noise levels will remain as at present but will occur less frequently.

The Red Rio Bombing Range area is inaccessible to the public and does not contain any residential structures. A major highway, US 380, traverses WSMR just north of one of the racetrack patterns and within 1,500 feet of where aircraft operate at 500 feet AGL. Noise levels at the highway during a pass are estimated to be of the order of 87 dB(A) maximum A-weighted sound level for an AT-38B and 104 dB(A) for an A-7.

McGregor Bombing Range. The McGregor Bombing Range is in remote countryside and is typically used by the 479th TTW AT-38B aircraft on one racetrack pattern about 7 miles wide and 7 mile long (north-south). Flight procedures are similar to those at Oscura and Red Rio Bombing Ranges but the frequency of usage is typically on the order of 200 passes per average busy day. Worst-case single event noise levels under the lowest altitude segments of the pattern are identical to those at Oscura Bombing Range and the highest L_{dn} under the McGregor pattern is estimated to be about 77 dB at present, and 64 dB after the scheduled reduction of the 479th TTW. Route 506 passes within 1,500 feet of the southernmost segment of the flight pattern.

Melrose Bombing Range. The noise environment in the vicinity of Melrose Bombing Range has been addressed in a recent environmental assessment for realignment of Cannon AFB (USAF TAC, 1989). The EIS addressed proposed increases in usage of Melrose Bombing Range by TAC and Strategic Air Command (SAC) aircraft, including the FB-111 aircraft to be relocated to Cannon AFB. Part of the FB-111 relocation occurred in 1990 and an increase in Melrose Bombing Range sorties has been reported for the period October 1989 to September 1990 (Cannon AFB/27th TFW/DOO 1991). The reported flight activity for this period was a total of 5,930 sorties flown during 252 active range days. This is an increase of 6.8% relative to 5,554 sorties per year reported for

Melrose Bombing Range in the October 1988 through September 1989 period. This would increase L_{dn} noise exposures in the vicinity of the Range by less than 0.3 dB, since noise exposures were and are predominantly caused by F-111 aircraft based at Cannon AFB.

The land area within the L_{dn} 65 dB noise contours under the Melrose Bombing Range flight paths was previously estimated to be 60 square miles, with a resident population of 74 persons (USAF TAC, 1989). This estimate is representative of current conditions at the range. Single event noise levels under the range flight paths are highest in the immediate vicinity of the Bombing Range which is not populated. Under the remainder of the racetrack flight patterns, single event noise levels vary from about 100 dB(A) to 118 dB(A) depending on the aircraft type and altitude above ground level (400 feet to 1,000 feet typical).

Low-Level MTRs. Nine low-level MTRs in the ROI of Holloman AFB may incur changes in use and, therefore, changes to noise exposures under their flight paths due to the alternative actions. Existing noise exposure conditions and those after the scheduled reduction of 479th TTW have been estimated using the Air Force ROUTEMAP computer program. This method evaluates an L_{dnmr} noise exposure metric which is similar to L_{dn} but includes a penalty of up to 5 dB to account for the sudden onset rate of low-level flight noise and also uses the busiest month flight operations to assess the average day noise exposure.

Table 3.2-5 summarizes the flight operations on each of these routes for a busiest-month case, which is based on a 50% increase in sorties relative to an average month, and also shows the highest values of L_{dnmr} that occur directly under the route centerline. These L_{dnmr} values vary over a route due to variations in route width and consequent dispersion of actual flight tracks across the route width. Special Operating Procedures are designed to avoid overflight of noise sensitive areas and other significant sites such as the Gran Quivira Monument.

The L_{dnmr} values shown change by less than 1 dB due to the reduction of the 479th TTW because the F-15 aircraft have much higher noise levels than AT-38B aircraft, and there will be a continuation of AT-38B operations at a lower sortie rate in the baseline case. The highest L_{dnmr} values occurring under these MTRs are in localized areas where two or more routes cover the same ground track (i.e., VR-100/VR-125) or where routes intersect (i.e., VR-100/VR-125/IR-133). Under VR-100/VR-125, the highest L_{dnmr} level occurs under the narrowest width segment of the route (Segments B-F) where the combined L_{dnmr} level is 60.5 dB. The highest L_{dnmr} at an intersection of routes occurs near the town of Willard, New Mexico, where the L_{dnmr} is 58 dB at the intersection of VR-100/VR-125, and IR-133.

WSMR Supersonic Airspace. The Lava/Mesa airspace and Yonder (within R-5107B/C) are the primary air-to-air training airspace within WSMR. Most of the airspace within these three areas is cleared for supersonic operations. This area is shown in

Table 3.2-5 L_{dnmr} Noise Exposures Under Low-Level MTRs Near Holloman AFB (Current and Baseline Conditions)

MTR	Aircraft	Worst Month Sorties	L_{dnmr}, dB under Route	
			Current	Baseline
VR-100	F-111, F-4 and others	38	51 - 59	51 - 59
VR-125	F-111, F-4 and others	15	46 - 55	46 - 55
VR-176	A-7, AT-38 and others	181	54 - 58	54 - 58
VR-196	RF-4C	47	50	50
VR-1233	F-16. AV-8 A-7, A-10 A-4 and others	49	51	51
IR-111	F-111, and others	63	59	59
IR-133	F-15, AT-38	73	54	54
IR-134	F-15, AT-38	76	50	50
IR-144	RF-4C and others	52	49 - 51	49 - 51

See Figure 2.2-1 showing affected MTRs

Figure 3.2-2. A recent survey of sonic boom occurrences on the land areas below Lava/Mesa (Plotkin, et al., 1989) and documented activity records for the airspace show that during a 6-month period, 4,600 ACM sorties were flown, 72% of which were by F-15 aircraft. Measurements at 35 sonic boom monitor stations, distributed over 2,600 square miles of land below the airspace, indicated that a total of 591 sonic booms occurred during the 6-month period. Near the middle of the area, the average sonic boom had a peak overpressure of slightly less than 1 psf, 99% of all sonic booms were less than 4 psf, and none exceeded 7 psf. The C-weighted L_{dn} (L_{cdn}) at the center of the area was 52.4 dB (L_{cdn}) and the more typical value for the entire area was an L_{cdn} of between 45 dB and 50 dB for an average day.

Valentine and Reserve Supersonic Airspace. Supersonic operations are allowed exclusively in Valentine and Reserve MOAs for the 49th TFW and units engaged in training with the 49th TFW. During a recent nine month period, the 49th TFW conducted 487 events in Valentine and 137 events in Reserve (Long 1990). As described above in WSMR Supersonic Airspace, not all events result in sonic booms. Sonic boom overpressure in Valentine and Reserve MOAs are the same as discussed for F-15 operations in WSMR. Current C-weighted day-night noise levels are approximately 47 and 50 dB respectively (TAC 1989a and 1989b).

3.2.4 Airspace Management

3.2.4.1 Existing Holloman AFB Terminal Airspace Structure

3.2.4.1.1 Controlled Airspace

With respect to the exercise of ATC within the Holloman terminal airspace structure, aircraft landing at or taking off from Holloman AFB are controlled by the base air traffic control tower (ATCT) facility. An approach control area has been established in order to provide ATC approach and departure services to Instrument Flight Rules (IFR) and Visual Flight Rules (VFR) aircraft transiting between those airports located within the approach control area and the enroute airspace system.

Controlled airspace relevant to the Holloman airspace environment includes a control zone, a transition area, and a continental control area. A control zone is airspace that is typically circular, with a radius of 5 statute miles around a primary airport, plus any extensions that are needed to include instrument arrival and departure paths. Holloman AFB is the primary airport around which a control zone has been established (Figure 3.2-2). The Holloman AFB control zone contains no other military or civil airports.

A transition area is controlled airspace around a primary airport designated to contain arriving and departing IFR operations within a terminal area, or while transiting between the terminal area and the en route airspace system. Transition areas established for an airport terminal area can contain one or several airport facilities with instrument approach procedures. Holloman AFB is located within a transition area that also contains the Alamogordo-White Sands Regional Airport (Figure 3.2-2). Holloman AFB has four

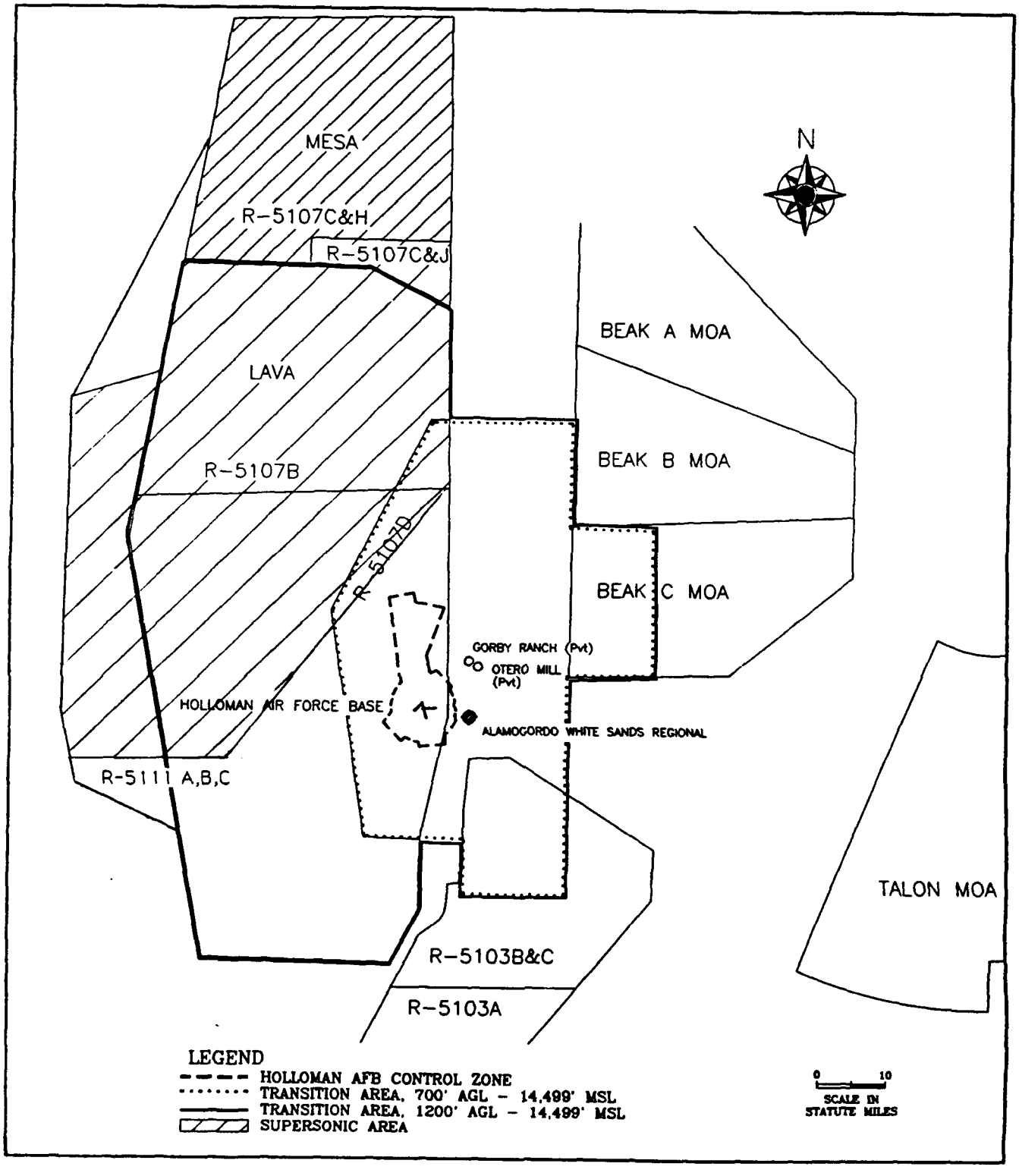

Figure 3.2-2 Controlled Airspace and Special Use Airspace Holloman AFB

published low-altitude instrument approach procedures and ten published high-altitude instrument approach procedures. The Alamogordo-White Sands Regional Airport has two published low-altitude instrument approach procedures.

The Holloman approach control area consists of airspace delegated to the USAF-operated radar approach control (RAPCON) facility located at Holloman AFB by the FAA air route traffic control center (ARTCC) in Albuquerque, New Mexico. Figure 3.2-3 depicts the lateral boundaries of the Holloman approach control area. The vertical limits of this approach control area are between the surface and 22,000 feet (flight level [FL] 220). In addition to Holloman AFB, five civil airports are located within the Holloman approach control area. Of the five civil airports, two are public-use airports (Alamogordo-White Sands Regional Airport and Carrizozo Municipal Airport) and three are private-use airports (Gorby-Ranch, Otero Mill, and Timberon). Holloman approach control provides both IFR and VFR services to Holloman AFB and the Alamogordo-White Sands Regional Airport. None of the other civil airports have instrument approach procedures; however, Holloman approach control can provide radar vectoring and traffic advisory services to VFR aircraft inbound to or departing Gorby-Ranch and Otero Mill. The RAPCON can only provide very limited services to the Timberon and Carrizozo airports due to limited coverage of the Holloman radar.

The Holloman approach control area is somewhat unique in that the western portion of this airspace is coincident with WSMR restricted airspace (R-5107D), which is controlled by the U.S. Army. This airspace area is shown in Figure 3.2-3. The uniqueness lies in the fact that the approach control area contained in the WSMR airspace, including the airspace that overlies Holloman AFB, can be closed by WSMR to accommodate the research and development (R&D) test users of the range. With respect to the airspace overlying Holloman AFB, there is a stipulation that the WSMR mission control must give RAPCON 72 hours notice prior to its closure. These constraints do not affect the Alamogordo-White Sands Regional Airport because it lies in the portion of the Holloman approach control area that is outside of WSMR airspace.

The continental control area includes airspace, at and above 14,500 feet MSL, that is outside of restricted or prohibited areas in the 48 contiguous states. With respect to airspace in the Holloman ROI, the continental control area overlaps that portion of Holloman's approach control airspace outside of the restricted areas between 14,500 feet MSL and FL220.

3.2.4.1.2 Uncontrolled Airspace

Uncontrolled airspace in the Holloman ROI basically includes all of the airspace outside of the lateral boundaries of the terminal transition area between the surface and 14,500 feet MSL, which is the floor of the continental control area. From an ATC standpoint, this uncontrolled airspace will include areas within the various restricted areas and the Beak MOAs.

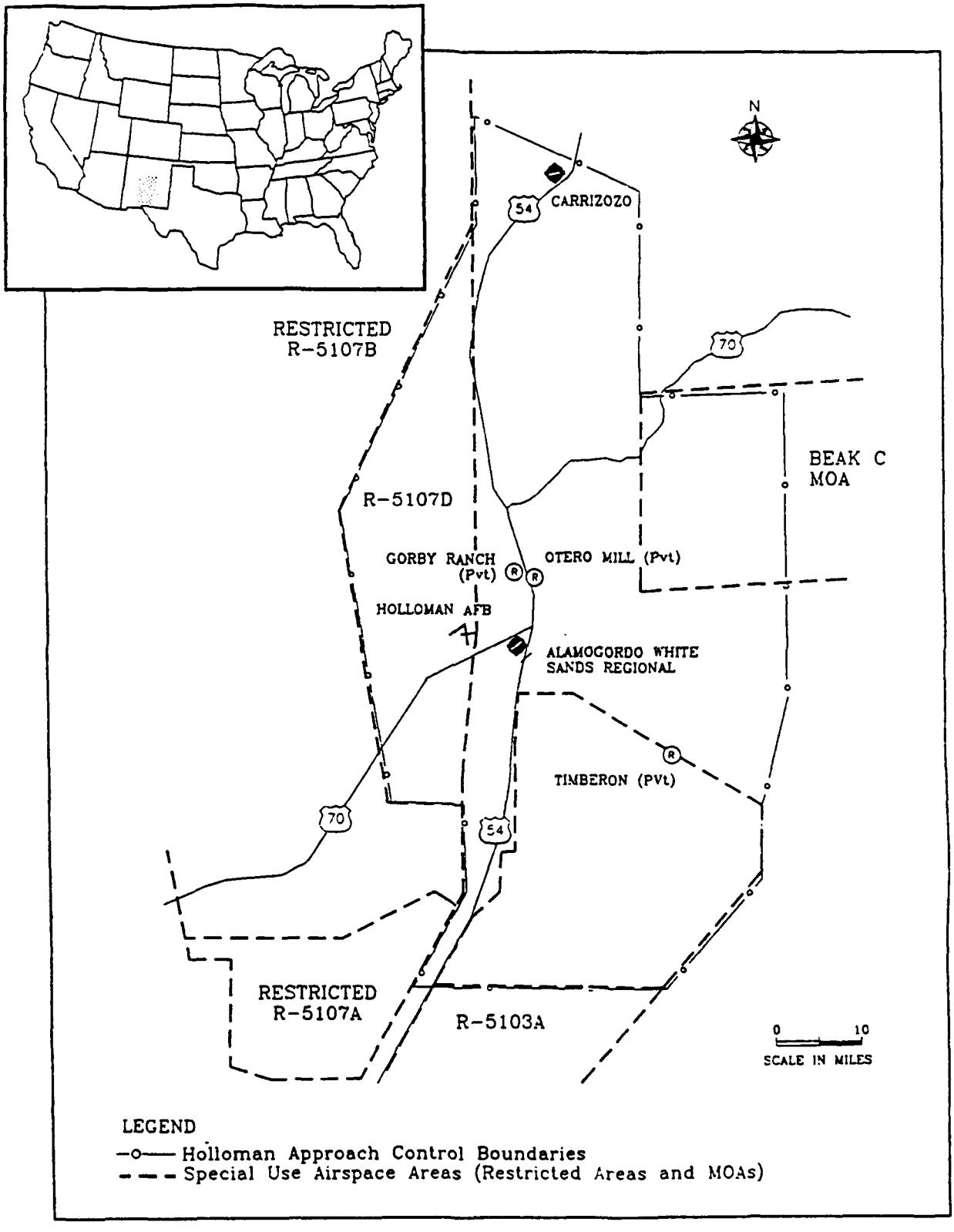

Figure 3.2-3 Approach Control Area, Holloman AFB

3.2.4.1.3 Airspace for Special Use

MTRs applicable to the proposed alternatives for Holloman AFB consist of both IRs and VRs. MTR hours of operation can vary from specific time periods to continuous. Military flight operations in these MTRs normally occur at speeds greater than 250 knots and generally at altitudes below 10,000 feet MSL. Both the altitudes and the width of an MTR vary to accommodate training needs.

There are nine different MTRs that will require consideration relative to the proposed alternatives at Holloman AFB. Table 3.2-6 delineates each of these MTRs. This table also shows the range of altitudes associated with each MTR and the total number of sorties conducted on each route for the period between October 1989 and September 1990.

Other airspace associated with the Holloman terminal area consists of the Holloman AFB airport traffic area (ATA). ATAs are established at airports with an operating control tower and, unless otherwise specified, consist of airspace within a radius of 5 statute miles of the airport center. An ATA includes altitudes from the surface up to, but not including, 3,000 feet AGL. An aircraft cannot operate within the ATA unless the aircraft is landing or taking off from Holloman AFB, or the pilot has been authorized by Holloman ATC to transit the ATA.

3.2.4.2 Existing Holloman AFB/WSMR Special Use Airspace Structure

Two types of special use airspace, restricted areas and MOAs, are applicable to Holloman AFB activities. In addition, ATC assigned airspace areas (ATCAAs) have been established in conjunction with the existing special use airspace areas.

3.2.4.2.1 Restricted Areas

There are a total of 17 designated restricted areas in the Holloman AFB/WSMR area. Of these 17 restricted areas, 12 are controlled by and for the primary use of WSMR. The remaining five restricted areas are designated for use by U.S. Army activities out of Ft. Bliss in El Paso, Texas. Holloman AFB-based aircraft and transient military aircraft conduct flight operations in 12 of those 17 restricted areas. WSMR has operational control of 9 of the 12 areas (R-5107 B, C, D, E, H, and J, and R-5111 A, B, and C) while the other 3 (R-5103 B and C, and R-5107A) are under the operational control of Ft. Bliss. Table 3.2-7 delineates these restricted areas and the operating altitudes associated with each area. As shown in Figure 3.2-2, Holloman AFB is located within the boundaries of R-5107D.

Table 3.2-8 shows the number of sorties conducted in those restricted areas most heavily used by Holloman aircraft and for which specific sortie data were available.

Because of the nature of WSMR activities, a national priority system and a White Sands priority system prescribe the usage of the restricted areas controlled by WSMR. Thus, interaction of Holloman AFB and WSMR activities has over the years resulted in continued competition for and cooperation over the use of the restricted airspace controlled by WSMR (McGrath 1990,b). The priority system in effect gives the lowest

Table 3.2-6. Military Training Routes, Operating Altitudes and Aircraft Sorties

MTR	Operating Altitudes	Sorties (Oct. 1989-Sept. 1990)
VR-100	Surface -12,500'MSL	305
VR-125	Surface -12,500'MSL	118
VR-176	100' AGL - 5000'AGL	1,448
VR-196	100' AGL - 9800'MSL	375
VR-1223	300' AGL -1500'AGL	392
IR-111	100' AGL -16,000' MSL	502
IR-133	100' AGL -14,000' MSL	582
IR-134	100' AGL -14,000' MSL	604
IR-144	100' AGL -17,000' MSL	418

Table 3.2-7. Restricted Areas Used by Holloman Air Force Base

Restricted Area	Base Altitude (ft)	Ceiling Altitude (ft)
R-5103B	Surface	12,500 MSL
R-5103C	12,500 MSL	Unlimited
R-5107A	Surface	Unlimited
R-5107B	Surface	Unlimited
R-5107C	9,000 MSL	Unlimited
R-5107D	Surface	22,000 MSL
R-5107E	Surface	Unlimited
R-5107H	Surface	9,000 MSL
R-5107J	Surface	9,000 MSL
R-5111A	13,000 MSL	Unlimited
R-5111B	Surface	13,000 MSL
R-5111C	Surface	Ulimited

Table 3.2-8. Restricted Area Sorties
October 1, 1989, to June 30, 1990

Aircraft Type	Number of Sorties			
	R-5107B	R-5107C	R-5107H	R-5107J
F-15	4,296	3,684	6,640	0
Other	4,166	312	458	906
Total	8,462	3,996	7,098	906

Source: Long 1990

airspace-use priority to all programs, including TAC training, that do not involve R&D and operational testing at WSMR. The lowest priority is currently given to the 479th TTW and 49th TFW tactical training programs.

Three air-to-ground weapons ranges used by the 479th TTW and by transient tactical aircraft underlie portions of six restricted airspace areas. The 49th TFW, because of its air-to-air combat mission, does not use surface-weapon ranges. The Oscura Bombing Range is located within the northeastern boundaries of R-5107B and R-5107D. The Red Rio Bombing Range underlies the northeastern corner of R-5107B. R-5107J is always used in conjunction with the Red Rio Bombing Range, when active, to provide additional airspace for the range flight patterns. The McGregor Bombing Range underlies R-5103B and C airspace. Table 3.2-9 delineates the number of sorties conducted on each of these weapons ranges in calendar year (CY) 89. Melrose Bombing Range, 155 miles northeast of Holloman AFB, used primarily by transient aircraft and aircraft based at Cannon AFB, is also in the ROI of Holloman AFB.

3.2.4.2.2 Military Operations Areas

The five MOAs owned by Holloman AFB and used for military flight training activity are the Beak A, B, and C MOAs, Valentine, and Talon MOAs. As shown in Figure 2.1-2, the Beak MOAs are located to the northeast of Holloman AFB, and the Talon MOA is located to the east and southeast of the base. The vertical limits of all four MOAs are between floor altitudes of 12,500 feet MSL and ceilings up to, but not including, 18,000 feet MSL. Table 3.2-10 delineates the number of sorties flown in these MOAs during the period from October 1, 1989, to June 30, 1990 (HQ TAC DOSE 1990). Extrapolated over a one year period MOA sorties would total approximately 26,053. Other MOAs used include the Pecos, Morenci, Reserve and Tombstone MOAs.

3.2.4.2.3 Air Traffic Control Assigned Airspace

There are seven ATCAAs (Beak A, B, C, Talon, Reserve, Valentine and Cowboy) associated with military flight activities at Holloman AFB. The Beak A, B, C and Talon ATCAA lateral boundaries are coincident with the MOA boundaries, with vertical limits that extend from FL180 to FL290. The Valentine and Reserve ATCAA lateral boundaries are coincident with the corresponding MOA boundaries, with vertical limits that extend from FL180 to FL510. The Cowboy ATCAA, with vertical limits from FL310 to FL450, is generally configured to encompass an area defined by the lateral limits of the high-altitude restricted area R-5109 and the Beak A, B, and C MOAs. The ATCAAs are controlled by the Albuquerque ARTCC.

3.2.4.3 Existing Military and Civil Aircraft Operations

Holloman AFB is currently home to the 479th TTW, which flies AT-38B aircraft, and the 49th TFW, which flies F-15 type aircraft. Other based aircraft include Air Defense Command F-16 aircraft, QF-106s, which are flown in support of WSMR activities, and QF-100 aircraft, which are used as target drones. The F-16 aircraft which perform air defense alert at Holloman AFB do not add significantly to the total military aircraft activity at Holloman AFB. A U.S. Army air operations unit also bases UH-1 helicopters at

Table 3.2-9. Calendar Year 1989 Weapons Range Events in the Vicinity of Holloman AFB

Bombing Range	Number of Events		
	479th TTW	Aircraft	Transient Totals
Oscura	4,217	66[a]	4,283
Red Rio	1,796	184[b]	1,980
McGregor[c]	2,565	0	2,565
Totals	8,578	250	8,828

Source: Ford Aerospace Services, Inc. 1989.

[a] Includes 14 nighttime events.
[b] Includes 41 nighttime events.
[c] McGregor has been in operation since September 1989. Available data indicate 497 events during the period between September 1 and December 31, plus an additional 996 between January 1, 1990, and March 31, 1990.

Table 3.2-10. Military Operations Area [1] Aircraft Events October 1, 1989, to June 30, 1990

Aircraft Type	Number of Events				
	Beak A	Beak B	Beak C	Talon	Valentine
F-15	156	170	207	660	487
Other	2,384	5,723	5,368	4,872	-
Total	2,540	5,893	5,575	5,532	487

Source: Long 1990

1. MOAs owned and operated by Holloman AFB.

Holloman AFB. Additionally, the base serves a variety of transient military tactical and transport aircraft that operate during periodic exercises or other training missions.

In CY 89, Holloman AFB had a total of 233,088 aircraft operations (an aircraft operation is defined as one takeoff or one landing). Table 3.2-10 lists the annual operations by both military and civil aircraft at the base.

In CY 89, Holloman Approach Control handled a total of 76,406 military and civil aircraft within its airspace. Table 3.2-11 delineates these annual operations. These approach control operations included IFR arrivals and departures at Holloman AFB and the Alamogordo-White Sands Regional Airport, and overflights of or VFR advisory services for any aircraft transiting the airspace.

Because the Alamogordo-White Sands Regional Airport and all of the other public and private civil airports in the area are uncontrolled airports, there are no recorded traffic data for any of these facilities. However, the manager of the Alamogordo-White Sands Regional Airport was able to provide estimated aircraft operations for CY 89 (Weilacher 1990). These estimated aircraft operations are shown in Table 3.2-11.

According to the airport manager, very little student-pilot training occurs at this airport. Estimated touch-and-go operations (multiple takeoffs and landings by a single aircraft) comprise less than 1% of the total airport operations, further indicating a lack of flight training activities by inexperienced pilots.

3.2.5 Socioeconomics

The socioeconomic ROI for the proposed realignment is Otero County, New Mexico. The city of Alamogordo is the largest community in the vicinity of Holloman AFB. Other towns in the vicinity of the Base include High Rolls Mountain Park, 10 miles to the east; La Luz, 7 miles to the northeast; Tularosa, 12 miles to the north; and Cloudcroft, 13 miles to the east. As shown in Table 3.2-12, 92% of Holloman AFB military personnel living off base currently reside in Alamogordo. The remaining personnel living off base reside in other local communities (i.e., Tularosa, La Luz, High Rolls, or Cloudcroft) or commute from Las Cruces, El Paso, or other communities outside the ROI.

The reduction of the 479th TTW from Holloman AFB by the first quarter of CY 92 will modify socioeconomic conditions in Otero County. The net impacts of these actions are noted in summary here and discussed in detail in (TAC 1990g).

3.2.5.1 Population

The current population of Otero County is estimated at 53,000 people, an increase of 1.7% per year over the 1980 population of 44,665 (Alamogordo Chamber of Commerce 1990). Alamogordo's population was 24,024 in 1980 and is estimated to have grown to roughly 31,597 in 1990, an annual increase of about 2.7%. Some of the population growth in Alamogordo results from the retirement of military personnel; there are about 1,900 such residents in the vicinity of Alamogordo (ERIS 1989).

Table 3.2-11. Calendar Year 89 Aircraft Operations for Holloman AFB and Alamogordo - White Sands Regional Airport

Aircraft Category	Holloman AFB		Alamagordo White Sands Aircraft Ops (%) Estimated*
	Aircraft Operations (%)	Approach Control (%)	
Military	230,899 (99.1)	68,285 (89.4)	200 (0.5)
Civil			
Air Carrier/ Air Taxi			3,500 (9.0)
General Aviation	2,189 (0.9)	8,121 (10.6)	35,500 (90.5)
Total Operations	233,088 (100)	76,406 (100)	39,200 (100)

* Weilacher 1990.

Table 3.2-12 Holloman Air Force Base Personnel by Area of Residence (as of March 1990)

	On Base	Alamogordo Area	Elsewhere in Otero County	Outside Otero County	Total
Military	2,184	2,266	73	122	4,645

Source: Warner 1990.

A small number of base-personnel live in communities other than Alamogordo, including Tularosa (population 2,710), La Luz (population 1,194), High Rolls (population 650), and Cloudcroft (population 670). The total population related to Holloman AFB was approximately 20,192 persons in 1989, including 5,824 military personnel and dependents living on base, and 11,776 persons living in local communities; an estimated 3,132 appropriated funds civilians and dependents were also included.

The number of households in the Alamogordo area grew from an estimated 11,507 in 1980 to approximately 15,843 in 1989, an increase of 38%. With no realignment of personnel at Holloman AFB, the number of households is expected to continue to increase by a moderate 3% per year over the next 5 years, reaching nearly 19,000 households by 1995 (BLS, 1990). Reduction of the 479th TTW at Holloman AFB will reduce county population by approximately 1,528 or 3%. The new Otero County baseline population is approximately 51,500 persons.

3.2.5.2 Employment and Income

The economy of Otero County is largely dependent on government employment. The total number of jobs in the county in 1987 was 26,064 (BEA 1989). Nearly 50% of these jobs were in federal, state, and local government. The remaining employment is distributed among construction, manufacturing, trade, and services sectors as shown in Table 3.2-13. Employment in basic industries not directly related to government funding is relatively low and has experienced little or no growth in the last decade.

Overall unemployment in Otero County averaged 6.2% in November 1989, lower than in previous years, but slightly higher than the state average of 5.9% for the same period (New Mexico Department of Labor 1990). Per capita income in Otero County was $10,813 in 1987, somewhat less than the New Mexico State average, which was $12,488 in 1988 (New Mexico Department of Labor 1990). Total earnings in Otero County were $414 million in 1987.

Civilian employment in the Alamogordo area is concentrated in retail trade and service activities related to the base (Bureau of the Census 1986). The primary public employers in the Alamogordo area are Holloman AFB, with 5,476 military and 3,406 civilian employees in 1988, and the Alamogordo public school district, with 809 employees (Alamogordo Chamber of Commerce 1989). The largest private employers include the Gerald Champion Memorial Hospital, with 240 employees, and DynCorp, with 1,060 employees (Alamogordo Chamber of Commerce 1989). The 479th TTW reduction would reduce on-base military and civilian employment by 263 and 592, respectively. An additional 189 secondary or indirect jobs would be lost in the county due to the multiplier effect. Those secondary jobs would be primarily in the wholesale and retail trade and services industries. Total county employment would be reduced by 1,044, or approximately 4%, with 23,672 remaining jobs. The departure of working spouses and dependents would leave open an estimated 264 positions.

Table 3.2-13 Employment by Industry, Otero County (1987)

Sector	Employment	Percent of Total
Manufacturing	1,250	4.7
Construction	1,280	4.9
Transportation, Communications, and Utilities	600	2.3
Trade, wholesale and retail	3,628	13.9
Finance, Insurance, and Real Estate	1,090	4.2
Services	4,928	18.9
Federal government, civilian	2,837	10.9
Federal government, military	7,662	29.5
State and local government	2,204	8.4
Farm workers	474	1.8
Agricultural services, forestry, fishing, and others	104	0.4
Mining	7	0.02
Total	26,064	

Source: BEA 1989.

Total earnings in Otero county were $414.2 million in 1987. The reduction of the 479th TTW would reduce total (military and civilian) earnings by $24.4 million, leaving net earnings of $390.2 million.

3.2.5.3 Housing

3.2.5.3.1 Off-Base Housing

Based upon the residential distribution of existing base personnel, realignment-generated demand for housing would be concentrated in the community of Alamogordo and the surrounding unincorporated areas. Consequently, the discussion of existing conditions for housing focuses on this localized housing market area (HMA).

Housing includes all apartments, houses, and mobile homes available within the HMA, whether they are owner occupied, rented, or vacant. Based on the 1980 census and a 1990 pre-census survey conducted for the city of Alamogordo, a total of 13,778 off-base housing units are estimated to exist in the HMA in 1990. Of this total inventory, 4,827 (35%) are rentals, 8,507 are owner-occupied, and 444 are available for purchase.

Current and estimated housing inventories, taking the reduction of the 479th TTW into consideration, are presented in Table 3.2-14. The 479th TTW reduction from Holloman AFB will increase the owner-occupied vacancy rate in the HMA from 4.9% to 8.9% and the renter occupied vacancy rate from 9.1% to 14%.

Of the total inventory of rental units in the HMA, the housing management office (HMO) at Holloman AFB lists 3,271 units as adequate rentals for military personnel. These rental units include 1,224 apartments, 739 single-family houses, and 1,308 mobile home units. The majority of the 1,224 apartments in HMO listings are two-bedroom units in the $400 to $499 range (including monthly utilities). Of the 739 single-family houses listed, most are moderately priced three-bedroom units. There are 51 mobile home parks in the vicinity of Holloman AFB, providing a total of 2,501 spaces for owner-occupied or rented mobile homes (Van Warner 1990). Of this total, the HMO listed approximately 1,308 mobile homes as rentals. Most rental mobile homes are two-bedroom units in the $300 to $399 range (including utilities).

Of the 444 homes (houses and mobile homes) currently for sale in the HMA, the majority are three-bedroom units priced between $30,000 and $80,000. The average selling time for a house is 6 months, and the average selling price in 1989 was $65,000 (Simmons 1990). The peak selling season for the area is summer and fall.

3.2.5.3.2 On-Base Housing

There are currently 1,551 military family housing (MFH) units at Holloman AFB. Of these, 191 units are designated for officers and 1,360 are designated for enlisted personnel in grades E-4 through E-9. There are no MFH units on base designated for airmen below E-4. Airmen in grades E-3 and below may apply for on-base MFH but will only be allocated housing when a surplus exists. On average, 5% of the total MFH is

Table 3.2-14 Housing Inventory in the Holloman AFB Housing Market Area

	Current Conditions	Impacts of 479th TTW Withdrawal	Net Conditions
Off-Base Housing			
Owner-occupied units	8,951		8,951
Vacant units	444	353	797
Vacancy rate	4.9%		8.9%
Renter-occupied units	4,827		4,827
Vacant units	440	239	679
Vacancy rate	9.1%		14.0%
On-Base Housing			
Dormitories	1,182	56	1,126
Military family housing	1,551	2	1,549

Sources: Van Warner 1990; TAC 1990.

unavailable at any given time due to maintenance and repairs. Of the remainder, TAC requires an occupancy rate of 99% (HMO 1990).

The current inventory of unaccompanied personnel housing (UPH) includes 16 dormitories with a total of 1,943 bed spaces. Of this total, 1,182 bed spaces were available to single enlisted personnel as of January 1990. The remainder are used as hospitality or storage rooms, or are undergoing renovation. Two dormitories, providing a total of 184 spaces, are temporarily closed for renovation. No additional dormitories are scheduled for construction in the next 5 years. UPH is not made available for single officers.

3.2.5.4 Community Facilities and Services

3.2.5.4.1 Education

The principle public school district in the vicinity of Holloman AFB is referred to as District 1. This district encompasses the base as well as the communities of Alamogordo, Tularosa, and La Luz. Enrollment figures for the district are provided in Table 3.2-15. The district reported a total enrollment of 8,541 students for 1988/89 in public, private, and parochial schools (Alamogordo Chamber of Commerce 1989). This represents a 3% increase compared to the 1987/88 enrollment of 8,281 students, and a 13% increase over the 7,526 students enrolled a decade ago. No schools in the district are overcrowded; enrollment is approximately 85% of capacity district-wide (Hays 1990). Fluctuation in enrollment within the school district is largely due to personnel realignments associated with Holloman AFB.

Holloman AFB currently has one primary school (grades K to 3), one intermediate school (grades 4 to 5), and one middle school (grades 6 to 8). There is no high school on the base. As a result of continuing decreases in student enrollment on the base, the intermediate school is scheduled to be closed next year. Fourth grade will be held in the primary school, and fifth grade will move to the middle school on base. Plans for the intermediate school building include using it for child care. The district will reserve the future right to reopen the intermediate school if on-base enrollment increases substantially in the future (Hays 1990).

The 479th TTW reduction will reduce district enrollment by approximately 351 school children, 5% of total enrollment. Of this figure, about 102 are military-related school children and 249 are children of civilians.

The school district receives approximately 97% of its funding from the state of New Mexico. Up to 95% of the general property tax is turned over to the state, which, in turn, redistributes the money state-wide. Funding is based on the number of children enrolled in the school district and their average daily attendance (ADA) at the public schools. This funding covers general operating costs. The remaining 3% comes from federal, forestry, and other taxes. Building construction and maintenance are paid by local taxes, which require voter approval for each specific project.

Table 3.2-15. Enrollment in School District 1 Holloman AFB

	Number of Schools	Grades	Number Enrolled
Elementary	13	K-6	4,846
Junior high	2	7-8	1,059
Mid-high	1	9-10	1,018
High school	1	11-12	1,013
Private and parochial	3	K-12	405
Trade school	3	N/A	200
Subtotal			8,541
New Mexico State University	1	N/A	1,799

Source: Alamogordo Chamber of Commerce 1990.

3.2.5.4.2 Police and Fire Protection

Police and fire services in the city of Alamogordo are combined within the Department of Public Safety (DPS). There are 78 staff positions and 2 are currently unfilled. DPS personnel respond to calls for both police and fire service and are also trained as emergency medical technicians. The department is currently at capacity for service and is planning to add four positions in the near future to accommodate the growth that has occurred within the city (Hotallin 1990). The DPS serves the city and assists the sheriff's department in other towns and unincorporated parts of Otero County. The sheriff's department employs 15 deputies.

The county jail is located in Alamogordo and is under the jurisdiction of the sheriff's department. The current facility can accommodate 55 adults and 10 juveniles. The facility is at capacity, and there are plans to expand.

The Alamogordo DPS is able to respond to calls inside the city within 5 minutes, and the response to calls in other areas varies according to the distance traveled. The department has five class A pumpers, one vehicle at the airport, four ambulances, and one brush and rescue truck to service the needs of the community. When required, Holloman AFB provides emergency support to the county. This support is provided by a foam truck, which deals primarily with aircraft and chemical fires. As needed, the Alamogordo fire department will also assist in containment of structural fires on base. The department has been given a fire insurance rating of 6, the third highest in the state.

The funding for the Alamogordo DPS is provided primarily by the city tax base and is supplemented by state funds. The sheriff's department is financed by the Otero County general fund.

3.2.5.4.3 Health Services

Otero County is served by Gerald Champion Memorial Hospital located in Alamogordo. The hospital is licensed for 98 beds but is currently staffed for and is maintaining 70. The hospital is the sole public health-care provider to the county. The nearest public alternative is in Las Cruces, 68 miles to the southwest, or in El Paso, Texas, 86 miles to the south. In addition, a small general hospital offering limited services is located in Ruidoso, 35 miles to the northeast (Randall 1990).

A 20-bed hospital is located on Holloman AFB to provide health care to active duty and retired military personnel and their dependents. From September 1988 to September 1989, the base hospital admitted 1,548 patients and received 241,920 outpatient visits (ERIS 1989). In addition, 15,805 emergency visits were recorded for the same period.

3.2.5.4.4 Utilities

Water Supply. The city of Alamogordo and surrounding areas receive water from four separate sources:

1. The Alamo Canyon System. Water originates from several springs in the mountains a few miles southeast of the city and is fed down through a series of pipelines. The springwater passes through a rapid sand filter and is chlorinated before entering the city's water supply system. The Alamo Canyon System supplied 491 million gallons in calendar year 1989, which was a typical year for the system (Miramontes 1990). The city is currently working to improve the condition of the pipelines so that less water is lost during transport.

2. The La Luz-Fresnal System. Like the Alamo Canyon System, water originates from springs in the mountains northeast of Alamogordo. Springwater travels down through a series of pipelines, passes through the La Luz rapid sand filter plant, is chlorinated, then enters the city's water supply system. The La Luz section of the system supplied 1,136 million gallons of water in 1989, while the Fresnal section supplied 729 million gallons that same year.

3. The Bonito Lake System. Bonito Lake is located north of the town of Ruidoso, approximately 60 miles north of Alamogordo. Water from the lake is fed into an 80-mile pipeline that supplies both Alamogordo and Holloman AFB. While Alamogordo owns the lake and land surrounding the lake, Holloman AFB built and owns the majority (70 miles) of the pipeline. The city and the base currently have a joint agreement to share water from the Bonito Lake system. The city of Alamogordo owns half of the water rights associated with the Bonito Lake System, and Holloman AFB owns the other half. By agreement, the city gets its half during the summer (approximately May through October), and Holloman AFB gets its share in the winter. In 1989 the Bonito Lake System supplied 408 million gallons, with half going to the city and half to Holloman AFB. The system typically supplies 2.68 mgd.

   In the past, neither the city nor the base has received its full entitlement of water from the lake, due primarily to water loss from seepage along the pipeline. In 1989, an estimated 40% of the water drawn from the lake was lost from the pipeline, particularly along the upper 10 miles extending to Bonito Lake (Miramontes 1990). Together, Alamogordo and Holloman AFB are in the process of replacing and repairing the existing pipeline and are sharing the costs for these repairs.

4. Well System. In the summer, Alamogordo has been unable to meet water supply demand using the above three systems. The city then taps six wells with a combined output of 5 mgd. These wells have poor water quality and are the most expensive to operate (Miramontes 1990). However, they are necessary to meet peak water demand in the summer months.

Total water production from these four systems and metered water consumption for 1989 are provided in Table 3.2-16. Total water production in 1989 was 3,252.8 million gallons, while total consumption was 1,855.4 million gallons, with large seasonal fluctuations in both supply and demand. Peak demand in June and July is 12 mgd when the city uses most of its available water supply to irrigate parks. The city is currently just

Table 3.2-16. City of Alamogordo Water Production and Metered Water Consumption for 1989 (in millions of gallons)

Month	Water Production					Total Water Production	Total Water Consumption
	Alamo Canyon	Fresnal Canyon	La Luz Canyon	Bonito Lake	Wells		
January	31.1	7.8	96.8	31.8	–	167.5	93.0
February	29.8	0.06	98.6	29.7	15.9	174.1	92.8
March	44.8	75.3	116.8	33.5	48.6	319.0	91.4
April	51.5	97.6	30.3	39.5	86.7	305.6	144.6
May	48.3	87.9	121.3	36.1	94.4	388.0	205.8
June	42.6	52.9	89.2	35.5	117.9	338.1	241.4
July	37.2	80.6	116.9	31.3	108.2	374.2	259.7
August	37.2	95.7	104.3	34.0	16.8	288.0	201.2
September	40.0	43.7	87.4	25.4	–	196.5	165.9
October	40.0	89.7	87.9	36.7	–	254.3	129.9
November	43.0	57.0	95.0	38.6	–	233.6	124.5
December	45.6	40.9	91.8	35.6	–	213.9	105.2
Total	491.1	729.2	1,136.3	407.7	488.5	3,252.8	1,855.4

Source: City of Alamogordo, Department of Public Works, 1990.

able to meet peak demand using all four of its existing water supply systems. Failure in any one of the four systems results in water supply problems. In summer 1989, failure in the Bonito Lake System and one well led to temporary water rationing (Miramontes 1990). In an effort to alleviate water supply problems, the City of Alamogordo adopted a $2.5-million bond resolution in August, 1990. The majority of this money is earmarked for the design and construction of an infrastructure (e.g., underground pipe system) to irrigate the city's parks with treated wastewater, thus freeing up the city's limited potable water supply for residential and other uses (Miramontes 1990). In response to these requirements, the city has initiated a series of improvements that resulted in more than adequate potable water supplies by mid CY 90.

Two 44-million gallon raw (untreated) storage ponds in La Luz provide blending of water from the four systems before it enters the filter system. In general, the Lake Bonito System provides the best quality water while the well system has the poorest water quality (800 to 1,200 ppm, total dissolved solids) of the four systems (Miramontes 1990). The resulting water quality meets all Federal standards. An additional 100 million gallon raw untreated potable water storage pond is expected to be completed in early 1992 (King 1990g).

An estimated two-thirds of the town, predominantly in older areas, has poor plumbing due to buildup of minerals and corrosion of the pipes (Miramontes 1990). The city is trying to get funding through bonds, taxes, or water rate increases in order to repair plumbing throughout the city. A 0.25% gross receipts tax currently generates approximately $500,000 to $600,000 per year that is earmarked for improving the city's water collection system; however, this money is not intended to be spent on improving or replacing the city's plumbing (water supply) network.

Table 3.2-17 shows the total water consumption at Holloman AFB in 1989. Sixteen wells located in several well fields southeast of Holloman AFB (east of Highway 54) supply water to the base during the summer months when Bonito Lake water is delivered to Alamogordo. The well field is located off base because the groundwater beneath the base, and in many adjacent areas, is brine. These 16 wells have pumping capacities ranging from 1,700 down to 103 gallons per minute (gpm) and a combined capacity of 11 mgd. The base typically uses 4 mgd (Wright 1990). Water is pumped from various wells into two storage tanks, one located at Boles well field and one at San Andres well field. These tanks hold a total of 900,000 gallons. With the 479th TTW reduction, water consumption on base will be reduced by approximately 4%.

Total on-base potable water storage is 3,950,000 gallons, in addition to the 900,000-gallon capacity at the well field (Wright 1990). Potable water storage on base consists of six ground-level, elevated, or underground reservoirs. Nonpotable water used for fire suppression is stored in five additional on-base tanks with a total capacity of 1,485,000 gallons. If necessary, water can also be drawn from any of three on-base swimming pools.

During the winter months when Bonito Lake water is delivered to Holloman AFB, the 20-inch pipeline extending from the lake (along Highway 54) valves off to the base's well

Table 3.2-17. Holloman Air Force Base Water Consumption for 1989 (in millions of gallons)

Month	Bonito Lake	Well Field	Total Consumption
January	6.2	49.0	55.2
February	20.7	23.4	44.1
March	43.9	15.5	59.4
April	63.8	11.2	75.0
May	--	87.6	87.6
June	--	98.3	98.3
July	--	92.1	92.1
August	--	91.3	91.3
September	--	81.8	81.8
October	61.0	5.6	66.6
November	53.6	3.4	57.0
December	46.2	4.1	50.3
Total	295.4	563.3	858.7

Source: Wright 1990; Wilson 1990.

field. Holloman AFB has no storage for water from the Bonito Lake system. There are two water supply lines from the well field to the base; each has dual capacity. The base may use either water line, but not both simultaneously. A continuous loop in the water supply system ensures that water is available to the base at all times. The base reports no problems with the on-base plumbing network (Wilson 1990).

Wastewater. Alamogordo and the surrounding area is served by one secondary wastewater treatment plant. The plant has a capacity of 6 mgd, which is far above peak demand. However, since the City recently adopted a $2.5-million bond (refer to the Water Supply section), much of this effluent will be used to irrigate parks. The City anticipates that half of its wastewater, approximately 2 mgd, will be used for watering, mainly in the summer months (Miramontes 1990). The remainder will be available for alternative uses; initially supplied to city-owned land through agricultural-type sprinkler systems. The Holloman AFB sewage treatment plant treats an average of 1.5 mgd. Effluent from the plant is collected in seven sewage lagoons, ranging in size from 1 to 21 acres. Two of the lagoons (A and B) are primary, with induced aeration and evaporation, and one lagoon is recirculating. Sewage lagoons drain into Lake Holloman southwest of the main area (Wright 1990). The base is currently evaluating treatment alternatives and possible closure of the sewage treatment lagoons. Resolution of regulatory issues is pending (Moore 1990).

Solid Waste. The city of Alamogordo maintains a private contract with Waste Management to collect and dispose of solid waste. A joint city/county landfill is located 15 miles south of the city. This landfill serves all of Otero County excluding Holloman AFB. The city/county landfill is nearing capacity and will probably be closed and a new one opened within a few years. Although the city does not foresee problems in opening a new landfill, it is expected to be expensive. The new landfill will probably have to be lined with plastic rather than clay to meet newer solid waste disposal criteria. Holloman AFB uses one sanitary landfill, located north and east of the main area of the base. The landfill, which is currently far below capacity, is base owned and contractor operated. The contractor provides the base with regular trash removal service. In addition, Holloman AFB operates an asbestos landfill to the north of the solid waste landfill.

Power. Electricity is supplied to the entire area by the Texas/New Mexico Power Company. Alamogordo receives its natural gas from the Gas Company of New Mexico, but El Paso Natural Gas supplies the base. Main electrical and gas lines run along Highway 54. Current power use for the communities and base is well below the capacity of the lines.

For the base, both gas and electrical lines are looped in a continuous system to provide power to the main area, west area, and north area. The base taps the main gas pipe (near Highway 54), which has a mainline pressure of 45 pounds per square inch. There is one main substation for the base. Although Holloman AFB receives sufficient gas from the line, it currently has problems in distributing gas to the west area of the base. Holloman AFB has proposed to HQ TAC that gas shortages in this area could be alleviated by installing another high pressure line (about a 6-inch pipe) from the main gas

pipe onto the base (King 1990g; Wilson 1990). In addition, any increase in gas use on the base may necessitate installing a new compressor station.

A 115 KVA power line from El Paso is tapped near the base's main gate to meet base electrical needs. Average use on the base is 13 to 14 megawatts per day (Jolley 1990). The base electrical system includes two substations (transformers) in the main and north areas, either of which can feed any part of the base; two switching stations in the west and north areas; and several feeding stations. The electrical distribution system is sufficient to meet current demand.

3.2.5.5 Public Finance

Public finance is related to the revenues and expenditures of county and city governments and special districts in the ROI. Budgets in these jurisdictions are established to allocate a broad spectrum of services to residents, including public health and safety services, public works programs, administrative and legal operations, and education and recreation programs. Revenues for these services are drawn from an equally broad number of sources, including property taxes, sales taxes, local taxes and fees, and various subventions from state and federal sources.

3.2.5.6 Transportation

This section describes the area road, rail, and air transportation systems. Figure 3.2-4 shows the major components of the area road network. The nearest interstate routes are I-10 and I-25 about 65 miles to the southwest of Alamogordo. The principal access routes to the city are U.S. Highways 70, 82, and 54. U.S. Highway 54 serves traffic from and to El Paso, Texas, to the south. It merges with U.S. Highway 70 just south of Alamogordo. U.S. Highway 70 provides access to I-10 and I-25 near Las Cruces, New Mexico, to the southwest. I-70 and U.S. Highway 54 continue north through Alamogordo. The in-city portion of these routes are together known as White Sands Boulevard. U.S. Highway 82, serving Artesia, New Mexico, approximately 90 miles to the east, branches off from U.S. Highway 54/70 just north of Alamogordo. U.S. Highway 70 splits off from U.S. Highway 54/70 further to the north at Tularosa, to provide access to eastern New Mexico. U.S. highway 54 continues to the northeast to connect with I-40. Because these highways connect Alamogordo with the rest of the state of New Mexico, they are important components of the Alamogordo roadway network. The volumes on these roadways are relatively light near the city and decrease rapidly with distance from the city. Traffic on U.S. Highway 70 is generally less than 5,000 vehicles per day both east and west of Alamogordo. Traffic on U.S. Highway 82 is under 3,000 vehicles per day. North of Alamogordo, traffic on U.S. Highway 54 is less than 2,000 vehicles per day; but south of the city, traffic volumes are higher at around 7,000 vehicles per day.

The heaviest traffic in the city of Alamogordo occurs along the portion of U.S. Highway 54/70 known as "White Sands Boulevard". This corridor is lined with hotels, restaurants, and businesses and passes through the Alamogordo business district. Other roads in the area are locals and collectors that provide access to various residential,

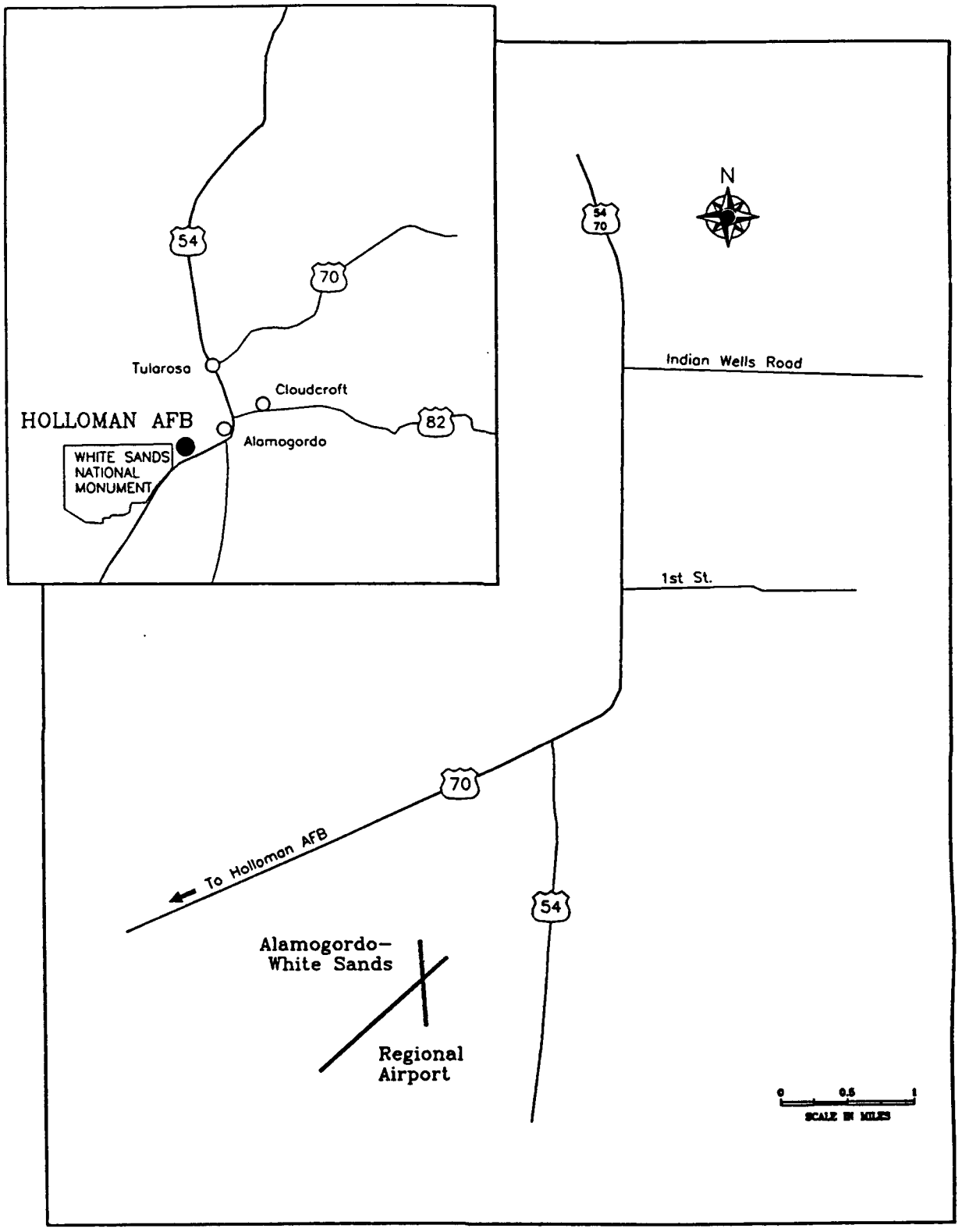

Figure 3.2-4 Transportation Network for Area Near Holloman AFB and Alamogordo, NM

industrial, and business areas in the city. Indian Wells Road, 10th Street, and 1st Street are the major collector streets, providing access to the rest of the city.

The roads at Holloman form a network essentially independent from the city of Alamogordo. Holloman AFB is accessed through its main gate on 1st Street from U.S. Highway 70, at a point southeast of Alamogordo, and prior to the juncture with U. S. Highway 54/70. Direct route to the base flight line is provided by 1st Street. Collectors to all areas of the base intersect with 1st Street. Residential areas on the base are on the southeastern half, and most offices and facilities are on the northwestern half nearest the flight line. New Mexico Avenue intersects with 1st Street roughly a mile into the base, providing access to the New Area flight line. The latest traffic counts were taken in 1979, so current data are not available for traffic volume. However, the network easily handles the vehicular movements throughout the day. Some congestion occurs along 1st Street during the peak commuting hours, but once personnel arrive at their work location, volumes are low. The most significant problem occurs at the main entrance gate during the morning peak hour, which is roughly 6:30 to 7:30 a.m. The base is usually under medium security, requiring only a vehicle pass to gain entrance. Some backlog occurs as vehicles wait to be cleared; a storage lane is provided on White Sands to hold the queue of cars. Occasionally, high security measures are invoked, requiring a vehicle pass and identification for base entrance. This slows the checking process at the gate, and the resulting queue gets considerably longer. For this reason, extending the storage lane (perhaps up to one mile) would be a good safety measure.

A Southern Pacific Railroad main line runs north-south through Alamogordo. No freight or passenger terminal facilities currently exist, however tow sidings for handling freight are in place. One is used twice weekly to pickup wood chips from White Sands Forest Products. The old depot has recently been torn down.

The only commercially served airport in the ROI is the Alamogordo/White Sands Regional Airport. This airport, located on the south end of town, has a 7,000 feet asphalt runway situated in a NE/SW direction. Commercial services are provided by Mesa Airlines, which provide connecting flights to Albuquerque; however, the airport is predominantly used by private aircraft owners.

3.2.6 Biological Resources

3.2.6.1 Vegetation

The land around Holloman AFB and the lands underlying the Ranges R-5103A, B, and C; Ranges R-5107B and C; and parts of Beak and Talon MOAs are primarily desert. The characteristic vegetation of the region is a variety of shrubs, most of which are thorny. These shrubs frequently grow in open stands but may form low, closed thickets. Short grasses grow in association with the shrubs in many places. On deep soils, mesquite is often the dominant plant. A few cottonwoods and other trees grow beside the widely separated rivers. Creosote bush covers great areas in its characteristic open stand and is especially common cn alluvial fans. On rocky slopes, ocotillo is conspicuous; and on slopes leading down to the Rio Grande, the ceniza shrub dominates. Juniper and pinyon

are limited to rocky outcrops. Some isolated mountains in the region rise high enough to carry a belt of oak and juniper woodland. On a few of the highest mountains, pines grow among the oaks, but locally they may form in nearly pure stands (Bailey 1980).

Parts of Beak and Talon MOAs and Range R-5107C have a variety of vegetation zones. A grassland zone found at the lowest elevations is covered by arid grasses which seldom completely cover the ground. Xeric shrubs often grow in open stands among the grasses. Sagebrush is dominant over extensive areas. A profusion of annuals and perennials blooms during the summer rainy season. In some areas, several kinds of cacti and yucca are common. Cottonwoods and, more rarely, other trees grow along some of the permanent streams. A woodland zone is dominated by open stands of pinyon and several species of juniper. In this zone, the understory is sparsely covered by grama grass and other grasses, herbs, and various shrubs. A montane zone extends over considerable areas of the high plateaus and mountains. Vegetation in the montane zone varies considerably throughout the region. Douglas fir and ponderosa pine may share dominance or form relatively pure stands, depending on elevation and soil moisture conditions (Bailey, 1980).

The land around Barry M Goldwater Bombing Range, under R-2301, is characterized by extensive plains and isolated low mountains. Vegetation is mostly creosote bush and chamiso. The desert mountains are exceptionally barren, and many are almost devoid of vegetation. The Joshua tree and juniper are found at higher elevations.

The land around Melrose Bombing Range, R-5104, is considered to be semiarid and is susceptible to wind erosion. Vegetation is mostly shortgrass prairie, including blue grama grassland and mixed grama grassland vegetation types. Woodland composed of large shrubs and small trees is confined to riparian areas. Substantial farming areas exist to the east and north of the range (TAC, 1985).

3.2.6.2 Fauna

The region affected by alternatives at Holloman AFB comprises three major habitats supporting different groups of animal species: desert basins and eastern plains, foothills and mountains, and wetland and riparian zones. The desert areas of New Mexico and Texas are part of the Chihuahuan Desert. The Gila Bend area of Arizona is a part of the Sonoran Desert.

The land areas of Holloman, Talon MOA, Barry M Goldwater Bombing Range, R-5107B & C, R-5103A, and MTR's over low elevation areas of southern New Mexico and southwest Texas consist primarily of desert basins. R-5104A (Melrose Bombing Range) and MTR's east of the Beak MOAs are in the eastern plains zone. The greatest diversity of mammal species occurs in the shrublands and grasslands of the desert basins and plains. These areas support 25 common species of rodents, most of which are nocturnal and seed-eating. Many species of kangaroo rats, pocket mice, grasshopper mice and woodrats are typical of basin and plains areas. Larger herbivores include the black-tailed prairie dog, black-tailed jackrabbit, mule deer and pronghorn. A large population of introduced African oryx is present in the vicinity of Holloman AFB (Dept. of Army, 1988).

Coyote, badger, bobcat and kit fox are common predatory mammals that depend primarily on the extensive rodent population as prey. The reptile fauna is also diverse, with 30 common species of lizards and snakes. Reptiles typical of the basin areas include several species of whiptail lizards, horned lizards, and rattlesnakes. The most common year-round resident birds are the black-throated sparrow, mourning dove, scaled quail, Gambel's quail, and roadrunner. The northern harrier, red-tailed hawk, Swainson's hawk and burrowing owl are common raptors in basin and plains areas throughout the region.

Foothills and mountains occupy most of the Beak MOAs and comprise 25-50% of the areas in R-5107B, R-5103B, and Talon MOA. Large portions of MTR's VR-1233, VR-176 and VR-134 also pass over mountainous areas. The common large herbivores in these regions are mule deer and elk. A few scattered populations of desert bighorn sheep occur in the southern mountains, while Rocky Mountain bighorn sheep are found in the mountains of the Gila National Forest. Common predatory mammals include the mountain lion, bobcat, coyote, and black bear. In forested mountains, the most abundant small mammals are the red squirrel and several species of chipmunks. Mountains and foothills with sparse woodlands are occupied by the rock squirrel, antelope ground squirrel and several species of mice and woodrats. Common birds of the mountain areas include four species of jays and a number of smaller bird species, including the plain titmouse, mountain chickadee, ruby-crowned kinglet, dark-eyed junco and pigmy nuthatch. Exposed rocky cliffs and canyon walls serve as nesting sites for raptors that seek prey in the basins, including the golden eagle, prairie falcon and peregrine falcon. Several owl species are residents of mountain forests, including the great-horned owl, spotted owl and flammulated owl. Arid foothills and mountains with sparse woodlands support a variety of reptiles, including the collared lizard, crevice spiny lizard, fence lizard, and two species of rattlesnakes. Mountains and foothills are crucial habitat for bats that roost in caves and rock cliffs. The bats disperse into surrounding basins for nightly feeding. Fifteen species of bats are known from the basins and mountains in the immediate vicinity of Holloman.

The major riparian and wetland habitats in the region are associated with the Pecos River drainage in the Talon MOA and associated MTR's, and the Rio Grande and Gila River drainages, under segments of MTR's VR-1233 and VR-176. Small riparian zones are scattered throughout the region in association with isolated springs that appear in both desert basin and mountain/foothill areas. The larger rivers are occupied by the muskrat and beaver, and the raccoon occurs in the associated riparian areas. Wetlands and reservoirs on the rivers are important winter habitat for a large number of species of ducks, geese and wading birds. Bald eagles occur as winter residents and rarely as breeding pairs in the summer.

3.2.6.3 Threatened and Endangered Species

Federally listed species and species proposed to be federally listed known to occur in the project area in New Mexico and Texas include the following: 11 endangered species, Pecos gambusia (Gambusia nobilis), Gila topminnow (Poeciliopsis occidentalis), Gila trout (Salmo gilae), Comanche Springs pupfish (Cyprinodon elegans), interior least tern (Sterna antillarum anthalassos), bald eagle (Haliaeetus leucocephalus), American

peregrine falcon (Falcon peregrinus anatum), Whooping crane (Grus americana), Sneed's pincushion cactus (Coryphantha sneedii var. sneedii), Kuenzler hedgehog cactus (Echinocereus kuenzleri), Lloyd's hedgehog cactus (Echinocereus lloydii), and Todsen's pennyroyal (Hedeoma todsenii); six threatened species, Pecos bluntnose shiner (Notropis simus), Chihuahua chub (Gila nigrescens), gypsum wild buckwheat (Eriogonum gypsophylum), McKittrick pennyroyal (Hedeoma appiculatus), Sacramento Mountains thistle (Cirsium vinaceum), and Sacramento prickly poppy (Argemone pleiacantha spp. pinnatisecta); and three species proposed for listing, Pecos pupfish (Cyprinodon pecosensis), Pecos assiminea (Assiminea assiminea), and Roswell spring snail (Fontelicella roswellensis) (Peterson 1990a, 1990b). The Melrose Bombing Range is within the historic range of the endangered black-footed ferret (Mustela nigripes) (TAC 1985). An additional 29 species of animals and 26 species of plants that are category 2 candidates for federal listing are known to occur in the project area (USFWS 1989, 1990). A pair of golden eagles, although not endangered, live on the Melrose Bombing Range, and are protected by the Bald Eagle Act (TAC 1985). In addition 52 of the plants and 34 of the animals listed by New Mexico as state endangered species are known to occur in the project area (Tables A-4 and A-5, Appendix A). Special listings for Texas include 4 state endangered animals, 6 state threatened animals, 2 endangered plants and 2 threatened plants that are known to occur in the project area (Tables A-6 and A-7, Appendix A).

Several threatened or endangered species are known to be present in the area underlying these MTRs. Breeding paris of peregrine falcons are found in association with mountain cliffs and canyon walls throughout the area, (Skaggs et al, 1986) including the area underlying these three MTRs. Bald eagles occur in the project area as wintering and migrant birds along the middle Pecos river valley (Busch 1986) underlying MTRs IR-133 and IR-134. Mexican spotted owl populations occur primarily in mature mixed conifers in the Lincoln National Forest and the Gila National Forest (Ganey et al. 1986), which underlie portions of MTR VR-134. The Apache northern goshawk and the ferruginous hawk also occur in the Lincoln and Gila National Forests. The Pecos River valley and more eastern areas in the vicinity of Clovis, Roswell and Hobbs are primary nesting areas for the Mississippi kite (Glinski 1986), which includes portions of MTR IR-134 (new), VR-100/VR-125, and the Melrose Bombing Range. Introduced populations of big horn sheep are present in the Sierra Diablo Mountains in western Texas (Hailey 1974) in an area well to the south of the proposed expansion of VR-134.

3.2.7 Water Resources

3.2.7.1 Surface Water

Holloman AFB is located in an arid region with an average annual precipitation of about 8 inches, approximately 60% of this occurring as summer thunderstorms from July to October. Winters are relatively dry, with the occurrence of erratic snowfall from year to year. The gross annual lake evaporation rate in the vicinity of Holloman AFB is 75 inches per year (WHA Inc. 1989). Gross lake evaporation rate is used to estimate evapotranspiration rate and represents the upper limit of water loss from the hydrologic cycle by atmospheric conditions. There is a large potential deficit in precipitation (average

annual precipitation minus gross annual lake evaporation) of 67 inches for the Holloman AFB area.

Holloman AFB lies within and on the edge of the almost flat Tularosa Basin, which is located between the Sacramento and San Andres mountain ranges. Surface water resources within the Tularosa Basin are limited because of the high evapotranspiration rate and low annual rainfall. Perennial streams occur in the mountainous regions that surround the Tularosa Basin. The major streams include Rio Tularosa, Rio Bonito, and Eagle creeks. Rio Bonito Creek is located northeast of Tularosa, approximately 60 miles from Holloman AFB, and discharges to Bonito Lake, which, in conjunction with deep wells along the Sacramento mountain range, supplies potable water to Holloman AFB. The intermittent streams and arroyos occurring within the Tularosa Basin are important drainage features during periods of heavy rainfall when they convey surface water runoff southwest to the basin's lowest elevation point, Lake Lucero. Surface drainage within the undeveloped parts of the base is controlled by the major arroyos, including Lost River and Dillard Draw and their tributaries. Drainage within the developed portion of the base flows by way of ditches and culverts to the southwest corner of the base (WHA, Inc. 1989).

The wastewater treatment system consists of seven aeration/evaporation lagoons located in the southwest corner of the base. Just southwest of these lagoons, a drainage ditch discharges water to a natural playa. A dike was constructed in the playa area, creating Lake Holloman. A low winter evaporation rate and increased flows have caused flow over a portion of the dike, creating a seasonal surface water area called Lake Stinky (WHA, Inc. 1989). The Tularosa Basin is a closed basin (no discharge) and therefore exempt from U.S. EPA regulations pertaining to surface water discharge (Cole et al. 1984).

Additional man-made surface water feature of local significance are Garton Lake and two 44 million gallon raw water storage ponds. Garton Lake was created in 1916 by artesian flow of warm water (94°F) discharging from an abandoned oil test well that was not plugged. The lake is located approximately 4 miles southwest of Holloman AFB and is managed by the National Park Service (NPS) as part of the White Sands National Monument. Bonito Lake is located approximately 50 miles northeast of Holloman AFB in the Sacramento Mountains. A pipeline, varying in size from 14 to 22 inches, transports water approximately 85 miles to the city of Alamogordo, which supplies water to the base. Holloman has a water right to 1,449.02 AFY withdrawal, not to exceed 1,063 gpm when available.

3.2.7.2 Groundwater

Holloman AFB lies in the shadows of the Sacramento Mountains on the edge of the Tularosa Basin. Geologists refer to this 100-by-30-mile valley with no surface water drainage outlet as a graben or bolson (TAC 1976). Vast quantities of debris, including material from the gypsum-bearing Yeso formation, have washed down from the surrounding mountains. This mixture of erosion materials has accumulated to thicknesses as great as 2,000 feet, covering the base of the mountains and forming the existing broad, flat valley floor. Since there is no surface water drainage from the Tularosa Basin,

water that enters is either lost to evapotranspiration or percolates through the valley floor to become groundwater.

The Tularosa Basin contains one of the largest saline water aquifers in the United States; however, this water is not used due to its salinity. Sediments in the basin consist mainly of soluble minerals (gypsum, limestone, and dolomite); groundwater dissolving these minerals becomes highly saline and mineralized. Groundwater within the Tularosa Basin is derived from recharge during precipitation over the basin. Freshwater (surface runoff from surrounding mountains) percolates into the basin aquifer at the edges of the basin. This groundwater moves downgradient and discharges to Lake Lucero. Groundwater quality in the Tularosa Basin ranges from freshwater (water containing less than 1,000 milligrams per liter (mg/L) total dissolved solids (TDS) in the permeable alluvial fan deposits adjacent to the mountain fronts to water containing more than 100,000 mg/L TDS in the less permeable deposits near the center of the Tularosa Basin. The groundwater beneath Holloman AFB is highly mineralized, containing dissolved solids in excess of 10,000 mg/L. Holloman AFB obtains water from several off-site well fields in addition to the water supplied by Bonito Lake. The well fields, Boles, Douglass, San Andres, Dog Canyon Frenchy Wells, and the Escondido Canyon Well, have been developed in alluvial fans along the west slope of the Sacramento mountains. The Boles well field has been developed near the basin floor and is in a buffer zone between the freshwater in the mountains and the saline water underlying the basin floor. The well fields supply up to 1.7 mgd.

3.2.8 Archaeological, Cultural, and Historical Resources

3.2.8.1 Archaeological and Historical Resources

The prehistory of south-central New Mexico and adjacent portions of Texas spans almost 12,000 years. Early Paleo-Indians hunting extinct megafauna frequented the area from 10,000 to 6,000 B.C. Later groups exhibited a variety of different adaptations to an environment characterized by change. Paleo-Indian occupation was followed by an "Archaic" pattern of settlement and subsistence that focused on the exploitation of a broad spectrum of seasonally available plants and small fauna, opportunistic hunting of large game, and high residential mobility by small social groups (Doleman 1988). Later occupations were characterized by population increase, a more sedentary lifestyle, and the development of an agriculturally based economy by A.D. 1000 (COE 1989). This adaptation, known as the Jornada Branch of the Mogollon, lasted until the area was abandoned around A.D. 1450 in favor of major river valleys. After abandonment, the area was used by hunter-gatherer groups until the Spanish arrived in the 16th century. Spanish exploration and occupation focused on the Rio Grande Valley and the Holloman area was little affected by European intrusion until the 1700s (COE 1989).

A variety of archaeological surveys demonstrate that a wide variety of prehistoric and historic resources are located in the Holloman area, including WSMR, Red Rio, Oscura, and McGregor Bombing Ranges, and areas adjacent to the Melrose Bombing Range (Doleman 1988; Foster and DeGarmo 1989; COE 1989; TAC 1985). In addition, a number of architecturally and historically significant structures listed on the National

Register are located at the White Sands National Monument, adjacent to one of the existing Holloman AFB runways that would be used by the 37th TFW.

The prehistory of the more northerly portion of the project area crossed by IR-YYY is dominated by Eastern Pueblo peoples now living in such settlements as Taos, Picuris, Nambe, and other Rio Grande Pueblos. Archaeological data indicate that Eastern Puebloans have been present at least since A.D.1. The earliest settlements are composed of one or more semi-subterranean pithouses, but after A.D. 1200-1250 populations began aggregating in larger, above-ground masonry pueblos. Some of the largest settlements, some of which had more than 500 rooms, were established along major drainages such as the Pecos River, the Rio Grande, and the Chama River. A number of these settlements were occupied at the time of Spanish contact, including sites known as the Pecos Ruin, the Gran Quivira National Monument, and the impressive multistoried pueblos along the Rio Pueblo de Taos (Cordell 1979).

3.2.8.2 Native American Cultural Resources

Ethnohistorically, the Holloman area was occupied by the Mescalero Apache, an Athapaskan-speaking group whose ancestors probably entered the area around A.D. 1600 (Doleman 1988). The Apache were seminomadic groups who practiced a subsistence strategy characterized by hunting, gathering, occasional agriculture, and raiding. This diversified economy involved the exploitation of virtually all biotic zones in the Tularosa Basin, and their sites should be widespread although difficult to identify due to their low density and lack of good diagnostic materials (Doleman 1988). The Mescalero were removed to the Mescalero Reservation in 1873. The reservation, located near the project area in Mescalero, New Mexico, was too small and unsuited environmentally for traditional Mescalero economic pursuits. Starvation was common, and poor health was a fact of life for decades (Opler 1983). Conditions probably worsened in the 1880s when Lipan Apache and Jicarilla Apache groups were also removed to the Mescalero Reservation.

Culturally and economically, these groups are making significant gains in educating their children and are economically benefitting from the natural beauty of their reservation, among other pursuits. They have built a luxury resort hotel, an artificial lake, a golf course, a ski resort, a fish hatchery to restock the streams that flow through the reservation, and other development projects designed to improve conditions on the reservation. Per capita income is still exceptionally low, but the Mescalero emphasis on education for their young and the development of their local resources are cause for optimism.

The Eastern Puebloan Indians continued their ancient occupation of the more northerly portions of the project area. The Taos area is particularly relevant here. Archaeological data indicate the Taos have continuously occupied the general area for over 600 years. Traditionally, these people relied heavily on hunting and gathering with agriculture of secondary importance.

Trade relationships with Plains Indians from the east were also important economically and socially. The Taos have long maintained their cultural isolation, although a great deal of interaction occurs with non-Indians. They have revealed very little of their religion to outsiders but the general area contains many sacred sites. Some of the few known include high mountain lakes, particularly Blue Lake; springs; certain mountain peaks; and other locations of important past events.

3.2.9 Hazardous Materials and Wastes

Holloman AFB also complies with the HSWA, RCRA, DoD Directive 5100.50 and AFR 19-11 as discussed in Section 3.1.9 and the Base IRP. Holloman AFB is classified under 40 CFR 262 as a large quantity generator of hazardous waste. Holloman has a RCRA Part B permit to store hazardous waste at a Defense Reutilization Marketing Office (DRMO) container storage facility.

The base also operates, under RCRA interim status, a thermal treatment area and an explosive detonation area for waste explosive ordinance disposal. Permits for these facilities are presently being reviewed by the EPA Region VI for adequacy/approval. Current activities at Holloman AFB involve the utilization of a variety of hazardous materials and ultimately the generation of hazardous waste streams. The principle hazardous wastes generated at Holloman AFB are waste paints, strippers, thinners, and other solvents such as methylene chloride, methyl ethyl ketone, 111-trichloroethane, tetrachloroethylene and PD-680. Typically, the activities which utilize hazardous material include maintenance of aircraft, aircraft corrosion control, vehicle maintenance, fuel handling and storage, munitions storage and ground support equipment maintenance, weapons maintenance, ground radio shops, and electronics repair shops. Activities which generate wastes include grounds maintenance, munitions storage and disposal, medical services, laboratory operations (including nondestructive inspection and fuel analysis), aircraft corrosion control, aircraft maintenance, radio and electronics operations, fuel handling and storage, vehicle maintenance, wheel and tire shops, and munitions disposal and storage.

Wastes generated from aircraft maintenance include hydraulic fluids, waste oils, PD-680, waste fuels, spent solvents, and equipment grease. Waste from corrosion control operations include paint chips, waste paints, paint thinners, spent strippers, spent solvents, methyl ethyl ketone, safety kleen, acetone, naphtha, degreasers, and emulsifying agents. Soap, detergents, metal particles, oils and grease are generated by aircraft washing activities. Vehicle maintenance, wheel and tire shop waste consist of PD-680, waste acid solutions, lubricating and machine oils, degreasing and cleaning solvents, ethanolamine, and P3838. The materials generally in the waste discharge are oils and of some petrochemical base. Other miscellaneous operations, such as electronic shops, armament, weapons shops, and cleaning activities would generate hazardous waste, including PD-680, synthetic oils, spent solvents, acetone, and hydrochloric acid.

The hazardous waste minimization program at Holloman AFB consists primarily of efforts to reduce solvent waste streams. The base operates plastic media blasters to strip paint from aircraft parts and ground support equipment. The use of media blasters has

significantly reduced the amounts of waste solvents normally used in paint stripping operations. The base also contracts the services of solvent recovery vendors. Parts cleaning vats are periodically serviced and solvents are recycled by certified vendors. The base also segregates used petroleum products for resale/recycle.

Other solid waste recycling include recycling cardboard, aluminum, ferrous metals, light and heavy steel, magnesium and titanium steel, miscellaneous paper items, brass, lead, tires, magnetic tape and stainless steel. Precious metals recovery operations include waste silver generated by the base photography lab, dental amalgam and the hospital X-ray lab, waste mercury generated upon disposal of temperature gauging devices; gold, platinum and beryllium.

Construction activities and operation at Holloman AFB generate a variety of hazardous and nonhazardous wastes. The DoD has published an implementing directive, DoD Directive 5100.50 which outlines DoD policy to comply with applicable Federal and State regulations dealing with these waste. Construction and demolition debris is generated during base maintenance, building refurbishing, reconstruction, modification, and new facilities construction. This will be the major source of waste generated by the proposed base realignment (see Section 2.1.2.2). This construction and demolition debris will be disposed of in the base landfill by when the work is performed. Hazardous wastes generated by contractors will be appropriately managed by the contractor in accordance with established EPA standards.

In December 1988, Holloman AFB and EPA (Federal and State) officials entered into a Federal Facilities Compliance Agreement (FFCA). The agreement required the installation of a ground water monitoring system at the sewage treatment lagoons and to closure of the lagoons in accordance with RCRA. The ground water monitoring system was completed in July 1989, and ground water monitoring was initiated in August 1989, in accordance with the FFCA and RCRA requirements. As the lagoons currently exists, they do not pose a threat to human health. Efforts are presently underway to clean close the lagoons, with a site specific risk demonstration, or otherwise close-in-place all units wherein clean closure is not possible. Also, under a separate USAF initiative, Holloman AFB is presently under consideration for a new sewage treatment plant, to be installed in the vicinity of the existing sewage treatment plant.

Recently it has been determined that there are hydrocarbons under the west ramp where the construction of several F-117 aircraft hangars are proposed. Through extensive sampling in the area, it has been determined that no hazardous wastes (as defined in 40 CFR 261) exist. However, due to the health risks imposed upon exposure to hydrocarbon constituents, some remediation will be required prior to construction of the new facilities. It was determined through actual experimentation, in areas suspected to be the most highly contaminated, that the constituents volatize relatively quickly. Consequently, at this time, it is believed a simple process of tilling the soil to allow it to dry out will solve most of the problems. Efforts to determine the type and extent of contamination have been conducted under guidance from the EPA Region VI. All remedial action will be coordinated with the EPA and NM Environmental Improvement Division to ensure actions are protective of human health and the environment.

3.3 NELLIS AIR FORCE BASE

3.3.1 Land Use

Nellis AFB is located in one of the most rapidly growing areas in the United States, the Las Vegas Valley. The majority of the base is located in the unincorporated town of Sunrise Manor in Clark County, Nevada, 5 miles from the city of North Las Vegas.

Residential and commercial developments are to the south and west of the base. Many of these residences and businesses support the personnel and visitors to Nellis AFB. Vacant land is scattered between the various developments. Commercial enterprises are primarily located on major roads in the area, including Las Vegas Boulevard (SR 604), Craig Road, and Nellis Boulevard. On-base housing for military personnel is also located in the south and west portions of the base. Land to the north and east of the base is primarily vacant, high desert-type land.

The rapidly growing Las Vegas Valley and Nellis AFB have created incompatible development around the base. Land-use regulation for the area around the base is at the county level. The Clark County Public Health and Safety Program for Airport Environs established an overlay zone "to provide for a range of uses compatible with airport accident, hazard and noise-exposure areas and to prohibit the development of incompatible uses that are detrimental to the public health, safety, and welfare in these airport environs" (Clark County 1986). This overlay zone provided guidelines concerning land uses compatible with the noise and safety environment related to Nellis AFB and recommended development standards that would help mitigate adverse noise conditions. In addition to the airport environs program, the USAF has an AICUZ that also offers guidelines for land-use compatibility with operations at the base.

Land ownership in Clark County is displayed in Table 3.1-1. Land uses in Clark County, other than urban development in the Las Vegas Valley, include the Lake Mead National Recreation Area, a district of the Toiyabe National Forest, a portion of the Desert NWR Moapa and Las Vegas tribal lands, Valley of Fire State Park, Spring Mountain Ranch in the Red Rock Canyon Recreation Lands, the Floyd R. Lamb State Park, and a portion of NAFR.

3.3.2 Atmospheric Resources

3.3.2.1 Climatology

Nellis AFB is located in southern Nevada, in a region characterized as arid. Maximum temperatures in the summer are typically 100°F or higher. Low humidity helps to moderate the high daytime temperatures. Normally, during a 2-week period in the summer months, warm, moist tropical air traverses the region, bringing scattered thundershowers. Occasionally, these thunderstorms are severe enough to cause flash flooding. The winters are generally mild with daytime temperatures around 60°F and

minimum temperatures around 35°F. In the winter, skies are mostly clear. The area around the base occasionally experiences strong winds associated with major storm systems. Wind gusts of 50 miles per hour can occur at Nellis AFB, causing difficulties from the resulting dust and sand storms.

3.3.2.2 Air Quality

The Clark County Health District Air Pollution Control Division operates air quality monitoring sites throughout the county. The monitoring stations include 16 particulate stations, one O_3 analyzer, two CO analyzers, one SO_2 analyzer, and two NO_x analyzers. The air quality in the Las Vegas region has historically been in violation of NAAQS. The Las Vegas area is designated as nonattainment for CO and particulates. This nonattainment designation indicates that the primary NAAQS for these pollutants has been exceeded more than three discontinuous times in 3 years. Nellis AFB is located within this nonattainment area. A CO monitoring station is within 3 miles southwest of Nellis AFB, at the Post Office Station. The maximum ambient concentration measured at this station is 7.6 ppm. Other monitored values range from 5.6 to 0.6 ppm. Several remedial plans have been developed to improve the air quality in this region. The original plan, which outlined control measures for O_3, CO, and particulates, was submitted to the EPA in 1978. This plan was updated in 1980 and 1982 through the Air Quality Implementation Plan (AQIP), which specified programs for controlling stationary source emissions and for obtaining CO emission standards for motor vehicles. Emission control strategies have not been applied to aircraft emissions. A revised AQIP was promulgated in 1984 by the Clark County Board of Commissioners.

Nellis AFB air emissions contribute less than 2 percent of the total Las Vegas metropolitan area air emissions (Naugle, 1978). The recent inactivation of the 474th TFW with 66 F-16 aircraft and 1,963 personnel reductions (TAC 1988b), the reduction of Red Flag exercises, reduction in 64th Aggressor Squadron operations and other Nellis program reductions have made no measurable improvement in the ambient air quality of Las Vegas. These reductions add validity to the Naugle report. Therefor, actions at Nellis AFB have no perceivable impact on the Las Vegas air quality. Nellis AFB operates in compliance with NAAQS.

3.3.3 Noise

An estimate of the L_{dn} noise exposure contours for existing conditions around Nellis AFB has been developed by the U.S. Air Force Engineering Service Center (AFESC/DEMP) for the most recent aircraft flight and ground run-up operations at the base (Air Force 1988). These L_{dn} noise contours are shown in Figure 3.3-1. The land areas within the L_{dn} 65 dB and higher level contours are listed in Table 3.3-1 and include residential land uses by civilian population.

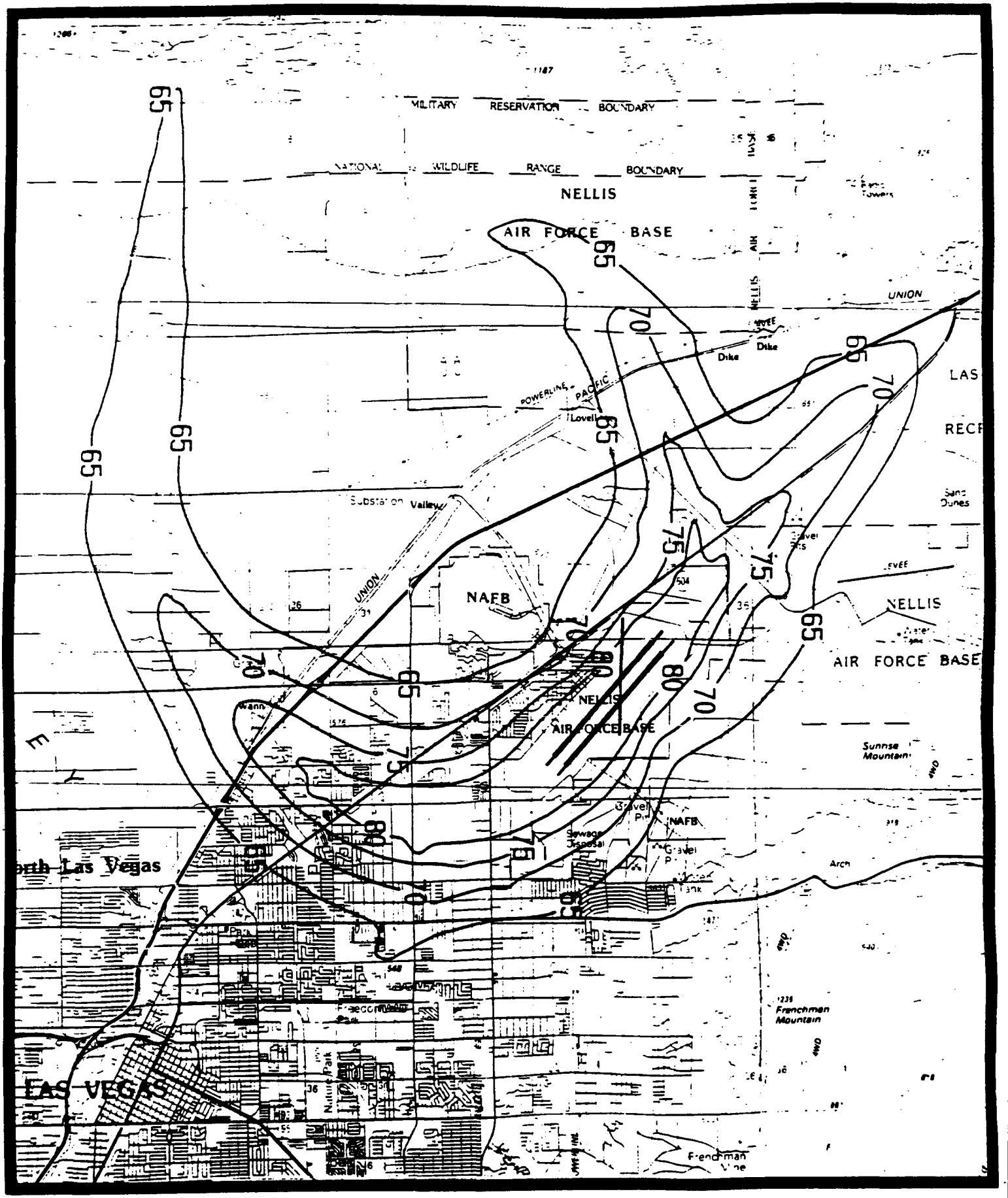

Figure 3.3-1 Current Noise Environment at Nellis AFB

Table 3.3-1. Land Areas Within L_{dn} Noise Contours at Nellis AFB Under Current Aircraft Operations

L_{dn} Contour	Land Area Within L_{dn} Contour Acres	Sq. Miles
65	27,200	42.5
70	13,500	21.1
75	6,850	10.7
80	3,400	5.3

Table 3.3-2 shows the number of persons estimated to reside in the land areas enclosed by the L_{dn} contours, and also shows the number of people who would be expected to be "highly annoyed" by the Nellis aircraft noise exposure.

The land areas and population estimates are cumulative in the respect that the L_{dn} 65 dB contour total includes those within the higher L_{dn} contours.

The existing noise impact at Nellis AFB under current operational conditions is therefore significant in terms of the high levels of L_{dn} noise exposure to which resident populations are subjected.

The Nellis Range complex would continue to be used by the 37th TFW if the Nellis AFB alternative were implemented. The range has not been modeled for noise levels due to its high degree of complexity and fragmentation. The vast array of target complexes and the thousands of square miles that comprise the range complex preclude the formulation of an accurate noise model. Since relocation of the 37th TFW would cause only a minimal (less than 1 dB) change in noise exposures over the entire range complex, the noise environments from existing and future activity associated with the alternatives have not been analyzed as part of this EIS.

3.3.4 Airspace Management

Nellis AFB and the TFWC Range complex comprise one of the most heavily used flight training environments in the Tactical Air Force. This is largely due to the flying mission of the 57th FWW, which includes the Fighter Weapons School, the 440th Tactical Fighter Training Group (Red Flag), test and evaluation squadrons, as well as the USAF Aerial Demonstration Squadron (Thunderbirds). Combat flight training is also provided for other flying units from the United States and allied nations as part of the Red Flag exercises. Air Warrior is also located at Nellis AFB; however, this flying mission is conducted in California airspace in support of the U.S. Army National Training Center at Ft. Irwin.

The airspace environment associated with Nellis AFB and the TFWC Range complex consists primarily of special use airspace for flight-training purposes and airspace designated for the control of air traffic in the terminal and en route areas (Figure 3.1-1). The special use airspace includes four restricted areas and the Desert MOA with overlying ATCAA. Other training airspace related to the TFWC Range complex, but not relevant to this study, includes several MTRs and two low-altitude tactical navigation (LATN) areas. The MTRs are located both adjacent to and throughout the range complex for low-level training in conjunction with other range activities. The LATN areas are located east and west of the complex and are used for A-10 low-altitude training maneuvers. Three aerial refueling routes are also located in the western and northern portions of the range complex to support various exercises and training activities. An alert area is designated west of Nellis AFB for the purpose of advising civil traffic of high-density military flights transiting through this airspace.

Table 3.3-2. Populations Within Nellis AFB L_{dn} Contours

L_{dn} Contour	Number of Residents	Number Expected to be Highly Annoyed
65	23,200	7,880
70	13,600	6,160
75	6,600	4,080
80	1,800	1,100

Airspace designated for the control of air traffic operating at Nellis AFB and en route to the range complex consists primarily of approach and en route control areas, and a terminal control area (TCA). A TCA, which is established by the FAA, is basically a concentric airspace structure extending outward from an airfield, from the surface or higher to a specified ceiling altitude. These elements work collectively to ensure the safe and efficient transit of military and civil aircraft throughout the Las Vegas Valley and surrounding areas.

3.3.4.1 Existing Nellis AFB Terminal and En Route Airspace Structure

Approach and en route airspace has been delegated to Nellis AFB to provide ATC services for the base and for those areas utilized to transit to and from the range complex (Figure 3.1-1). This airspace is further sectorized laterally and vertically to meet the specific air traffic operational requirements of Nellis AFB, North Las Vegas Airport, and McCarran International Airport. Radar sequencing and separation services are provided within these areas for military aircraft arriving and departing Nellis AFB and transiting via the western and northern corridors to the range complex. Radar ATC and advisory services are also provided by Nellis AFB to civil aircraft operating within the northern Las Vegas Valley area and transiting west and northeast of the base. Approximately 303,000 military and 37,000 civil aircraft operations were conducted throughout the combined approach and en route control areas during 1989.

Controlled airspace in the vicinity of Nellis AFB consists of a TCA that encompasses both the base and McCarran International Airport. All VFR and IFR aircraft operating within the confines of the TCA must have an ATC authorization. This mandatory requirement ensures that the ATC system is aware of all aircraft operating in the vicinity of both airfields, thus enhancing flight safety in this congested airspace environment. The TCA supplants the normal control zones, ATAs, and transition areas, which have a similar purpose of protecting aircraft operations around an airfield. However, the Nellis AFB control tower has been delegated a traffic-pattern airspace area that is approximately within a 5-mile radius of the airfield with a western extension, with vertical limits from the surface to 5,000 feet MSL. This essentially serves as a nonstandard ATA within which the tower has control responsibility for all runway and flight operations. Nearly 127,000 airfield operations (takeoffs, landings, and touch-and-go/low approaches) were conducted at Nellis within this airspace area during 1989.

3.3.4.2 Existing Nellis AFB Special Use Airspace Structure

Special use airspace within the TFWC Range complex consists of restricted areas R-4806E/W, R-4807, R-4808N/S, and R-4809, as well as the Desert MOA. The effective altitudes for each area are shown in Table 3.3-3. R-4806E/W and R-4807 are managed by Nellis AFB and are further subdivided into separate areas for flight-training activities that include air-to-ground bombing and gunnery operations, air-to-air combat operations, and EC operations. Because of the hazardous nature of these activities, civil aircraft are barred from use of these restricted areas unless specifically authorized by Nellis AFB ATC. R-4808N/S is managed by DOE and provides protective airspace for activities associated with the underground nuclear test program and other special operations.

Table 3.3-3 Special-Use Airspace Operating Altitudes
Tactical Fighter Weapons Center Range Complex

Airspace	Base	Ceiling
R-4806E	100' AGL*	Unlimited
R-4806W	Surface	Unlimited
R-4807	Surface	Unlimited
R-4808N/S	Surface	Unlimited
R-4809	Surface	Unlimited
Desert MOA	100' AGL*	To but not including FL180**
ATCAA	FL180	FL550 (or to highest altitude required)

* Above Ground Level.

** Flight Level (FL) represents hundreds of feet above mean sea level based on constant atmospheric pressure.

R-4808S and the western portion of R-4808N are normally available for military overflight to R-4807. R-4809 is also managed by DOE and overlies TTR, which is used for various defense-related test programs. This restricted area is subdivided for joint use with Nellis AFB such that the southern and eastern portions are used in conjunction with R-4807 tactical training. R-4808N/S and R-4809 are never authorized for use by civil aircraft.

The Desert MOA and the overlying ATCAAs comprise the eastern half of the TFWC Range complex. This airspace is subdivided into four sections for individual flight scheduling and also contains a corridor for range entry/exit. R-4806E (also identified as Alamo) can also be designated as part of the Desert MOA when it is not scheduled for range training activities. The northernmost portion of the Desert MOA (Reveille sector) is subdivided both vertically and laterally with a ceiling altitude of FL270. One low and two high altitude airways traverse this MOA sector, and scheduled use of the subsections is predicated on airway traffic. MOA airspace and higher altitudes within the ATCAAs (as required) are used for air combat maneuvers and intercepts that do not involve weapons delivery. Nonparticipating aircraft (civil and nonscheduled military) are not restricted from MOA airspace. VFR aircraft may transit the MOA without an ATC clearance. Nellis AFB ATC separates IFR aircraft from military operations when transit is required through the MOA/ATCAA.

Aircraft sorties within the TFWC Range complex can include flight training throughout portions of both the Desert MOA/ATCAA and those restricted areas used by Nellis AFB. Over 60,000 aircraft sorties are conducted annually within this TFWC special use airspace.

3.3.5 Socioeconomics

The socioeconomic ROI for activities at Nellis AFB is Clark County. Located in southern Nevada, the county covers an area of 7,910 square miles. Clark County also includes the Las Vegas metropolitan statistical area (MSA).

3.3.5.1 Population

3.3.5.1.1 Clark County

Clark County has been one of the fastest growing metropolitan areas in the United States since World War II. In the 1980s, Nevada was the country's fastest growing state due, for the most part, to Clark County's rapid growth. An estimated 4,500 people currently move to Las Vegas per month (Nevada Development Authority 1990). The estimated population in Clark County for 1990 is 794,140, a 17% increase from 1988 (Table 3.3-4). By 1994 the population is predicted to reach 973,120, averaging 5% growth annually.

The total number of households in the county was 269,333 in 1989, an increase of 8% from the previous year (Nevada Development Authority 1990). The number of persons per household has remained about constant, with an average household size of 2.7 individuals.

Table 3.3-4. Population in Clark County

	1988[a]	1990[b]	1992[b]	1994[b]
Clark County	681,440	794,140	890,060	973,120

Notes: [a] Estimated.
[b] Forecasted.

Source: Vaidyanaphan 1990.

3.3.5.1.2 Nellis AFB

Nellis AFB employed a total of 10,680 officers, enlisted personnel, and civilians at the end of FY 88 (Table 3.3-5). The total population associated with Nellis AFB, including retirees, dependents, contractors, and other personnel, was estimated at approximately 48,000. A total of 2,696 active duty military personnel are associated with the 37th TFW and Det 1, 57th FWW.

Most of the military personnel working at Nellis AFB live in Las Vegas, and virtually all Nellis civilian employees reside in Clark County. Approximately 1,500 military personnel and their families – a total of 4,861 people – reside on base. About 15% of military employees live on base (ERIS 1989).

3.3.5.2 Employment and Income

3.3.5.2.1 Clark County

The economy of the Las Vegas area has experienced a resurgence during the past several years. By the first quarter of 1990, approximately 38,000 new jobs were created, an increase of almost 12% from the same period in 1989 (Nevada Employment Security Department 1990). Employment averaged 365,300 jobs during the first quarter of 1990, as shown in Table 3.3-6.

The services industry accounts for much of the employment in the Las Vegas area, about 46% as of the first quarter of 1990. An estimated 18,000 new jobs have been created in the service sector since March 1989 (an increase of 12%). Approximately one-third of service jobs in the area are within the hotel/gaming/recreation sector (Nevada Employment Security Department 1990). The wholesale and retail trade sector makes up about 21% of local employment. Total trade employment grew by approximately 11% from March 1989 to March 1990. Employment in government accounts for an estimated 11% of employment. The construction sector makes up about 10% of local employment, increasing 23% from 1989.

The unemployment rate in Clark County has declined considerably since the 1982 recession. As of March 1990, the seasonally adjusted rate was 4.5%, the lowest it has been for more than a decade (Nevada Employment Security Department 1990).

Total payrolls distributed across industrial sectors in the Las Vegas area are summarized in Table 3.3-7. Payrolls totaled about $6.2 billion in 1988. Service industries accounted for approximately 45% of total earnings. Wholesale and retail trade and government contributed the next greatest earnings to the area, representing 16% and 14% of the total, respectively.

Total personal income in Clark County was $9.6 billion in 1987, the last year reported. This figure represented 58% of the total personal income in Nevada. Per capita income in the county was $15,943 in 1987, a 12% nominal increase from 1985 (BEA 1989)

Table 3.3-5 Personnel and Retirees Estimates for Nellis AFB (FY 89)

Category	Number of People	Totals
Appropriated Fund Military		
Officers	1,084	
Enlisted	8,431	
Subtotal		9,515
Appropriated Fund Civilian		
General schedule	755	
Federal wage system	410	
Subtotal		1,165
		10,680
Nonappropriated Fund (NAF), Contract Civilian, and Private Business		
Civilian NAF/BX	812	
Contract civilians[a]	1,930	
Private businesses on base by type:		
Branch banks	16	
Credit union	21	
Food establishments	3	
Other	72	
Other civilians[a]	80	
Subtotal		2,934
Military Retirees		12,154
Total	13,614	25,768

Note: [a] Not elsewhere included.

Source: ERIS 1989.

Table 3.3-6. Nonagricultural Wage and Salary Employment,[a] Las Vegas Metropolitan Statistical Area

Industry	March 1989	March 1990	1990 Percent of Total
Mining	200	300	0.1
Construction	28,200	34,800	9.5
Manufacturing	9,700	10,400	2.8
Transportation and public utilities	17,000	18,900	5.2
Wholesale and retail trade	69,500	77,000	21.1
Finance, insurance, and real estate	16,000	16,800	4.6
Services	150,400	168,300	46.1
Government	36,400	38,800	10.6
Total	327,400	365,300	100.0

Note: [a] Reflects employment by place of work. Does not necessarily coincide with the number of workers residing in the area. Includes multiple job holders.

Source: Nevada Employment Security Department 1990.

Table 3.3-7 Distribution of Payrolls by Industry, Las Vegas Metropolitan Statistical Area (1988)

Industry	1988 Payroll ($1000)	Percent of Total
Agriculture, forestry, and fishing	26,800	0.4
Mining	5,500	0.1
Construction	576,400	9.2
Manufacturing	220,300	3.5
Transportation and public utilities	392,600	6.3
Wholesale and retail trade[a]	1,004,100	16.1
Finance, insurance, and real estate	337,900	5.4
Services[a]	2,788,300	44.7
Government	884,500	14.2
Total	6,236,400	100

Source: Nevada Development Authority 1990.

[a] Tourism and gaming activities are included in the retail trade and service industries.

3.3.5.2.2 Nellis AFB

Nellis AFB is one of the largest employers in southern Nevada with about 10,600 appropriated-fund employees. Combined with nonappropriated-fund employees (e.g., base exchange), contractor personnel, and other service workers, total employment associated with the base is about 13,600 jobs. Approximately 11% of the military personnel working at the base are officers. Civilian employees account for about 11% of the appropriated-fund employment at Nellis (ERIS 1989).

Total gross payroll disbursed to employees and personnel related to Nellis AFB in FY 89 was $486,792,022 (Table 3.3-8). Military personnel accounted for approximately 69% of the total earnings of $335.8 million. Approximately $151 million were paid to military retirees residing in the area. Earnings of military and civilian employees at Nellis represented about 5% of the total earnings paid to residents of the Las Vegas area.

3.3.5.3 Housing

3.3.5.3.1 Off-Base Housing

Housing includes all apartments, houses, and mobile homes available within the HMA, whether they are owned, rented, or vacant. According to the Clark County Department of Comprehensive Planning, as of July 1989, the Las Vegas HMA had a total of 289,519 housing units (Table 3.3-9).

Approximately 46% of the housing inventory in the Las Vegas HMA consists of detached, single-family homes. Attached, single-family units (condominiums and townhouses) comprise another 11%. Multifamily housing in the HMA is defined as two-, three-, or four-plexes and apartments and comprises 34% of the total housing units. Mobile homes make up about 9%.

Approximately 62% of off-base households are owners and 38% are renters (Nevada Development Authority 1990). Vacancy rates in the HMA average 5.5%. For specific types of housing, vacancy rates range from 2.5% for detached, single-family homes to 5.9% for attached, single-family and multifamily units.

A summary of the Las Vegas residential market is shown in Table 3.3-10. The greatest proportion of homes sells within 30 days of being offered (about 40%). The average selling price of a home in 1989 was $97,440, a 17% increase in nominal terms since 1987. The price in constant dollars has increased 7% during the same period.

3.3.5.3.2 On-Base Housing

The total number of MFH units at Nellis AFB is 1,471 (ERIS 1989). Located within base boundaries, the Wherry MFH area contains 791 (54%) of these units. Another 680 units are located off base at the Nellis Terrace and Manch Manor developments. Nellis MFH maintains 99% occupancy rates. Waiting time to move into MFH can average 3 to

Table 3.3-8. Payroll Disbursed to Nellis Air Force Base Employees and Related Personnel (FY89)

Appropriated Fund	
Military	$231,727,381
Civilian	33,206,677
Nonappropriated Fund, Contract Civilian, and Private Business	
Civilian NAF/BX	7,589,911
Contract civilians [a]	59,729,128
Private businesses on base by type:	
Branch banks	294,000
Credit union	326,143
Food establishments	76,200
Other	553,834
Other civilians	2,314,186
Military retirees	150,974,562
Total Payroll	$486,792,022

Note: [a] Not elsewhere included.

Source: ERIS 1989.

Table 3.3-9 Permanent Housing in Region of Influence, Clark County

	1988[a]		1989[a]	
	No. of Units	Vacancy Rate	No. of Units	Vacancy Rate
Single-family detached	124,028	2.9%	131,765	2.5%
Single-family attached	28,839	5.2%	31,505	5.9%
Multifamily	86,821	6.9%	99,241	5.9%
Mobile homes	26,399	3.7%	27,008	2.6%
Total units	266,087		289,519	

Note: [a] As of July.

Source: Carrasco 1989; Palm 1990.

Table 3.3-10 Summary of Las Vegas Area Real Estate Market

	1987	1988	1989
Average listings	3,360	6.413	7,018
Days on market			
1-30	31%	35%	40%
31-60	22%	21%	22%
61-90	16%	15%	15%
91-120	9%	10%	9%
121+	22%	19%	14%
Average price (nominal)	$83,370	$88,690	$97,440
Average price (1989)	$91,207	$92,592	$97,440

Note: Adjusted using BLS price index for shelter, as reported in the 1990 Economic Report of the President.

Source: Loveday 1990.

6 months for officers and up to 16 months for enlisted personnel depending on grade and size of unit desired.

3.3.5.4 Community Facilities and Services

3.3.5.4.1 Education

Historical enrollment figures for the Clark County School District are summarized in Table 3.3-11. The district reported an enrollment of 105,151 students in 1988, making the district the 19th largest school district in the United States (USAF 1988,f). The school district employed 4,419 classroom teachers in 1987. It is estimated that 5% of all enrollments were Nellis AFB-related students (5,590 students) in 1988.

The Clark County School District plans to convert several elementary schools to year-round curriculum in the near future to alleviate overcrowding. Additionally, there are several elementary and junior high schools currently under construction.

3.3.5.4.2 Police and Fire Protection

In Nevada, a county provides law enforcement services through the county sheriff's office in conjunction with other law enforcement agencies, including the Nevada Highway Patrol and various local agencies. In Clark County, there are 1,331 commissioned officers and 760 civilian personnel. The officer-to-population ratio is 1:489. Because of the Nellis AFB-related population, 84 officers are required to serve the base. Nellis AFB maintained a security force of 560 personnel in 1985 for law enforcement on the base and range complex. No formal mutual aid agreement exists between the base and civilian law enforcement agencies.

Fire protection at Nellis AFB is provided by a fire suppression staff of 83 persons and 3 administrative support personnel. The base has a mutual assistance agreement with Clark County and the cities of Las Vegas, North Las Vegas, Henderson, and Boulder City.

The Clark County Fire Department provides fire protection and emergency medical services to unincorporated areas of Clark County (DOE and USAF 1988). In addition to full-time, paid staff in urbanized Las Vegas and in Laughlin, the department coordinates volunteer departments for the outlying areas in the county. The cities of Las Vegas, North Las Vegas, Henderson, and Boulder City operate municipal fire departments. Cooperative agreements among these departments coordinate the dispatch of services for the Las Vegas Valley.

Police and fire protection services will continue to operate near capacity as the county growth rate continues to increase.

3.3.5.4.3 Health Services

Nellis AFB maintains a 35-bed hospital on base to serve active and retired military personnel and their dependents. Approximately 75% of the hospital's service is dedicated

Table 3.3-11 Historical Enrollment Figures: Clark County School District

Year	Elementary	Secondary	Total
1985	47,177	42,594	89,771
1986	48,586	42,327	90,913
1987	51,731	43,142	94,873
1988	55,600	43,833	99,433[a]
1989	59,931	44,636	104,567[b]

Notes:

[a] Does not reflect enrollment of 594 ungraded students in a preschool program or nongraded class in a school for special education, or students who cannot be assigned to a particular grade.

[b] Does not reflect enrollment of 584 ungraded students in a preschool program or nongraded class in a school for special education, or students who cannot be assigned to a particular grade.

to serving active military personnel (Van Sweringer 1989). During the year ending September 30, 1989, the hospital had 2,662 admissions and 203,064 outpatient visits. The current facility is inadequate to meet this level of demand and would be replaced by a proposed Veterans Administration/Air Force composite medical facility. The 129 bed hospital would be constructed in Area III of Nellis AFB and would be completed in FY 92.

In 1989, approximately $13 million in civilian health care (CHAMPUS) payments were made (ERIS 1989). The CHAMPUS system allows military retirees and the dependents of active duty personnel to utilize civilian medical care when necessary services are not available from military facilities.

In 1988, Clark County residents received medical care from 871 licensed physicians (Mowrey 1989), 2,024 registered nurses, and 612 licensed practical nurses (Seely 1989). There are 8 hospitals in the county containing a total of 1,973 beds. This accounts for 60% of the hospital beds in the state.

3.3.5.4.4 Utilities

Water Supply. Municipal water is supplied to Nellis AFB by wells and Lake Mead. These wells tap valley-fill aquifers. The static water level ranges from 69 to 121 feet below the surface. Well yields range from 250 gpm to 970 gpm with an average of 412 gpm. Nellis AFB also receives Colorado River water through the Southern Nevada Water System. The Nellis AFB allocation from this system is 4,000 AFY. Off-base water supplies are expected to meet demand well into the 1990s.

Nellis AFB currently has a 4 million gallons above-ground water storage capacity distributed among several tanks and linked pump wells via pipelines. There is one three-million gallon tank in Area III.

Wastewater. Sewage from Nellis AFB is discharged into the Clark County Sanitation District (CCSD) system. The CCSD system has the capacity to support Nellis AFB growth as well as county-wide growth since they recently completed a new advanced wastewater treatment plant. Area II of the base is currently serviced by an Imhoff tank treatment system with outfall into two sewage lagoons.

Solid Waste. An abandoned sewage-disposal site located on the base had seven effluent leach ponds. The 20-acre site is currently supporting a base sanitary landfill. Currently, Nellis AFB has an agreement with the Silver State Disposal Company for solid waste removal from the base. Silver State Disposal Company provides removal and landfilling of solid wastes in Clark County. Capacity will continue to exceed demand well into the future.

Power. Electrical power for Nellis AFB and Clark County is provided by the Nevada Power Company. Natural gas is supplied by Southwest Gas Corporation. Nevada Power is currently proposing construction of an additional generating station in Clark County to meet anticipated growth by 1991.

3.3.5.5 Public Finance

Public finance is related to revenues and expenditures of county and city governments and special districts within the region under consideration. Budgets in these jurisdictions are established to allocate a broad spectrum of services to residents, including public health and safety services, public works programs, administrative and legal operations, education, and recreation programs. Revenues for these services are drawn from an equally broad number of sources, including property taxes, sales taxes, local taxes and fees, and various subventions from state and federal sources.

From 1987 to 1988, Clark County experienced growth in both total revenues and total expenditures. In 1987, total revenues were $333,197,864, and total expenditures were $334,721,170. In 1988, total revenues were $371,150,544, and expenses totaled $349,982,407. In both years, the highest categories of expenditure were public safety, general government, and the judicial system (in decreasing order of expenditure).

3.3.5.6 Transportation

Figure 3.3-2 shows the roadway transportation system for the area. The major interstate connection in the Las Vegas area is I-15, which passes immediately to the west of Nellis AFB. Other principal roadways in the area include U.S. Highways 93 and 95. Access to Nellis AFB is obtained via the main base entrance on SR 604, a six-lane highway known as Las Vegas Boulevard. A north entrance gate is also located off SR 604. Base access is also obtained via the West Entrance from Nellis Boulevard, a four-lane highway intersecting with Las Vegas Boulevard. The Hollywood Gate is located on the east side of Nellis AFB and serves as a secondary access for personnel on that side of the base. It contains two lanes, each 13 feet in width. Approximately 750 vehicles per day use this gate. Numerous collector and local roads are also utilized to access Nellis AFB.

The base has a network road system somewhat independent of the surrounding region. From the west gate, I Street forms a "T" intersection with Nellis Boulevard and extends in a northeastern direction parallel to the flight line. This three-lane road employs a reversible lane to better accommodate inbound and outbound movements during the respective peak commuting hours. McCarran Boulevard forms an intersection with SR 160 at the main gate, and Industrial Road is the access for the north gate. Similar to most base facilities, vehicular circulation is heaviest during the morning and afternoon peak commuting hours, and to a lesser degree during lunch hours. Although the base roads experience considerable activity during the remainder of the day, no congestion problems are evident. The base site covers areas on both the west and east side of SR 160. With about 1,300 residences on the west end, personnel must cross SR 160 to access work areas. The principal passage is via Craig Road. This road has recently been improved to a four-lane divided facility that intersects with SR 160 and McCarran Boulevard at the main gate. In general, traffic along Craig Road, SR 160, and Nellis Boulevard flows freely through the area. Although congestion is heavier during the peak hours, only slight delay is experienced.

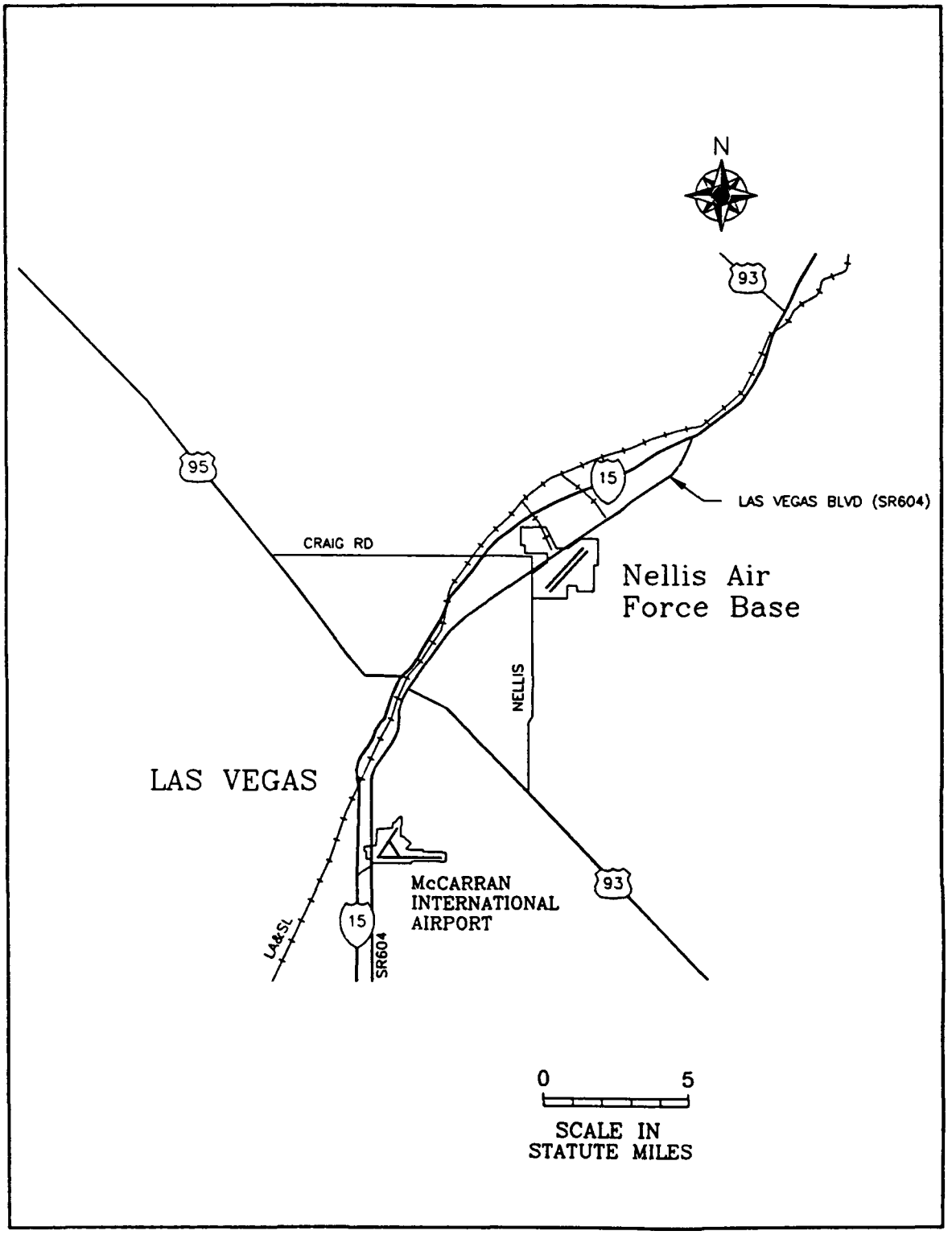

Figure 3.3-2 Nellis AFB Transportation System

Union Pacific operates the Los Angeles and Salt Lake (LA&SL) rail line, which serves the city of Las Vegas. The only line in the area of Nellis AFB is an LA&SL spur previously used to transport jet fuel to the base. Now fuel is moved via pipeline, and the spur is inactive.

McCarran International is the only commercial airport in the Las Vegas area. Small general aviation airports are the North Las Vegas Airport west of Nellis, Sky Harbor in Henderson, and Boulder City's municipal airport. These airports are commonly used for flight training and private use.

3.3.6 Biological Resources

3.3.6.1 Vegetation

Nellis AFB is located in the Mojave Desert region of southern Nevada. As indicated in Section 3.1.6.1, the region has typically sparse vegetation, with bare ground between individual plants. On the base, the major habitats available for wildlife are: urban (primarily housing), the golf course, and the native desert shrub vegetation. Within these major habitat types, the land can be characterized as developed (736 acres), moderately-developed (4,312 acres), or undeveloped (8,150 acres) (USAF 1989b).

The urban areas on the base have been well developed over a long period of years and have a good growth of mature trees and shrubs that provide nesting and feeding sites for songbirds. During most of the year, water is available from lawn and tree watering. This habitat is stabilized and provides for good songbird populations.

The golf course, another man-made habitat, has been landscaped with trees and shrubs along the grass fairways. Three very small ponds, which serve as the irrigation source for the fairways, are particularly attractive to a variety of bird species. The wildlife populations supported by this habitat are limited because of the size; but the populations are stable and the habitat trend is stable.

Native desert shrub vegetation is found in varying amounts on both the moderately developed and undeveloped areas. The native vegetation, of course, has been greatly disturbed due to its close proximity to a metropolitan area. One of the least disturbed areas of desert shrub vegetation is present on Area II, a portion of land in the northeastern part of the base. Another area, the Desert Wells Annex, consists of two 40-acre parcels on either side of Craig Road, 4 miles west of the main base. The habitat is typical southern desert shrub; and although it has been disturbed, it is generally in better condition than that found on the remainder of the base. The vegetation is denser, and the presence of fairly good stands of mesquite provides for a mix that is favorable to wildlife.

3.3.6.2 Fauna

A general discussion of the animals occurring in the Mojave Desert region around the base is presented in Section 3.1.6.1. As indicated in Section 3.3.6.1, the three main

habitat types on the base are urban areas, the golf course, and native desert shrub vegetation. In the urban areas, the most representative bird species is the house finch. This bird easily adapts to man-made improvements and associates with the housing developments of humans. The golf course is frequented by great-tailed grackles, domestic geese, ducks, coots, and horned larks. The horned lark is capable of successfully nesting and rearing young on, and adjacent to, the fairways. The native desert shrub vegetation on the base provides for a variety of nongame bird species and small mammals and reptiles that are commonly associated with this vegetation type. Coyote, Gambel's quail, and doves are frequently seen in the shrub vegetation.

3.3.6.3 Endangered and Threatened Species

The state- and federally-listed endangered, threatened, or otherwise protected species of Nellis AFB and NAFR include mammals, birds, fish, reptiles, invertebrates, and plants. Twenty-eight federally listed species are identified in Appendix A, Table A-1. Fifty-three state-listed species are identified in Table A-2. One hundred and twenty-eight candidate species are identified in Table A-3.

3.3.7 Water Resources

3.3.7.1 Surface Water

Nellis AFB is located in an arid region with an average annual precipitation of about 4 inches, most occurring during summer thunderstorms. Winters are relatively dry, with erratic occurrences of snowfall from year to year. The mean annual open water evaporation rate in the vicinity of Nellis AFB is estimated to be 80 inches per year (USGS 1985). Open water evaporation rate is used to estimate evapotranspiration rate and represents the upper limit of water loss from the hydrologic cycle by atmospheric conditions. There is a large potential deficit (76 inches) in precipitation (average annual precipitation minus annual open water evaporation) for the Nellis AFB area.

Nellis AFB is located on the eastern edge of the Las Vegas Valley, which lies in the Great Basin physiographic province. Las Vegas Valley is comprised of the floor of the basin and gently sloping alluvial fans between the surrounding mountains. The slope of the fans is steepest near the mountains and diminishes toward the lower portions of the basin. The Las Vegas Valley slopes gently from the northeast to the south-southwest. The base is located at an approximate elevation of 1,870 feet MSL on a relatively flat alluvial section of the valley. There are no perennial streams on or near Nellis AFB. Surface water runoff is small, occurring during and immediately after the local high-intensity thunderstorms. This runoff is directed from the northwest toward the south and southwest. Stormwater is collected and directed by the on-base surface drainage system to Sloan Channel. Flooding along the drains occurs briefly during and after the higher intensity storms. This shallow flooding occurs on an infrequent basis (TAC 1988a). There are no other direct discharges of wastewater from Nellis AFB; however, the on-base generated sanitary wastewater is discharged to the Clark County sanitary district facilities. Approximately 384 million gallons were discharged to the sanitary district in 1988 (TAC 1988b, URS 1988).

Lake Mead is the major source of surface water in the vicinity of Nellis AFB and is a major source of water for the base through an agreement with the Colorado River Commission (CRC). The Nellis AFB water system currently approaches capacity during summer months when demand is highest. The average daily demand from October 1987 to August 1988 was 3.4 mgd, the highest daily demand was 6.3 mgd (URS 1988). In addition to high demand, two other factors constrain system capacity: the comparatively small size of the reservoirs and towers used for storing water on base, and a restrictive, long-term agreement with the CRC that has set a limit of 1,303 million gallons per year for Nellis AFB use.

Approximately half of the base water demand is met by wells on the base that are pumped continuously (maximum capacity 3.1 mgd). The remaining water is obtained from the CRC. The base has an emergency water-allocation contract with the city of North Las Vegas that allows the base to use a portion of that city's water allocation from the CRC when base demand approaches capacity. In FY 87, approximately 996 million gallons of water were purchased by the base (USAF 1987). For the CY 87, the base's average use of water from the CRC was 69 million gallons; the monthly average water use in 1988 was 81 million gallons (URS 1988).

If flow conditions are favorable, the main water station that pumps water to the base can deliver from 5.2 to 7.8 mgd. However, curtailment policies in the summer months prevent this withdrawal rate. Every year, from June to September, curtailment may go into effect for 8 hours per day, or a maximum of 48 hours per week. During curtailment, users cannot receive water from the CRC; they must use water stored in their reservoirs or towers. Even if there is no curtailment in effect, water is at a premium price between 10:00 a.m. and 10:00 p.m. during those months (URS 1988).

3.3.7.2 Groundwater

The major surface water body (Lake Mead) near Nellis AFB provides a large share of the water needed to operate the base. The additional demand is met by local groundwater supplies. During the development of the Las Vegas Valley, withdrawal of groundwater from the aquifer underlying the valley exceeded the recharge (URS 1988). The extensive pumping overdrafted the groundwater and produced a long-term decline in Las Vegas Valley groundwater levels. Construction of Lake Mead has reduced the demand upon the aquifer and helped stabilize valley groundwater levels (USAF 1987). Nellis AFB is located on the eastern edge of Las Vegas Valley, a structural basin that was formed by subsidence due to faulting. Materials that eroded from the Las Vegas range, spring, and surrounding mountains were deposited in the subsiding basin and formed the alluvium deposited through much of the valley (TAC 1988a). The groundwater underlying Nellis AFB is found in the fine-grained valley sediments. Groundwater quality is generally good in the vicinity of the base (USAF 1987).

3.3.8 Archaeological, Cultural, and Historical Resources

The affected environment for Nellis AFB is virtually the same as described for the TTR (Section 3.1.8), with one addition. A survey at the TFWC Range complex at Nellis by

Crownover (1981) revealed that many target areas contain prehistoric and historic resources that are potentially eligible for listing on the National Register of Historic Places. Preliminary findings of a recent historical survey of Nellis AFB indicate only one building, the old McCarran Field Air Terminal, may be eligible for listing in the National Register of Historic Places (Page and Turnbull 1988). A site record search for Nellis AFB reveals the base can be considered low in archaeological sensitivity and is unlikely to contain aboriginal or early historic occupation sites (Rafferty 1988).

3.3.9 Hazardous Materials and Wastes

Nellis AFB also complies with the HSWA, RCRA, DoD Directives 5100.50 and AFR 19-11 as discussed in Section 3.1.9 and the Base IRP. Nellis AFB is classified under 40 CFR 262 as a large quantity generator of hazardous waste. Nellis AFB has a RCRA Part B permit to store hazardous waste at a DRMO container storage facility. The base also has applied for a Subpart X permit to conduct thermal treatment on waste explosive ordnance. The principle hazardous wastes generated at Nellis AFB are waste paints, strippers, thinners, and other solvents such as methylene chloride, methyl ethyl ketone, 111-trichloroethane, tetrachloroethylene and PD-680.

Construction and demolition debris is generated during base maintenance, building refurbishing, reconstruction, modification, and new facilities construction. This will be the major source of wastes generated by the proposed base realignment (see Section 2.2.2.2). This construction and demolition debris will be disposed of in the base landfill when the work is performed by Air Force personnel. Debris generated by contractors will be disposed of off base by the contractor in a state- and EPA-approved disposal area.

The hazardous waste minimization program at Nellis AFB consists primarily of efforts to reduce solvent waste streams. The base operates plastic media blasters to strip paint from aircraft parts and ground support equipment. The use of media blasters has significantly reduced the amounts of waste solvents normally used in paint stripping operations. The base also contracts the services of solvent recovery vendors. Parts cleaning vats are periodically serviced and solvents are recycled by certified vendors. The base also segregates used petroleum products for resale/recycle. Waste silver generated by the base photography lab is collected and sold to a recycler. The base plans to initiate the use of small batch solvent recycling stills to further reduce hazardous waste generation. Solid waste recycling consists of recycling glass, bond paper, cardboard and aluminum.

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4.0 ENVIRONMENTAL CONSEQUENCES

4.1 37TH TFW/49TH TFW ALTERNATIVE

This alternative includes the inactivating of the 49th TFW and the relocation of the 37th TFW to Holloman AFB.

4.1.1 Tonopah Test Range

If this alternative is implemented 1,130 contractor employee positions, and 46 PAA F-117A aircraft plus 8 PAA 8 AT-38B aircraft would be relocated from TTR.

4.1.1.1 Land Use

There are no plans for changes in land ownership at TTR or the TFWC Range as a result of this alternative. Land associated with the 37th TFW was not established specifically for the unit and is used for other ongoing programs. Assuming that the relocation of the 37th TFW occurs, the facilities in the TTR would be vacated and available for other use. There are no plans to demolish the facilities.

The town of Tonopah would receive moderate land-use impacts due to this alternative primarily due to the reduction of contractor employees. Assuming a worst case scenario, 511 contractor employees residing in Nye County would lose their positions. This change in the work force would reduce residential land use, which, in turn, can affect commercial land use. Residential land use in Goldfield may also be affected. Service and recreation related business activities would be impacted by reduced expenditures.

4.1.1.2 Atmospheric Resources

Although extensive air monitoring has not been performed, air quality in the vicinity of the TTR is believed to be generally very good, because of the low population density and the absence of numerous large sources of emissions in Nye County. This alternative would result in a slight improvement in regional air quality, due to the relocation of the 46 PAA F-117A and 8 PA AT-38B aircraft presently stationed at TTR. Regional emissions of CO, total hydrocarbons (THC, precursor to ozone), NO_x, SO_2, and particulate matter (PM) would be reduced because of the reduction in flight operations and in flight support activities such as fuel storage and handling, maintenance, engine runup, and operation of military and civilian vehicles.

The extent of air quality improvement due to reduced flight operations was estimated by the Air Quality Assessment Model (Seitchek 1985) and its box-model methodology. The modeling procedure consists of identifying the airspace in which specific flight operations take place, the type and maximum number of aircraft

participating during a known time period, and the pollutant emission rates of the engine at the power setting appropriate to the flight operations. The dimensions of the airspace define a box in which the engine emissions are assumed to be uniformly distributed. The average concentration of a pollutant within the box is assumed to be indicative of its short-term concentration at ground level.

The result of this analysis is presented in Table 4.1-1, which identifies the dimensions of the airspace (the box) and the estimated reduction in ground level concentrations of criteria pollutants. Separate tabulations are presented for the Tonopah vicinity and primary special use airspace. The concentration reductions are insignificant, compared to the corresponding NAAQS listed in Table 3.2-1. Since this alternative would not result in an adverse change in air quality in the vicinity, it is not expected to lend to non-conformance with the Clean Air Act of 1990.

4.1.1.3 Noise

The relocation of the 37th TFW from TTR would result in a significant reduction of the aircraft noise exposure in the vicinity of the airfield, but would have a minimal effect on noise exposures at residential community areas. These community areas are either unaffected by the 37th TFW operational noise or are predominantly affected by noise from other military aircraft operations, such as from Nellis AFB or at the Nellis Range Complex.

4.1.1.4 Airspace Management

The 37th/49th TFW alternative would not change special use airspace designations within the TFWC Range complex. Although this relocation may result in some reduced use of R-4809, this airspace would continue to support TFWC tactical training operations and DOE testing programs. The TTR airfield would remain open for use by DOE and for use as an emergency field for TFWC Range operations. The extent to which these airfield operations would require local ATC services would determine the continued need for the existing approach control and airport traffic areas. The subsequent temporary or permanent use of this airfield and ATC airspace requirements would be evaluated separately from this proposal.

4.1.1.5 Socioeconomics

This section presents the estimated socioeconomic impacts of the 37th/49th TFW alternative in Tonopah and Nye County. These estimates are based on a detailed accounting of employment and expenditures related to 37th TFW activities. The assumptions and methodology for estimating economic impacts are described in detail in Appendix B.

4.1.1.5.1 Population

The demographic impacts of this alternative are shown in Table 4.1-2. The relocation of the 37th TFW from TTR would (as worst case) eliminate 1,130 contractor positions, 511 of which are held by Nye County residents (22 of the 511 live in nearby

Table 4.1-1 Maximum Hourly Air Pollutant Concentrations at Tonopah Test Range and Primary Special Use Airspace

	Concentrations (ug/m^3)				
	CO	**THC**	**NOx**	**SOx**	**PM**
Tonopah Test Range					
F-117A	6.42	2.37	2.94	0.18	0.01
T-38	2.49	0.38	0.06	0.03	0.00
Total	8.91	2.76	3.00	0.21	0.01
Primary Special Use Airspace					
R-4809	0.58	0.020	0.73	0.045	0.0096
TFWC	0.0018	0.000059	0.0022	0.00014	0.000029
Others	0.00019	0.000007	0.00024	0.000015	0.000003

Table 4.1-2 Demographic Impacts of the 37th/49th TFW Alternative on Nye County

Civilian households (a)	-511
School children	-358
Total population	-1,380

(a) Includes all TTR contractors living in Nye County; assumes indirect workers do not leave the county.

Esmeralda County, but were included for this analysis as Nye County residents). The remaining positions are filled by 547 workers commuting from Clark County and 72 workers commuting from other areas. As a worst case, all 511 households would relocate. No indirect workers are expected to relocate. An estimated 358 school children would accompany the out-migrating contractors.

The total population impact would be a reduction of 1,380 persons, about 8% of the estimated Nye County population of 17,781 and about 38% of the estimated 3,621 population in Tonopah.

Population in the area would be further diminished by upcoming reductions in mining employment, specifically a reduction of 100 jobs at Candelaria Mine and 215 jobs at Cypress Mine. The 315 miner households leaving the area would result in a population loss of roughly 851 persons. The cumulative reduction in population due to the relocation of the 37th TFW and loss of mining jobs, would be 2,231 persons or 12% of the total county population. If the primary residence of Cypress Mine employees was Tonopah, the cumulative impact would be a population reduction of 1,595 persons, or roughly 44% of Tonopah's population.

It should be noted that estimates of population impacts presented in this analysis are rough approximations. Actual population losses could be higher than estimated if indirect worker and school employees, unemployed because of this alternative and mine closings, are forced to leave Nye County. Actual losses could be lower than estimated if any unemployed TTR contractors or miners remain in Nye County -- this analysis assumes that all unemployed direct workers would leave the county.

4.1.1.5.2 Employment and Income

Relocation of the 37th TFW would reduce employment and income in Nye County. Table 4.1-3 indicates that a total of 1,130 contractor positions at TTR would be eliminated, roughly 10% of total Nye County employment. As noted above, 511 of these contractors live in Nye County, including 440 workers residing in Tonopah. An estimated 41 indirect jobs would be lost and 28 education workers would be laid off. A loss of 509 positions (contractor, indirect and education) would be the equivalent of roughly 20% of the total employment of Tonopah residents. The loss of jobs would be somewhat attenuated by the departure of working spouses and working dependents of contractors, leaving jobs that would then be available to displaced workers. Based on the national average (BLS, 1990) of 1.6 workers per household, an estimated 307 such jobs would be left vacant. This estimate could change considerably if the number of workers per household was known specifically for Nye County.

The reduction of mining activities would reduce direct employment by up to 315 positions. These reductions could lead to a loss of 17 indirect jobs and 17 school workers. An estimated 189 working spouses and dependents share households with the affected miners. The cumulative employment impact of the relocation of the 37th TFW and the reduction in mining -- including direct (commuters and residents), indirect and

Table 4.1-3 Employment Impacts of the 37th TFW/49th TFW Alternative on Nye County

Resident Contractors	-511
Commuting Contractors	-619
School Workers	-28
Indirect Jobs	-41
TOTAL	-1,199

education workers -- would be a reduction of 1,548 positions, or roughly 14% of current employment in the County.

The impacts to Nye County earnings are shown in Table 4.1-4. Earnings associated with the relocation of the 37th TFW would be reduced by $21.5 million because of the loss of the contract positions, $887 thousand due to school worker layoffs, and $545 thousand because of indirect job loss. The earnings of the 547 contractors commuting from Clark County would represent an additional loss of $21.9 million. Earnings losses related to 72 workers commuting from other areas would be $2.9 million. Total reduction to earnings in Nye County (including earning of workers commuting from Clark County) would be $44.9 million, or 14% of total 1988 County earnings. Loss of mining jobs would lead to cumulative earnings losses of approximately $58 million, or 18 % of the county total.

4.1.1.5.3 Housing

As a worst-case, all 511 contractor households in Nye County would relocate. A simultaneous move by all contractor households would have a dramatic impact on the local Tonopah housing market, depressing prices and increasing the time needed to sell a home. In 1989, the total number of residential sales in Tonopah was 78. Currently, knowledge of the proposed relocation of the 37th TFW has created uncertainty in the residential market, and sales have slowed considerably (Rippie 1990). Additional vacancies related to the reduction in mining employment will further depress home sales and prices for rentals.

4.1.1.5.4 Community Facilities and Services

Education. As a result of the realignment, the Nye County School District would experience a decrease in enrollment in the 1992/93 school year. It is anticipated that 358 school-aged dependents would leave with contractor personnel, resulting in an 11% decrease in enrollment in local schools. This decrease includes an estimated 148 high school students, based on current enrollment proportions. School staff would be reduced by an estimated 28 positions (Ragar, 1991).

The reduction of mining employment could (worst case) lead to an additional loss of 221 school-aged children. The cumulative reduction would be 579 students, an approximate 17% decrease in enrollment. This would include an estimated 237 high school students. Cumulative school staff reductions would be an estimated 45 positions.

Police and Fire Protection. This alternative would result in the departure of 1,380 persons from Tonopah, increasing the ratio of sheriff and fire protection personnel to local population, possibly improving the levels of service (LOS) in the short term. However, over the long term, a reduced population and tax base would lead to reduced funding levels for police and fire protection, which could result in fewer services and cutbacks in staff.

Table 4.1-4 Earning Impacts of the 37th TFW/49th TFW Alternative on Nye County

Resident Contractors	-$21,575,448
Commuting Contractors	-$21,941,819
School Workers	-$887,520
Indirect Workers	-$556,706
TOTAL	-$44,961,493

Health Services. The decrease in population in Tonopah would reduce demand for medical services and reduce the strain on the Nye County Regional Medical Center. Over the long term, however, the medical center may be faced with reduced revenue receipts and increased difficulty in attracting and maintaining qualified health care personnel in Tonopah. With a smaller population base, health care professionals may decide not to practice in Tonopah.

Utilities.

- *Water Supply.* Currently the Tonopah municipal water supply is providing potable water at capacity. A decrease in population as a result of this alternative would have a positive effect on the water supply in the short term. In the long term, reduced water sales and reduced tax base may negatively impact the water supply through increased rates or curtailed future improvements.

- *Wastewater.* The Tonopah wastewater system is currently at 50% capacity. A decrease in local population would have a minor positive impact on

  sewage disposal services in the area. Over the long term, lower revenue receipts from reduced user fees may have a negative impact.

- *Solid Waste.* The realignment would result in decreased demand for solid waste disposal services, extending the life of the regional landfill. Again, negative impacts may be experienced in the long term due to reduced revenue receipts.

- *Power.* Electricity and natural gas consumption would decrease as a result of this alternative, with no measurable effects on the overall LOS currently provided. The two propane suppliers in Tonopah may experience diminished demand as the population in Tonopah decreases.

4.1.1.5.5 Public Finance

The proposed relocation of the 37th TFW to Holloman AFB would result in a loss of revenues and expenditures in Tonopah. Lost revenues are associated with decreased property taxes, sales taxes, miscellaneous taxes (i.e., specific ownership taxes), and state and federal subventions. Recently a County-wide $30-million bond issue was passed to finance school construction and improvements. The tax burden for remaining residents of Tonopah and Nye County would increase significantly if the property tax base decreases due to out-migration.

4.1.1.5.6 Transportation

Within the ROI, the 37th/49th TFW alternative would result in a decrease of approximately 500 commuter vehicles during peak hours. Should an out-migration follow, fewer people in the area would result in a decreased utilization of the transportation

systems, and primarily, the roadway network in the ROI. As a result, congestion would decrease and driving conditions would generally improve in the area. In some of the less utilized portions of the network, changes in road maintenance activities may be required. This may involve changes in maintenance frequency or adoption of special measures to control weed growth.

4.1.1.6 Biological Resources

No construction activity at TTR would be required for the 37th/49th TFW alternative, and flight operations and range activities would decrease. As a result, no adverse impacts to biota and threatened and endangered species are anticipated. The proposed reduction in personnel at TTR and reduction in range operational activity may have a slight positive impact on biota by reducing sources of perturbation (i.e, human presence and activity, vehicular traffic on TTR roads, and range utilization).

4.1.1.7 Water Resources

4.1.1.7.1 Surface Water

There are two primary sources of impact to surface water at TTR. One source is contaminated water produced when precipitation combines with contaminants on the apron, runway, and taxiways, forming stormwater runoff. The proposed relocation of the 37th TFW would eliminate their contribution of contaminants to the stormwater runoff. Another source of impact to surface water is uncontrolled outflow from the domestic sewage treatment plant. The treatment system is currently under-utilized; the 37th TFW are the primary generators of this wastewater flow. Relocation of the wing would eliminate their contribution of wastewater to the treatment system. These reductions in wastewater volume and/or level of contamination would have a positive impact on the surface water at TTR.

4.1.1.7.2 Groundwater

There are two primary sources of impact to groundwater at TTR. One source is the withdrawal of approximately 380 AFY of water to support the 37th TFW (DOE and USAF 1988). Upon relocation of the wing, this withdrawal would be reduced (substantially) to the amount needed by 160 to 220 caretaker personnel. Another source of impact to groundwater is infiltration of wastewater discharged from the support facilities for the 37th TFW. This infiltration is primarily associated with the wastewater treatment plant aerobic stabilization pond. At the current inflow rate of 192 AFY, approximately 128 AFY infiltrates to the groundwater reservoir (DOE and USAF 1988). This inflow would be reduced to that produced by the caretaker personnel, thereby substantially reducing the volume of water available for infiltration. The stabilization pond would not function as designed under the reduced wastewater flow and would produce anaerobic conditions and objectionable odors. A proposed conversion of the stabilization pond to a multichamber serial pond would rectify the anaerobic conditions and odors. Alternatively, a package sewer treatment plant may be constructed to handle the greatly reduced flow after the departure of the 37th TFW. The reduction in withdrawal of groundwater from the

current 380 AFY would offset the reduction in infiltration of approximately 128 AFY of recharge to the groundwater reservoir. Modification or replacement of the current wastewater treatment system to provide appropriate treatment of the reduced wastewater would improve the quality of water infiltrating to the groundwater reservoir. The reductions in groundwater withdrawal and the lowered level of contaminants in the water (storm runoff, wastewater treatment plant discharge) that infiltrates would be positive impacts to both quality and quantity of groundwater in the vicinity of TTR.

4.1.1.8 Archaeological, Cultural, and Historical Resources

Under this alternative, the 37th TFW would no longer make use of TTR and the TFWC (Nellis) Range complex. Ground disturbance as a result of bombing and range decontamination would be reduced, and direct impacts to cultural resources on the ranges would not occur. The 37th/49th TFW alternative would reduce human presence in the TTR, and noise and vibrations from overflights would be reduced. This alternative would not affect archaeological, historical, or Native American cultural resources at or near TTR and the Nellis Range complex.

4.1.1.9 Hazardous Materials and Wastes

The operational activities of the 37th TFW utilize hazardous materials and produce hazardous wastes. The activities associated with hazardous materials include maintenance of aircraft, aircraft corrosion control, vehicle maintenance, fuel handling and storage, munitions storage and ground support equipment maintenance. Waste-generating activities include grounds maintenance, munitions storage and disposal, medical services, and laboratory operations (including nondestructive inspection and fuels analysis). Wastes generated in maintenance activities include spent solvents, waste oils, contaminated fuels, and greases removed from the equipment. Wastes from corrosion control operations include paint chips, waste paint, spent solvents, and spent strippers. Soap, detergents, and small amounts of PD-680 wastes are generated by aircraft washing activities. No radioactive waste streams have been identified in association with the operation of the 37th TFW (WAC, 1990).

Current hazardous waste management activities at TTR are performed by contractors in concert with the base civil engineer's office. Base and contractor personnel collect wastes at satellite accumulation stations. From the satellite accumulation points, these wastes are taken to the hazardous waste accumulation facility for packaging, and shipped to permitted off-base disposal facilities (WRC 1990).

There are a total of 106 small underground storage tanks (USTs) in addition to 7 above-ground tanks at TTR. Under an ongoing program (1990-1991) leak detection, cathodic protection, and overfill/spill protection devices are being installed on facility USTs (WRC 1990). A recent environmental compliance assessment and management program (WRC 1990) stated: "In spite of institutional complexities, the environmental program at TTR is well managed, and no significant findings were noted during the evaluation." The caretaker personnel would maintain TTR facilities for future use. Efforts are underway to remediate JP-4 contaminated soil at the base fire training pit. Clean-up actions are being

coordinated and approved by applicable federal and state agencies. This clean-up will be accomplished regardless of whether or not the 37th TFW is relocated.

4.1.2 Holloman AFB

This alternative would result in a decrease of 18 aircraft and 185 manpower authorizations at Holloman AFB from baseline. Approximately 60 acres of land on base would be disturbed for construction. When superimposed on the reduction of the 479th TTW, a net decrease of 99 aircraft, 489 manpower authorizations, and 528 contractor positions would be incurred.

4.1.2.1 Land Use

The 37th/49th alternative would result in additional facilities being built within the boundaries of Holloman AFB. Additional maintenance and support facilities need to be constructed, and some existing facilities would need to be modified. Vacant land within the base would be used for support facilities for the 37th TFW. An estimated 1.5-mile easement would be granted to provide power to the new facilities. An above-ground 115 KVA power line would be brought to the F-117A area.

This alternative would be expected to have negligible land use impact in the vicinity of Holloman AFB. Construction activities on base would affect fewer than 60 acres of already disturbed land; such activities are of insufficient magnitude to result in an adverse impact on land use in the surrounding area. The small decrease in base personnel (185 positions) due to this alternative is in itself insufficient to result in adverse affects on County land use patterns.

Under current conditions, the 65 dB noise contour around Holloman AFB (cf. Section 4.1.2.3.1) passes over a portion of White Sands National Monument (WSNM). Under this alternative, the area encompassed by this contour will be reduced to the point where little if any of WSNM will be encompassed. As a result, no impact from average day-night noise levels are projected for WSNM under this alternative. There will, however, be an increase in nighttime operations from Holloman AFB. While this increase is taken into account in the noise contour data (through differential weighting of nighttime operations) showing a lessening of noise related impact, the increased nighttime sorties may be noticed by some visitors. The three permanent residences and four seasonal residences located in the headquarters area could be affected by night operations of the F-117As. The National Monument receives an average of approximately 570,000 visitors per year. Since most of the park's attractions are oriented toward day-use activities, the majority of the visitors would not be impacted by this alternative. However, the Park Service does hold 12 to 16 interpretive evening programs during the summer season. In addition, there is a backcountry campsite where hikers can spend the night.

R-5107B, C, E, H, and J, R-5103 B and C, R-5111 A, B, and C, and R-2301 would be used with this alternative. Since they are located primarily over vacant land with limited agricultural activities, mainly cattle grazing, significant impacts to land use under these airspaces are not expected to occur. R-5104 (Melrose Bombing Range) would also be

used for some F-117A sorties. Noise levels are expected to increase 3 dB, and about 40 additional residents in the vicinity of the range would be exposed to average noise levels of L_{dn} 65 dB and above. No other land uses are expected to be adversely affected.

Land uses under the Beak and Talon MOAs should experience no significant impacts due to the floor of the MOAs. However, campers in the national forest could be informed about the possibility of nighttime flights. In addition, local newspapers and information pamphlets could be used to inform residents and tourists that night flights may occur over the area.

Land uses along MTRs in the area around Holloman AFB would not be significantly affected by this alternative. The decrease in F-15 operations would result in a reduction in noise exposure under some existing MTRs, a minor beneficial effect. Modification to existing MTRs would not be required with this alternative.

4.1.2.2 Atmospheric Resources

Maximum near field air pollutant concentrations at Holloman AFB as a result of 37th TFW operations and inactivation of the 49th TFW are shown in Table 4.1-5. Air pollutant concentrations in the special use airspace associated with this alternative would be unaffected. Air quality impacts of this action would be insignificant. Maximum air pollutant concentrations in the potentially affected special use airspace and MTR's is shown in Table 4.1-6. Net air quality impacts of this alternative would be slightly beneficial to CO, hydrocarbons (HC), NOx, sulfur oxides (SOx) and PM. In any case all impacts would be insignificant. The changes to the air quality within 3 miles of Holloman AFB due to the changes in aircraft operations would not be expected to result in non-conformity with the Clean Air Act of 1990. Emissions from other sources, including ground operations, refueling, support vehicles and other miscellaneous mobile sources are expected to be small and dispersed throughout the base and the local urbanized area. Air Force bases emissions are generally less than one percent of the regional emissions of all pollutants (Naugle et al 1978). Temporary construction emissions of particulate matter (PM_{10}) would be expected to be approximately 30 tons/acre/month.

4.1.2.3 Noise

4.1.2.3.1 <u>On Base</u>

This alternative would result in a net decrease in noise impacted land area around the base, as shown in Table 4.1-7 for various levels of L_{dn} contours for this alternative (see Figure 4.1-1). As for other cases examined in this document, there is minimal population within the L_{dn} 65 dB contour area, other than military personnel.

The land area within the L_{dn} 65 dB contour around Holloman AFB would be about half of that for existing operations at the base and about 54% of the baseline case conditions after reduction of the 479th TTW. This noise exposure reduction would be primarily due to the significant reduction of flight operations at the base under this

Table 4.1-5 Maximum Ground-Level Air Pollutant Concentrations (ug/m^3) at Holloman AFB from 37th TFW/49th TFW Operations

Aircraft Type	CO	HC	NO_x	SO_x	PM
F-117A	6.4	2.4	2.9	0.2	0.0
AT-38	2.5	0.4	0.1	0.0	0.0
SUBTOTAL (37th TFW)	8.9	2.8	3.0	0.2	0.0
F-15 *	-33.75	-4.9	-13.8	-3.1	-0.4
Total * (49th + 37th)	-24.8	-2.1	-10.8	-2.9	-0.4

* Negative values indicate emissions reductions.

Table 4.1-6 Maximum Air Pollutant Concentration at Holloman AFB (ug/m^3) In Special Use Airspace Most Affected by 37th TFW and 49th TFW Operations

Unit	CO	HC	NO_x	SO_x	PM
37th TFW					
Pecos MOAs	0.36	0.01	0.45	0.03	0.006
Talon MOA	0.40	0.01	0.51	0.03	0.007
Oscura	3.27	0.11	4.11	0.25	0.05
Melrose	3.92	0.13	4.39	0.30	0.07
49th TFW *					
Beak MOAs	1.042	0.083	10.42	0.042	0.142
Talon MOA	1.177	0.094	11.77	0.047	0.160
Pecos MOA	1.622	0.130	16.22	0.065	0.221
R-5107	1.3	0.10	13.01	0.05	0.18
MTR	-6.8	-0.8	-205	-7.6	2.6

* Emission reductions

Table 4.1-7 Land Areas Within L_{dn} Noise Exposure Contours at Holloman AFB for 37th TFW/49th TFW Operations

L_{dn} Contour	Land Area, Square Miles				
	Current[1]	Baseline[2]	Alternative	% Change from Current	% Change from Baseline
65	42.4	38.5	21.8	-48.6%	-43.4%
70	19.6	16.6	11.1	-43.4%	-33.1%
75	9.0	7.1	5.2	-42.2%	-26.8%
80	4.6	3.7	2.1	-54.3%	-43.2%

1. Current = Conditions including 479th TTW activity
2. Baseline = Current conditions including the reduction of the 479th TTW
3. Land areas computed using NOISEMAP 6.0 Noise Exposure Model.

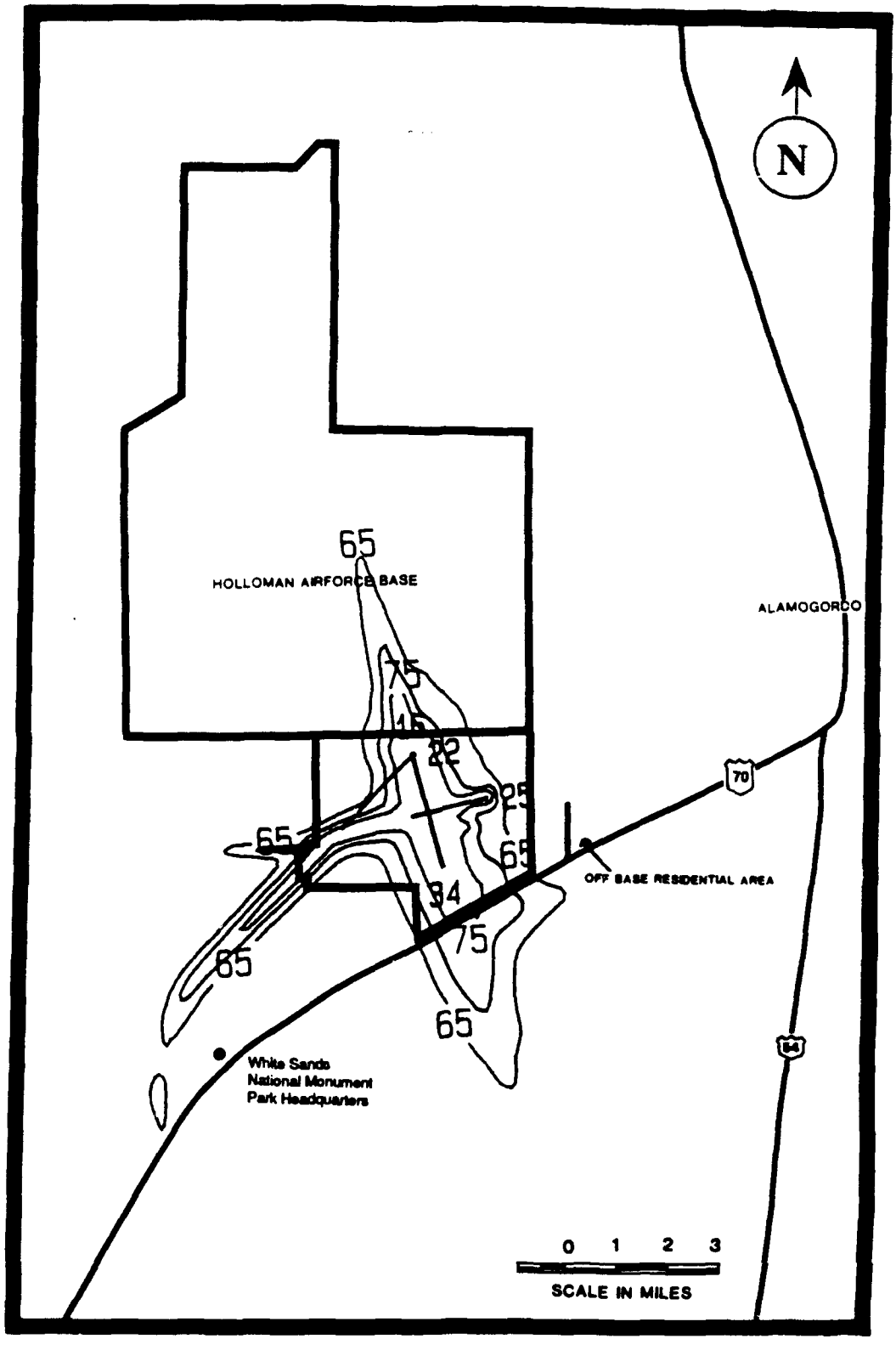

Figure 4.1-1 L_{dn} Noise Contours for Holloman AFB with the 37th TFW/49th TFW Alternative (scale 1:200,000)

alternative action. Single event noise levels would be similar to those occurring under the flight paths at present.

4.1.2.3.2 Special Use Airspace

Noise exposures in other areas within the region of influence of Holloman AFB under this alternative are discussed as follows:

Beak A, B, C MOAs: The noise exposure L_{dn} level estimated for this alternative would incur only small change, of about 1 dB from existing, baseline or the Holloman alternative, as shown in Table 4.1-8.

Talon MOA: The L_{dn} noise exposure under the Talon MOA would be about 37 dB, which is 12 dB lower than existing or baseline conditions. The noise exposures are insignificant in terms of community reaction to noise.

Oscura Bombing Range: The noise exposure under the lowest altitude portions of the Oscura flight paths would be 87 dB, which is substantially above existing (L_{dn} 83 dB) or baseline (L_{dn} 81 dB) conditions. Increased noise exposures would be mainly due to the F-117A night-time operations, although there are no residences within the range area.

Red Rio Bombing Range: The noise exposure under this alternative action would be L_{dn} 90 dB. This noise exposure is controlled by the F-117A daytime and nighttime operations on this range and is much higher than existing (L_{dn} 81 dB) or baseline (L_{dn} 79 dB), although there are no residences within the range area.

McGregor Bombing Range: The noise exposure estimated for this alternative is an L_{dn} of 79 dB, which is much higher than projected baseline conditions (L_{dn} 64 dB), but only slightly higher than existing (L_{dn} 77 dB) conditions. There are no residences in the range area.

Melrose Bombing Range: This alternative would cause an increase in flight activity at Melrose Bombing Range by the addition of 1,440 annual sorties of F-117A aircraft, of which 40% of the sorties would be flown at night-time (2200 hrs to 0700 hrs local time). These would be additive to the current (1989 - 1990) activity of 5,930 sorties per year on the range and a long-term projected activity of 10,685 sorties per year after realignment of FB-111 aircraft to Cannon AFB and future increases in SAC usage of the range. The noise environment in the vicinity of Melrose Bombing Range would be adversely impacted by the F-117A flight activity, primarily due to the addition of night-time (2200 hrs to 0700 hrs) sorties. At present, all flight activity on the range occurs during daytime (0700 hrs to 2200 hrs), including darkness periods before 2200 hrs. Assuming that F-117A flight patterns would be similar to those currently used by F-111 aircraft on the range, the increase in L_{dn} noise exposures under the flight paths would be 3 dB. The land area within the L_{dn} 65 dB contour would increase 60 square miles currently to about 95 square miles (with the addition of F-117A day and night-time sorties). The noise impacted resident population within the L_{dn} 65 dB can be expected to increase from 74 persons (currently) to about 115 persons based on rural population density in the area. The

Table 4.1-8 Flight Activity and L_{dn} Noise Exposure Levels Under Beak and Talon MOAs for the 37th TFW/49th TFW Alternative

	Beak A	Beak B	Beak C	Talon
Sorties per year				
Existing	3,387	7,858	7,433	7,376
Baseline	1,438	1,435	1,477	4,415
37th/49th Alt	3,026	3,004	2,997	4,624
L_{dn}, dB, Average*				
Existing	46	48	47	49
Baseline	46	47	47	49
37th/49th Alt	47	47	46	37

* Assuming all aircraft operations at an average height of 5,000 feet AGL and distributed equally across the MOA.

primary noise impact change would be due to the F-117A night-time sorties, which would average between 2 and 3 sorties per active night with possibly 3 passes over the range per sortie. Single-event noise levels would be similar to those currently experienced on the range.

In the long-term, the cumulative impact of other TAC and SAC activity has been estimated to increase the L_{dn} 65 dB contour areas to 88 square miles with a resident population of 108 persons. This F-117A flight activity would increase long-term cumulative L_{dn} values at the range by a further 2 dB. This would result in a L_{dn} 65 dB land area of about 107 square miles and an impacted resident population of about 132 persons based on rural population density in the area.

Barry M Goldwater Bombing Range: Under this alternative a limited number of F-117A (fewer than 10 per month) sorties would be conducted at Barry M Goldwater Bombing Range. This is not considered to be a substantive change in range utilization, and no adverse noise impact is expected to result.

WSMR Supersonic Airspace: This alternative would result in a reduction of supersonic flight activity in the WSMR supersonic airspace due to the removal of F-15 aircraft and reduction of AT-38B operations. There would be no replacement supersonic flight activity under this alternative since the 37th TFW does not train at supersonic airspeeds. Relative to current sonic boom conditions under the airspace (Plotkin 1989), the use of the airspace and the occurrence of sonic booms would be reduced to about 18% of present conditions. This would be equivalent to a 7.5 dB reduction of L_{cdn} sonic boom exposure under the airspace. This would be perceived by affected residents as a significant reduction in occurrences but with similar sonic boom levels per occurrence as currently experienced.

Valentine and Reserve Supersonic Airspace: The use of these airspaces for supersonic flight activies is entirely associated with 49th TFW ACM training. Under this alternative, the 49th TFW would no longer use the area. Future supersonic activity would require environmental analysis.

4.1.2.4 Airspace Management

Under this alternative no change in the existing ATC environment or terminal airspace structure is required. The action will result in a net decrease of aircraft and flight operations at Holloman AFB. As a result, there may be a beneficial impact on controlled airspace within the Holloman ROI. With the decrease in daytime military operations, there should be no adverse impact to aircraft transiting the Holloman approach control area. Aircraft operating within the traffic patterns of the Alamogordo-White Sands Regional Airport, or any of the other civil airports in the vicinity of Holloman AFB, would not be adversely affected. Projected airspace events data for the 37th TFW indicate that the use of Beak A, B, and C, and Talon MOAs would decrease under this alternative and no adverse airspace management impacts are predicted. Projected hourly range use data (see detailed analysis in Section 4.2.2.4.2) indicates that the projected activity would be less than the available capacity of the ranges. As a result, no significant adverse impact on Holloman AFB range facilities is predicted.

4.1.2.5 Socioeconomics

This section describes the net socioeconomic impacts to Otero County of the incoming 37th TFW and the inactivation of the 49th TFW. Baseline conditions for the analysis include population and local expenditure losses related to the reduction of the 479th TTW. However, for comparative purposes the reduction of the 479th TTW is considered with the other two actions when making statements regarding the cumulative impact of all realignment activities at Holloman AFB. The impacts of $69.7 million in construction related to the 37th TFW are not considered changes to the "long-term" economy of Otero County and are noted separately. Note that only 10% of new construction expenditures would be spent in the local economy (Otero County). Detailed estimates of the socioeconomic impacts of this alternative are found in Appendix B.

4.1.2.5.1 Population

The demographic impact of the action is summarized in Table 4.1-9. The number of military workers would increase by 149, assuming that a portion of the military workers reassigned would choose to remain in the County. The number of civilian workers would decline by 4 persons. The number of school children would increase by 87, and the total population in the region would increase by 407 -- less than 1% of the estimated baseline population of 51,500 persons. The cumulative impact to population, including the reduction of the 479th TTW, would be a net decrease of 1,121 persons, or 2% of the population prior to the 479th TTW reduction.

4.1.2.5.2 Employment and Income

This alternative would reduce military and civilian employment. Table 4.1-10 indicates that uniformed military jobs would be reduced by 173, and civilian jobs would be reduced by 84 because of the action. The total employment impacts would be a loss of 257 positions, or roughly 1% of 23,672 total jobs in Otero County. Cumulative employment losses, including the reduction of the 479th TTW, would amount to a net reduction of 1,301 positions, or roughly 5% of the pre-479th TTW reduction employment. These estimates do not include the 168 local jobs associated with FY 91 construction for the 37th TFW.

Earnings in the region would decrease, largely due to the reduction in military positions. Table 4.1-11 indicates a decline in military payrolls of $4.2 million, with a total reduction of $5.4 million. This represents roughly a 1.3% decline in the baseline earnings of $390 million in Otero County. The cumulative decline, including the reduction of the 479th TTW, is $29.8 million or 7% of the pre-479th TTW reduction earnings in 1988. Construction related to the arrival of the 37th TFW would have a single-year impact of $2 million direct and $1.4 million indirect earnings.

4.1.2.5.3 Housing

The impact of the action would increase net housing demand by 145 units. The demand for owner-occupied homes would increase by approximately 36 units. This increase can easily be accommodated by the approximately 400 homes currently for sale

Table 4.1-9 Demographic Impacts of the 37th TFW/49th TFW Alternative on Otero County (not including the reduction of the 479th TFW)

	37th TFW	49th TFW	Net Impacts
Military households	1,976	-1,827	149
Civilian households	25	-29	-4
School Aged Children	1,203	-1,116	87
Total Population	5,600	-5,193	407

Note: Demographic impacts differ from changes to employment. Typically a percentage of both military and civilian workers elect to remain in an area even though losing their jobs. For example, the number of military manpower authorizations at Holloman AFB was reduced by 2,149 with the inactivation of the 49th TFW, but only an estimated 1,827 households would actually leave the area. Remaining personnel would seek reassignment at Holloman AFB or retire. Thus, the reduction in jobs for this alternative is less than the decrease in households.

Table 4.1-10 Employment Impacts of the 37th TFW/49th TFW Alternative on Otero County (not including the reduction of the 479th TFW)

	37th TFW	49th TFW	Net Impacts
Military Manpower Authorizations	1,976	-2,149	-173
Civilian workers:			
Appropriated funds	71	-83	-12
NAF and others	184	-201	-17
Contractors	0	0	0
Indirect	568	-623	-55
Total military & civilian	2,799	-3,056	-257

Table 4.1-11 Earnings Impacts of the 37th TFW/49th TFW Alternative on Otero County (not including the reduction of the 479th TFW)

	37th TFW	49th TFW	Net Impacts
Military Manpower Authorizations	$46,996,211	-51,268,854	$-4,272,643
Civilian workers:			
Appropriated funds	1,976,881	-2,307,219	-330,338
NAF and others	1,364,407	-1,487,717	-123,310
Contractors	0	0	0
Indirect	7,870,157	-8,633,360	-763,203
Total military & civilian	$58,207,656	-63,697,150	$-5,489,494

and the anticipated additional 379 homes for sale when the 479th TTW reduction is complete. The local rental market would experience vacancy rates of an estimated 14% following the reduction of the 479th TTW, more than sufficient to meet the estimated demand for 72 rental units resulting from this alternative. The remaining increase in demand would be met with existing on-base housing.

4.1.2.5.4 Community Facilities and Services

Education. The number of school-aged children in District 1 would increase by 87 with the two actions included in this alternative action. This would represent roughly a 1% percent increase to an estimated total baseline enrollment of 8,190. Cumulative impacts, including the reduction of the 479th TTW, would be a reduction of 264 students, or 3% in pre-479th TTW reduction enrollment.

Police and Fire Protection. The population impact of 407 persons would have little effect on the demand or provision of public safety services.

Health Services. Hospitals and related health care service providers are currently operating below capacity and would be able to meet any increased demand following the action.

Utilities. Public utilities and services, including water supply, sewage systems, landfills, and power, are currently below capacity and would be capable of serving the slight increase in demand related to the action.

4.1.2.5.5 Public Finance

The slight population increase due to the action would lead to small increases in public revenues, including property taxes, and miscellaneous taxes specific to local jurisdictions. No capital improvements would be necessary, and public expenditures would be expected to increase in rough proportion with the population increase.

4.1.2.5.6 Transportation

With the relatively slight increase in area population due to this alternative no impact on the local air and rail transportation networks is expected. The increases in traffic volume are not considered sufficient to impact highway maintenance costs or warrant new transportation facilities, and no significant change in LOS or accident rate is projected.

4.1.2.6 Biological Resources

4.1.2.6.1 Vegetation

This alternative would not adversely affect the vegetation around the base or the vegetation on the lands underlying special use airspace to be used for training missions. Approximately 60 acres would be affected by construction at Holloman AFB. Most of this

area is in portions of the base previously disturbed by human activity. Since the vegetation in such areas is dominated by cultivated species, no significant impact to plant resources is anticipated.

4.1.2.6.2 Fauna

This alternative would not be expected to adversely affect the fauna on and around Holloman AFB, or on the land underlying airspace units used for training missions. Construction activities, bird aircraft strike, and noise are considered to be the most plausible potential source of impact, though none of these sources would be expected to have a significant effect on area fauna.

With respect to construction, most new construction will occur in previously disturbed portions of Holloman AFB. Since the fauna of such areas is generally sparse and/or acclimated to frequent disturbance, no adverse impact from this source would be expected. The reduced sortie rates associated with the reduction of the 49th TFW would be expected to substantially reduce the probability of bird aircraft strike. The reduction in bird aircraft strike would not be offset by increased bird aircraft strike due to F-117A sorties since this aircraft typically flies at relatively high altitudes (e.g., 10,000 feet AGL).

With respect to noise, substantial literature (recently reviewed in Manci et al. 1988, and ORNL 1988) exists discussing the impacts of elevated sound levels, and startle effects due to the sudden onset of aircraft generated noise. Findings in the literature are highly variable and inconclusive, both with respect to the significance of elevated noise levels, startle effects, and diel differences. Given this inconsistency, no firm conclusion is possible, although it is reasonable to assume that an increase in the range of 2 to 3 dB in an area where noises of this type have long been a part of the environment would elicit little response of any kind from domestic animals or wildlife.

Noise levels are expected to be reduced in most areas associated with this alternative (i.e., MOAs, and Restricted Airspace unit R-5107); sortie rates and the frequency of single event noise levels above 100 dB(A), will also be reduced for these areas. No impact would be expected for the fauna of these areas. Noise levels would increase by 2 dB on McGregor Bombing Range, though the number of sorties (and hence, the frequency of single event noise levels above 100 dB(A)) would decrease; at these levels no adverse impact to the fauna of McGregor Bombing Range would be expected. Increase sortie rates on Oscura, Red Rio, and Melrose Bombing Ranges would result in an increase in noise levels of 3 to 9 dB. However, because these tracts have long histories of use as bombing targets, a certain degree of acclimatization by resident fauna to the disturbances associated with such use can be presumed.

This alternative will involve the addition of night flight (2200 to 0700L hours) activity on Oscura, Red Rio and Melrose Bombing Ranges, Beak MOA, and in WSMR R-5107. (No night sorties are projected for the McGregor Bombing Range, or other special use airspace.) The addition of night flight activity in these areas is associated with the F-117A sorties. Flight profiles for these aircraft indicate that for the most part, they will be flying at altitudes in excess of 5,000 feet AGL, with only brief descents on the bombing ranges

to altitudes as low as 500 feet AGL. Given the relatively low number of night flights anticipated (about 3.5 sorties per training night in most active airspace units) no impact from this source is anticipated. No adverse impact due to startle effect is expected from this alternative on the affected bombing ranges, MOAs, and other special use airspace. In the case of the MTRs, no adverse effect would be expected because the number of sorties will decrease under this alternative.

4.1.2.6.3 Endangered and Threatened Species

This alternative is not anticipated to adversely impact state or federally listed species, or federal species proposed to be listed under the Endangered Species Act. Most of the land involved in construction activities at Holloman AFB has already been disturbed, and the presence of significant species in this area is considered unlikely. No species protected under the Endangered Species Act is known to inhabit Melrose, Red Rio, or Oscura Bombing Ranges, and the increased noise levels are not considered a cause for concern for those protected species that might briefly pass through the area (e.g., the peregrine falcon). Mexican spotted owls and bighorn sheep are present under portions of R-5107. Because of the substantial reduction in sorties to this area, and the fact that the F-117A typically flies at altitudes above 5,000 feet AGL, no impact to these species would be expected. A Mexican spotted owl, a candidate 2 species, has been sited on McGregor Bombing Range, but no nesting sites have been reported there. A pair of golden eagles forage in the vicinity of the Melrose Range. While not protected under the Endangered Species Act, they are protected under the Bald Eagle Act. Given the occasional use of the area by the eagles, and the minimal increase in noise, it is not likely that the proposed activity will affect these birds. Utilization of affected MOAs would decrease under this alternative and no impact to threatened and endangered species underlying this unit is expected.

4.1.2.7 Water Resources

4.1.2.7.1 Surface Water

The primary surface water features at Holloman AFB are the aeration/evaporation lagoons associated with the base wastewater treatment system. This alternative coupled with other actions being undertaken at Holloman AFB, would result in a net reduction in aircraft and a small increase in personnel. These changes are not expected to produce any adverse impact to surface water resources.

4.1.2.7.2 Groundwater

There are two primary sources of impact to the groundwater on and in the vicinity of Holloman AFB. They are generation and discharge of wastewater that may percolate and recharge the groundwater aquifer and withdrawal of water from the local groundwater reservoir. No pathway was identified under this alternative which would result in adverse impacts to the quantity or quality of groundwater on or in the vicinity of Holloman AFB.

4.1.2.8 Archaeological, Cultural, and Historical Resources

This alternative would result in new facility construction at Holloman AFB. Construction would occur in an open space surrounded by the current F-15 flightline. The New Mexico State Historic Preservation Office (SHPO) suggests that the potential for impact is low to nonexistent in this area, which almost certainly was previously disturbed by construction (Reilly 1990). A cultural/historical resource survey for Holloman AFB will be performed prior to any construction on undisturbed land associated with this alternative. If any resources are identified, they will be brought to the SHPO's attention for additional consultation.

Potential impacts to archaeological and historical resources are unlikely but could occur at affected bombing ranges (Red Rio, Melrose, McGregor, Oscura, and Barry M Goldwater Bombing Ranges) as a result of ordnance delivery and decontamination (cleanup of spent ordnance). New Mexico SHPO has previously indicated that ground disturbance from using existing target areas are not expected to result in significant impacts to cultural resources (SHPO 1988). Target areas at Red Rio and Oscura Bombing Ranges have been surveyed for cultural resources, and archaeological sites considered potentially eligible for listing on the National Register of Historic Places exist adjacent to currently used targets (Clifton 1985). Although the sites are fenced and indicated as "NO ORDNANCE" areas on airspace maps, bomb impacts have infrequently occurred (Hoppes 1990). Ground disturbance from ordnance delivery at these ranges is likely to increase under this alternative because more heavyweight inert ordnance would be dropped. The potential for archaeological impacts, though small, could increase as a result of ground disturbance from ordnance delivery and decontamination on Red Rio and McGregor Bombing Ranges. Impacts are not expected at other ranges due to low proposed use (Barry M Goldwater Bombing Range) or to the absence or near absence of significant resources (Melrose Bombing Range).

Because noise levels over WSNM would decrease under this alternative, vibration impacts to the structural integrity of the adobe museum-administration building and other similar structures at the White Sands National Monument are not expected, though concerns of this nature have been raised in the past (King et al. 1990). This building is one of a complex of buildings now listed as a historic structure in the National Register of Historic Places. A United States Geological Survey (USGS) vibration study of the structure indicates that most jet aircraft in the normal take-off pattern at Holloman AFB are not causing detrimental structural effects to the building (King et al. 1988). This alternative is expected to use the normal take-off pattern and therefore not impact this building.

Although this alternative would increase the number of night flights, overall noise impacts to traditional values of residents of the Mescalero Reservation should not be significant because of declining use of overlying MOAs.

4.1.2.9 Hazardous Materials and Wastes

Under this alternative, the handling of hazardous materials and hazardous waste generation would be reduced relative to existing conditions on base. Waste composition

would generally be similar to current wastes generated. Any actions regarding cleanup of the lagoon system and west ramp contamination will proceed with Federal and State oversight regardless of the decision to implement this alternative. As a result no adverse impact with respect to hazardous materials and wastes is expected at Holloman AFB.

4.1.3 Nellis AFB

Under this alternative 2,696 manpower authorizations associated with the 37th TFW would be relocated from Nellis AFB.

4.1.3.1 Land Use

Despite the proposed relocation, it is doubtful that this alternative would adversely impact land values around Nellis AFB. The Las Vegas Valley is one of the most rapidly growing areas in the United States.

4.1.3.2 Atmospheric Resources

Flight activity at Nellis AFB would be reduced due to the elimination of flights transporting personnel to and from TTR and the reduction of automobile traffic within the Las Vegas area from personnel currently living in Las Vegas, and working at TTR. These reductions would be expected to have a negligible positive impact on air quality in Clark and Nye Counties. Reduced population and related traffic would also have a negligible impact. Since this alternative would not result in an adverse change in air quality, it is not expected to lead to non-conformance with the Clean Air Act of 1990.

4.1.3.3 Noise

Noise exposure conditions around Nellis AFB would be affected by the reduction of transport aircraft operations between Nellis AFB and TTR. This change would be a small reduction in L_{dn} of less than 1 dB. The net change in noise conditions would therefore be a small positive benefit at Nellis under this action. Similarly the relocation of 37th TFW operations from the Nellis Range Complex would result in only a small decrease in noise exposures on the overflown land areas.

4.1.3.4 Airspace Management

Airspace management impacts associated with this alternative, at Nellis AFB are similar to those described for TTR (Section 4.1.1.4). An additional beneficial impact Nellis AFB airspace arises from the elimination of transport aircraft operations between Nellis AFB and TTR.

4.1.3.5 Socioeconomics

This section examines the estimated impacts of the 37th/49th TFW alternative in Clark County. These estimates are based on a detailed accounting of 37th TFW-related employment and expenditures (see Appendix B).

4.1.3.5.1 Population

The relocation of the 37th TFW would relocate 2,696 military and civilian manpower authorizations from Nellis AFB to Holloman AFB and lead to the reduction of 547 contractor jobs. These are contractors employed at TTR which commute from Clark County. The number of nonappropriated fund (NAF) and base-related business jobs at Nellis AFB would decline by an estimated 253 positions. An estimated 2,437 indirect jobs would be lost in the regional economy. It is assumed that no indirect workers would leave the area.

Table 4.1-12 summarizes the demographic impacts of the 37th/49th TFW alternative. An estimated 2,284 military workers and 191 civilians (appropriation funds workers and contractors) would leave Clark County. Note that some of those losing their jobs would elect to remain in the area. Departing workers would be accompanied by 1,507 school children. The total population reduction would be 6,920 persons or less than 1% of the 1990 Clark County population.

4.1.3.5.2 Employment and Income

This alternative would reduce employment in Clark County by 5,386 jobs, shown in Table 4.1-13. Military jobs would be reduced by 2,687 and civilian jobs by 2,699 -- including appropriated funds positions, NAF and on-base businesses, and indirect workers. The total job loss (not including commuting workers) would be slightly greater than 1% of the total jobs in the County.

This alternative would lead to a $115 million reduction in earnings, as shown in Table 4.1-14. Military pay and the indirect earnings make up much of this loss. The reduction in earnings represents slightly more than 1% of Clark County earnings.

4.1.3.5.3 Housing

This alternative will result in the relocation of 2,475 households (2,284 military and 195 civilian) currently occupying either MFH, or civilian sector housing. This in not expected to significantly effect the Clark County housing market.

4.1.3.5.4 Community Facilities and Services

Education. As a result of this alternative, an estimated 1,507 school children would leave the area. This loss represents about 1% of the total enrollment in the Clark County School District. The school district would also lose a small percent of its FEIA due to the loss of military-related children.

Police and Fire Protection. The decrease in the population due to this alternative would slightly increase the ratio of police officers and firemer to population, resulting in a small improvement in the LOS provided. Due to the rapid economic growth of the area, no impacts to police or fire protection budgets are expected.

Table 4.1-12 Demographic Impacts of the 37th/49th TFW Alternative on Clark County [a]

Military households	-2,284
Civilian households[b]	-191
School children	-1,507
Total population	-6,920

Note: (a) Demographic impacts differ from changes to employment. Typically some percentage of both military and civilian workers elect to remain in the area even though losing their jobs.

(b) Includes appropriated funds civilians and contractors.

Table 4.1-13 Employment Impacts of the 37th/49th TFW Alternative On Clark County

Military Manpower Authorizations	-2,687
Civilian	
Appropriated Fund	-9
NAF and others	-253
Contract	(a)
Indirect	-2,437
Total military and civilian	-5,386

Note: (a) 547 contractors reside in Clark County but are employed in Nye County at TTR.

Table 4.1-14 Earnings Impacts of the 37th/49th TFW Alternative on Clark County

Military Manpower Authorizations	-$63,484,717
Civilian	
Appropriated Fund	-264,222
NAF and others	-1,783,328
Contract	(a)
Indirect	-50,451,522
Total military and civilian	-115,986,789

Note: (a) 547 contractors reside in Clark County but are employed in Nye County at TTR.

Health Services. The smaller population in Clark County would slightly reduce demand for medical services. Impacts to hospital revenues and staffing are not expected because of the area's strong appreciable growth.

Utilities. Utility and public services are not expected to be appreciably affected by population losses related to this alternative.

- *Water Supply.* Water consumption in Clark County would decrease as a result of the realignment action. Average per capita water consumption is 150 gallons per day (gpd). Therefore, the departure of 6,920 persons would result in a water savings of 1,038,000 gpd, a small beneficial impact.

- *Wastewater.* The population in Clark County is expected to fall by about 1% due to this alternative. This decrease would have a minor positive impact on sewage disposal services in the area.

- *Solid Waste.* The smaller population would also reduce demand for solid waste disposal, extending the life of regional landfills. This alternative would have a slight positive impact on solid waste disposal in Clark County.

- *Power.* The decrease in population in Clark County would initially enable the Nevada Power Company to better satisfy peak demand. However, the decrease would not affect proposed construction of an additional generating station. No change in the LOS provided by Southwest Gas is expected.

4.1.3.5.5 Public Finance

This alternative may result in a small decrease in revenues and expenditures for the various jurisdictions and special districts of Clark County. However, because of the rapid economic and population growth of the area, any impacts to public finance are expected to be negligible.

4.1.3.5.6 Transportation

The projected loss of 6,920 people from the Las Vegas area due to this alternative would result in a decreased utilization of the local transportation systems, particularly with respect to the roadway network. Given the high volume of traffic in the area, this change is not expected to have a significant adverse impact on highway maintenance or conditions. A slightly beneficial effect in terms of improved driving conditions and reduced highway congestion may result. Other traffic generated, such as dependents traveling to shopping centers, schools, etc., would be less noticeable because of the robustness of the economy around the Las Vegas area and the fact that vacated off-base residences would likely be inhabited in a short period.

4.1.3.6 Biological Resources

This alternative would not result in land disturbance or in adverse changes in air quality or other environmental features that might affect biota. As a result, no impact to biological resources in the vicinity of Nellis AFB is predicted.

4.1.3.7 Water Resources

The proposed relocation of the 37th TFW, would result in a decrease in personnel and equipment at Nellis AFB. This decrease in personnel would have a slight positive impact upon the availability of water resources on and in the vicinity of Nellis AFB.

4.1.3.8 Archaeological, Cultural and Historical Resources

This alternative would not result in land disturbance due to construction or other actions in the Las Vegas area. As a result, no impact on archaeological, cultural, or historical resources is anticipated.

4.1.3.9 Hazardous Materials and Wastes

The proposed relocation is not expected to produce any appreciable change in the quantities of hazardous materials used or wastes generated. Therefore, no adverse impacts are expected at Nellis AFB from hazardous materials and wastes.

4.2 THE HOLLOMAN ALTERNATIVE

Under this alternative, the 37th TFW would be relocated from TTR to Holloman AFB, the 49th TFW would be inactivated at Holloman AFB, and three F-4 units would be relocated to Holloman AFB.

4.2.1 Tonopah Test Range

Under this alternative the resulting impacts at TTR would be the same as those presented in Section 4.1.1.

4.2.2 Holloman AFB

Under this alternative, the 37th TFW and three F-4 units would be relocated to Holloman AFB, while the 49th TFW would be inactivated. This would result in a net increase of 54 PAA aircraft (see Table 2.2-1) and 2,316 manpower authorizations. This is superimposed on a loss of 81 PAA aircraft and 832 personnel associated with the reduction of the 479th TTW, for a net loss of 27 PAA aircraft and a gain of 1,484 personnel. This action would also involve construction related disturbance of 70 acres at Holloman AFB, and 7 acres on the Melrose Bombing Range.

4.2.2.1 Land Use

4.2.2.1.1 On Base

Impacts from the relocation of the 37th TFW would be the same as under the 37th/49th TFW alternative. In addition, a portion of the operation and maintenance functions associated with this alternative would be located in existing facilities made available by the reduction of the 479th TTW.

While this alternative would increase personnel at Holloman AFB, land use is not expected to be adversely affected in the County around the base since these changes would offset personnel losses due to other recent actions at Holloman AFB (TAC 1990, g). Single family housing is not expected to increase. There would be an increase of approximately 400 rental units, but there is adequate space to construct new units and adequate infrastructure to support them. No additional road construction would be required to support the population increase.

Impact on the White Sands National Monument would be similar to those reported for the 37th/49th TFW alternative. The area encompassed by the 65 dB noise contour is less than under either current or projected baseline conditions. Although the number of operations at Holloman AFB would be greater than under that alternative, the night operations of the F-117As would be the same, with the same potential for disturbing park personnel and evening programs in the summer.

4.2.2.1.2 Special Use Airspace

Figure 4.2-1 shows sensitive land uses, including wildlife refuges and wilderness areas, relative to special use airspace and MTRs affected by this alternative.

R-5107B, C, H, and J; R-5103A, B, and C; R-5104A; R-5111 A, B, and C; and R-2301 (shown in Figures 3.2-2 and 2.1-4) are located primarily over vacant land with limited agricultural activities, mainly cattle grazing. No significant impacts are projected to land use under these airspaces. R-5104 (the Melrose Bombing Range) would experience similar impacts as under the 37th/49th TFW alternative, with slightly higher noise levels due to the F-4 operations. The number of residents exposed to noise levels exceeding L_{dn} 65 dB would increase by 54.

The Beak MOAs cover a large portion of the Cloudcroft District of the Lincoln National Forest, several resort areas, the Mescalero Indian Reservation, several small towns, and small agricultural areas. The floor for the MOA is 12,500 feet above MSL, which is approximately 2,500 feet above the highest point under the MOA. No significant impacts should occur to the areas due to the flight floor. However, campers in the national forest could be informed about the possibility of nighttime flights. In addition, local newspapers and information pamphlets could inform residents and tourists that night flights may occur over the area. The Capitan Mountains Wilderness is under the Beak MOAs. The average noise level under this alternative is estimated to be within 1 dB of

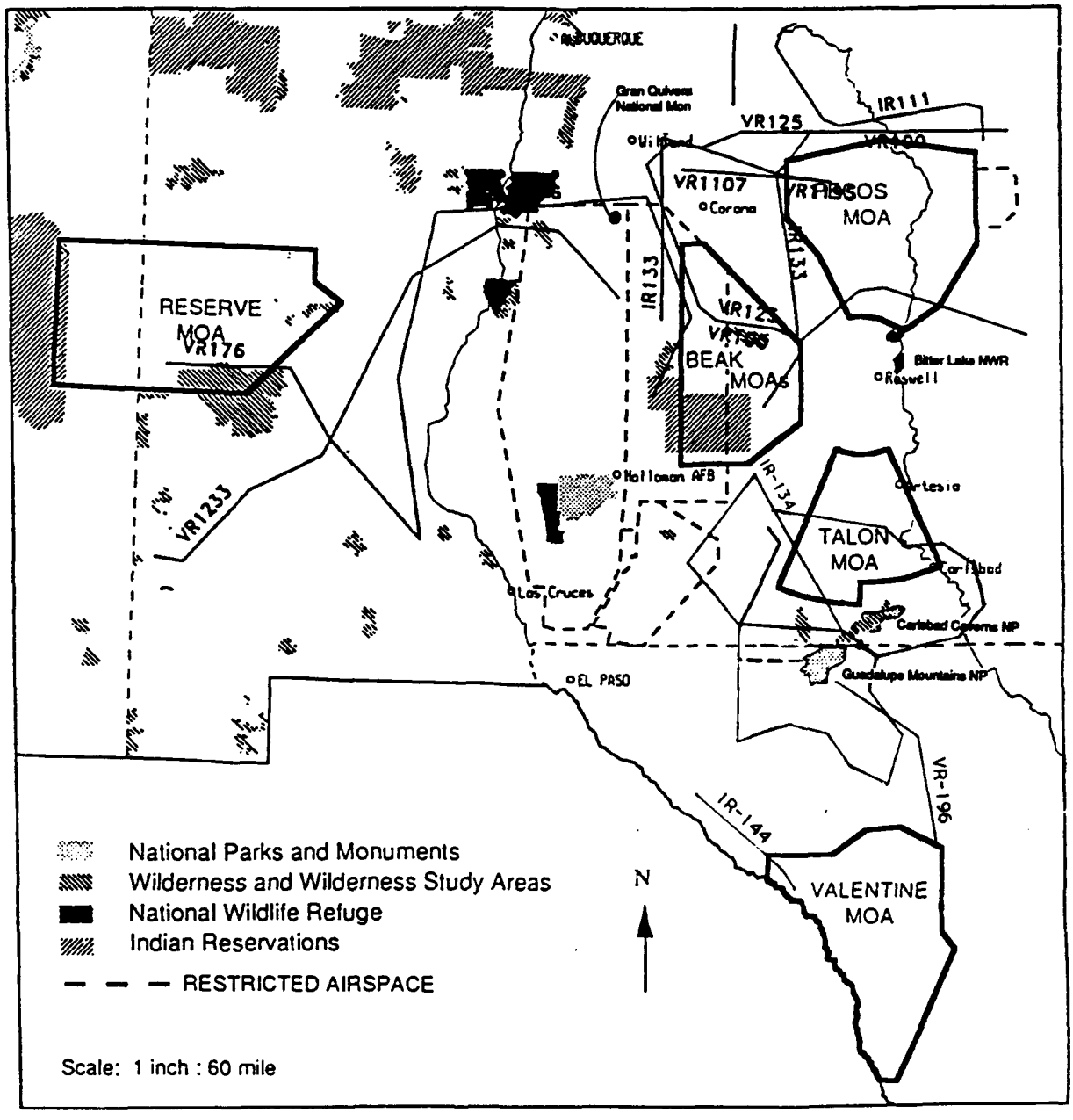

Figure 4.2-1 Land Uses Under Airspace Affected By Various Alternatives

the baseline noise level. However, the MOAs will begin to be used at night, which has not been the case in the past and which may cause initial annoyance to residents.

The Talon MOA is located over two state parks, a portion of the Guadalupe District of the Lincoln National Forest, and several towns. The Talon MOA is not available for night operations. The floor of the MOA is 12,500 feet above MSL (approximately 7,500 feet AGL). Significant impacts to land use are not expected due to this alternative.

4.2.2.1.3 MTRs

Projected use of the various existing MTRs by F-4 aircraft would range from less than 100 to almost 2,500 annual sorties. The increase in flights along the MTRs in Texas, IR-144 and VR-196, would be slight (about two sorties per week) and not anticipated to have any impact on land use.

VR-1233 currently has 392 annual sorties. Its use is projected to increase from the current two to three to about four overflights per day along the route. Portions of the MTR pass over the Aldo Leopold Wilderness. The increase in average noise exposure, in L_{dnmr}, is estimated to be 2 dB, which would not be significant. Current use of VR-176 is estimated at an average of six per day, which would increase by about 5 percent with this alternative. The average noise under this alternative, including F-4 aircraft operations, would not be noticeably different from current levels, and no impact on land use is predicted. The increased use of VRs-176 and 1233 is not anticipated to cause significant visual impacts to wilderness areas or the Gran Quivira Unit of the Salinas Pueblo Missions National Monument. Because the MTRs are currently used, aircraft are a part of the existing visual environment. Visual impacts from aircraft overflights are temporary and incidental. Increasing the number of overflights may increase the probability that a viewer would see a passing aircraft, but the impact is not changed.

The MTRs projected for the highest use by the F-4s are IRs-133 and 111 and the proposed modification of IR-134. IR-133/111 net use would increase from four to twelve sorties per day with this alternative plus the reduction of the 479th TTW and the inactivation of the 49th TFW. Although the increases are significant in percentage terms, these areas are sparsely populated, and there are no highly sensitive land uses that would be significantly affected. IR-111 would experience an increase of 2 dB and IR-133 an increase of 4 dB in L_{dnmr} under the centerline. These changes would not generally be significant.

Similarly, new segments of IR-134 generally pass over grazing lands. The average projected noise level along the center line (L_{dnmr} 58 dB) would not significantly affect most land use. A segment of the existing route passes over the Brokeoff Mountain Wilderness study area. These segments would typically be flown at 300 to 500 feet AGL. At these altitudes, single event noise levels would average 109 to 114 dB. The average noise level would increase by 8 dB, which is a substantial change and could result in a decrease in the serenity of the wilderness study area. There are wilderness areas in the region that are currently exposed to similar noise levels, including the Aldo Leopold Wilderness and the Capitan Mountains Wilderness. A proposed segment of the modified IR-134 passes over a wilderness study area. The lateral boundaries of this segment overly the extreme

northeast and extreme southwest corners of Guadalupe and Carlsbad Caverns National Parks. The USAF operational safety requirements will keep aircraft traffic along this segment of the MTR at 9,800 feet MSL, which is approximately 3,000 feet above the plateaus. Average noise levels would be below 50 dB, and single events would be 92-93 dB, so noise impacts would be limited, and there should be little or no startle effect. The aircraft would present a new visual intrusion into an area that has not heretofore been subject to overflight at this altitude. This intrusion would occur an estimated 10 times a day, and would be noticeable if the attention of a viewer were attracted to the noise of the passing aircraft. The impact would be incidental and temporary. Nevertheless, the introduction of aircraft activity and noise could temporarily interrupt the serenity of the area, although it is unlikely to affect the National Parks or the wilderness designation.

VR-100/125 passes over Lake Sumner State Park. Only about four aircraft per day would fly the route, which should not significantly affect the park. The location most affected by increased MTR use is the area around the community of Willard, where IR-133 and VR-100/125 intersect. If all the projected sorties for those MTRs used the intersecting segments, which is highly unlikely, this area could experience as many as 13 or 14 overflights per day at 300 to 500 feet AGL. Most of this area is uninhabited, encompassing the Mesa de los Jumanos and the Laguna del Perro salt beds. The town of Willard has a population of approximately 200. The average noise levels experienced by the inhabitants would increase by 2 dB to L_{dnmr} of 61 dB. The increase is not significant.

4.2.2.2 Atmospheric Resources

Air quality in the vicinity of Holloman AFB is believed to be generally good due to the lack of large centers of urban activity and industrial facilities. Monitoring of PM performed by the state of New Mexico in the vicinity of Alamogordo indicates occasional concentrations that surpass NAAQS (Tables 3.2-1 and 3.2-2). High concentrations of PM in this arid region are usually attributable to wind gusts with re-entrained dust. Other criteria pollutants have not been monitored in the vicinity of the Base.

The relocation of the 37th TFW to Holloman AFB would affect air quality in Otero County, New Mexico, in the special use airspace of the Oscura, Red Rio, McGregor, and Melrose Bombing Ranges, Beak and Talon MOAs in New Mexico, and the Barry M Goldwater Bombing Range in Arizona. The inactivation of the 49th TFW would reduce air pollution in the same areas. Further, the inactivation would reduce air pollution along military training routes currently used by 49th TFW. The addition of F-4 aircraft would have the effect of increasing air pollution at the Base and in training areas and MTRs.

The Holloman Alternative would increase emissions of CO, THC, NOx, SO_2 and PM within the study area due to the addition of the 37th TFW and F-4 operations and reduce air emissions from the inactivation of the 49th TFW. Maximum near field operations impacts at Holloman AFB were estimated to be within 5 km of the end of the runway. Maximum hourly concentrations of criteria pollutants are shown in Table 4.2-1. Neither the incremental nor net air quality impacts would be significant. In all cases, the resulting incremental concentration additions are five times less than the NAAQS. The net air quality change is beneficial to the air environment.

Table 4.2-1 Maximum Ground-level Air Pollutant Concentrations at Holloman AFB (ug/m^3)

Aircraft Type	CO	HC	NOx	SOx	PM
F-117A	6.4	2.4	2.9	0.2	0
AT-38	2.5	0.4	0.1	0.0	0
Subtotal (37th TFW)	8.9	2.8	3.0	0.2	0
F-15 *	-33.75	-4.9	-13.8	-3.1	-0.4
Subtotal * (49th + 37th)	-24.8	-2.1	-10.8	-2.9	-0.4
TRS (RF-4C)	4.1	0.7	1.1	0.2	0.3
SEAD (F-4)	4.8	0.8	2.3	0.4	0.2
GAF (F-4)	1.6	0.3	0.8	0.1	0.1
Subtotal	10.5	1.8	4.2	0.7	0.6
TOTAL *	-14.3	-0.4	-6.6	-2.2	+0.2

* Negative values indicate emission reduction.

For range operations, maximum ground level short-term concentrations were estimated by using the area of special use airspace and minimal operational altitude and other worst case operational conditions (e.g. airspeed). Aircraft operations above 5,000 AGL were assumed to result in insignificant ground level air quality impacts. The projected changes in pollutant concentrations are a small percentage of the NAAQS. Overall, the net effect on the ranges, MOAs and MTRs is slightly beneficial, primarily because increases due to the addition of the F-4 units are offset by decreases from the loss of the F-15s, and the scheduled reduction of the 479th TTW. In the specific case of the modification of IR-134, a slight increase in pollutant concentrations is expected. In general all air quality impacts, adverse or beneficial in these airspace units, are of negligible consequence. Air pollutant concentrations of criteria pollutants are shown in Table 4.2-2.

The changes to the air quality within 3 miles of Holloman AFB due to the changes in aircraft operations would not be expected to result in non-conformity with the Clean Air Act of 1990. Emissions from other sources, including ground operations, refueling, support vehicles and other miscellaneous mobile sources are expected to be small and dispersed throughout the base and the local urbanized area. Air Force bases emissions are generally less than one percent of the regional emissions of all pollutants (Naugle et al 1978). Temporary construction emissions of particulate matter (PM_{10}) would be expected to be approximately 38 tons/acre/month.

4.2.2.3 Noise

4.2.2.3.1 Holloman AFB

Table 4.2-3 compares the land area encompassed by various L_{dn} noise exposure contours under this alternative, with current and baseline (including the reduction of the 479th TTW) conditions. The area encompassed by the 70 dB contour will increase by about 3% of current conditions, and 22% of baseline conditions (cf. Figure 3.2-1 and Figure 4.2-2) The land area encompassed by the 65 dB contour, extending approximately 3.5 miles from the perimeter, will decrease by about 12% of current conditions, and 3% of baseline conditions. Noise exposures on WSNM (approximately 8 miles from the base entrance) would be expected to decrease under this alternative. The changes in land area impacted by noise are relatively small compared with those existing before the reduction of the 479th TTW, and are the net result of removal of the 49th TFW F-15 aircraft, the reduction of the 479th AT-38B aircraft and the addition of the 37th TFW F-117A and AT-38B aircraft, and the proposed 72 F-4 aircraft at the base. There is no off-base resident population within the L_{dn} 65 dB contours for the existing, baseline or this alternative conditions at Holloman AFB.

These noise exposure estimations have been made by use of the Air Force NOISEMAP computer model using noise data for each of the aircraft models appropriate to this alternative. These include noise for an aircraft with engines similar to those of the F-117A but with an estimated noise level change to represent the engine configurations in the F-117A. The operations used for this alternative include take-off and landings (and closed pattern touch and go operations) that would occur as part of this action and are listed in Table 2.2-2.

Table 4.2-2 Air Pollutant Concentrations from low altitude, (less than 6,000 feet) Special Use Airspace operations (ug/m^3) in the Vicinity of Holloman AFB for the Holloman Alternative

Aircraft Type	CO	HC	NOx	SOx	PM
37th TFW					
Beak MOAs	0.36	0.01	0.45	0.03	0.006
Talon MOA	0.40	0.01	0.51	0.03	0.007
Oscura	3.27	0.11	4.11	0.25	0.05
Melrose	3.92	0.13	4.39	0.30	0.07
49th TFW *					
Beak MOAs	1.04	0.083	10.42	0.042	0.142
Talon MOA	1.18	0.094	11.77	0.047	0.160
Pecos MOA	1.62	0.130	16.22	0.065	0.221
R-5107	1.3	0.10	13.01	0.052	0.177
MTR	-6.8	-0.8	-205	-7.6	2.6
TRS					
Pecos MOA	0.3	0.03	1.4		0.3
MTR	0.2	0.02	0.8		0.2
SEAD					
Pecos MOA	0.6	0.01	1.1		0.1
Melrose Range	1.6	0.1	3.3		1.1
MTR	1.8	0.03	3.7		0.3
GAF					
Pecos MOA	1.8	0.03	3.6		0.3
Red Rio	0.2	0.0	0.3		0.03
MTR	0.5	0.01	1.0		0.1
F-4 TOTAL					
Pecos	2.7	0.07	6.1		0.7
Maximum Range	1.8	0.1	3.6		1.13
Maximum MTR	2.5	0.06	5.5		0.6

* = Emission reductions
MTR = most used military training route

Table 4.2-3 Land Areas Within L_{dn} Noise Exposure Contours at Holloman AFB for the Holloman Alternative

L_{dn} Contour	Land Area, Square Miles				
	Current[1]	Baseline[2]	Alternative	% Change from Current	% Change from Baseline
65	42.4	38.5	37.5	-11.6%	-2.6%
70	19.6	16.6	20.2	+3.1%	+21.7%
75	9.0	7.1	10.9	+21.1%	+53.5%
80	4.6	3.7	5.8	+26.1%	+56.6%

1. Current = Conditions including 479th TTW activity.
2. Baseline = Current conditions including the reduction of the 479th TTW.
3. Land areas computed using NOISEMAP 6.0 Noise Exposure Model.

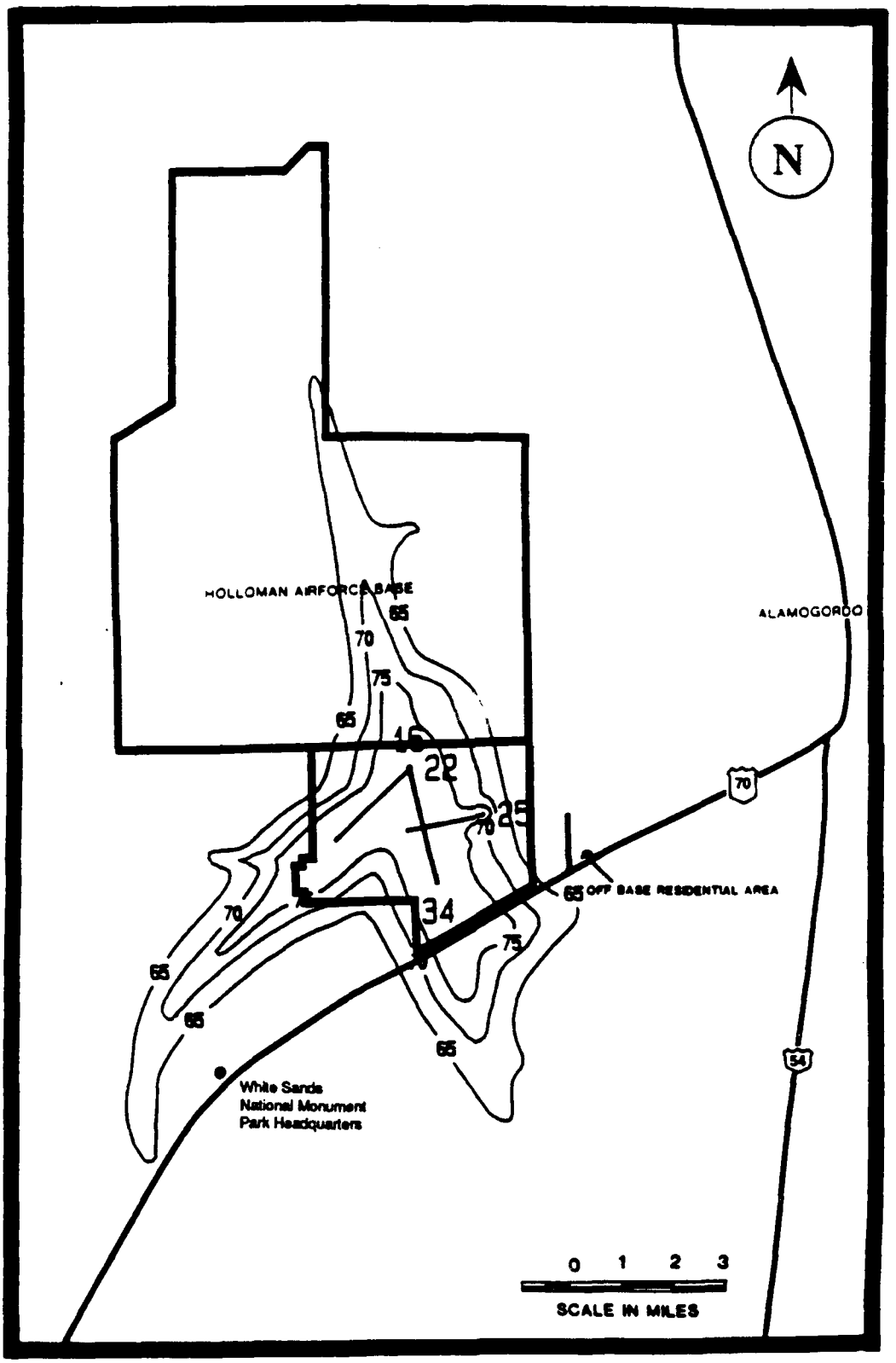

Figure 4.2-2 L_{dn} Contours for the Holloman AFB Area Under the Holloman Alternative (scale 1:200,000)

While the Holloman alternative would result in a decrease of operations at Holloman AFB, to about 40% of current operations and 70% of the baseline operations after the reduction of the 479th TTW, the noise exposure increase would be due to the change in aircraft fleet composition using the base. In particular the F-4 is about 6 dB (A) louder than the F-15 and about 15 dB (A) louder than the AT-38B for take-off power conditions. A typical sound exposure level for an F-4 at 630 feet overhead altitude is about 124 dB with afterburner engine power and about 122 dB with non-afterburner power. Non-resident populations working in or travelling through the noise exposed areas around Holloman AFB would experience fewer overflights, relative to those currently experienced, but would also experience a higher noise level from the F-4 aircraft relative to those of the AT-38B and F-15 aircraft in current operation at the base.

4.2.2.3.2 Special Use Airspace

Noise exposures in other land areas within the region of influence of Holloman AFB would also be affected by this action. These are examined as follows:

Beak A, B, C MOAs: Table 4.2-4 summarizes the analysis of noise exposure that would occur in the Beak MOAs under existing, baseline and future operations under the Holloman alternative action. It is evident that while the annual number of sorties in the MOA would differ for the three conditions, the average day-night noise exposure, L_{dn}, would change by less than 1 dB. This insignificant net change is caused by the difference in aircraft types using the MOA under the three conditions. The reduction in AT-38B operations has only a very small effect on L_{dn} values because of their relative lower single-event noise levels, while the inactivation of the 49th TFW and introduction of F-117A and F-4 aircraft are almost equal in noise exposure effect. This alternative would involve night operations in the Beak MOAs, which have not been part of past use. Although the proposed night use will not affect average noise levels, it could cause initial annoyance.

Talon MOA: Projected noise exposure, L_{dn}, under the Talon MOA is estimated to be about 8 dB lower than for existing or baseline conditions, as shown in Table 4.2-4. This reduction is primarily due to the inactivation of the 49th TFW aircraft. A net balance of noise exposure due to introduction of F-4 and F-117A aircraft does not occur, as in the Beak MOAs, because there are no night-time operations in the Talon MOA.

Oscura Bombing Range: Noise exposures under the lowest altitude portions of the Oscura Bombing Range flight paths would increase from an L_{dn} of 83 dB (existing) to 88 dB for this alternative action. This increase is due to the difference in aircraft types, annual sorties and the introduction of F-117A night-time operations at the Range.

Red Rio Bombing Range: The L_{dn} noise exposures at Red Rio would increase from an L_{dn} of 81 dB (existing) or 79 dB (baseline) to an L_{dn} of 90 dB under this alternative action. As for Oscura Bombing Range, this increase is primarily due to the introduction of F-117A night-time operations.

McGregor Bombing Range: Noise exposures at the McGregor Bombing Range would increase from an L_{dn} of 77 dB (existing) or 64 dB (baseline) to an L_{dn} of 80 dB

Table 4.2-4 Flight Activity and L_{dn} Noise Exposure Levels Under Beak and Talon MOAs for the Holloman Alternative

	Beak A	Beak B	Beak C	Talon
Sorties per year				
Existing	3,387	7,858	7,433	7,376
Baseline	1,438	1,435	1,477	4,415
Holloman Alternative	3,306	3,284	3,277	5,524
L_{dn}, dB, Average				
Existing	46	48	47	49
Baseline	46	47	47	49
Holloman Alternative	47	48	47	41

under this alternative. There would be no night-time operations at McGregor and the increase would be caused by the aircraft type changes (F-4 and F-117A) implementation in the range activity.

Melrose Bombing Range: This alternative action would cause an increase in flight activity at Melrose Bombing Range by the addition of 1,440 annual sorties by F-117A aircraft and 2,808 annual sorties by F-4 aircraft. The F-117A aircraft would be the only user of the range during night-time (2200 hrs to 0700 hrs) period and would have 40% of its sorties during these periods. These would be additive to the current (1989 - 1990) activity of 5,930 sorties per year on the range and a long-term projected activity of 10,685 sorties per year on the range.

The noise environment in the vicinity of Melrose Bombing Range would be adversely impacted by the increased flight activity. L_{dn} noise exposures would increase by about 4 dB relative to current (1989 - 1990) conditions. The land area within the L_{dn} 65 dB noise exposure contour would increase from about 60 square miles (current) to about 104 square miles. The noise impacted resident population is estimated to increase from 74 persons to about 128 persons based on local rural population density. Single event noise levels would be similar to those typically experienced at present.

The addition of this action to the projected long-term cumulative noise environment of other SAC and TAC activies would cause an increase of 2.7 dB to the long-term L_{dn} noise exposures. This would increase the land area within the L_{dn} 65 dB contour at the range to about 117 square miles. The noise impacted resident population within this are would increase to about 144 persons based on local rural population density. Without this alternative action the L_{dn} 65 dB contour land area for cumulative impacts would be 88 square miles containing about 108 residents.

Barry M Goldwater Bombing Range: Under this alternative a limited number of F-117A (fewer than 10 per month) sorties may be conducted at Barry M Goldwater Bombing Range. This is not considered to be a substantive change in range utilization, and no adverse noise impact is expected to result.

WSMR Supersonic Airspace: The use of this airspace is currently dominated by ACM training by the 49th TFW from Holloman AFB. Of a total of 4,600 ACM sorties in the airspace during a 6 month period, 3,330 sorties (72%) were by F-15 aircraft and 600 sorties (13%) were by AT-38 aircraft. The number of ground measured sonic booms resulting from this activity in the same period was 506 over the surveyed land area (Plotkin 1989).

The changes in use of this airspace due to the Holloman alternative would result in a reduction of sonic boom occurrences in the land area below this airspace. Removal of F-15 activity from the airspace and reduction in use by AT-38 aircraft, combined with the introduction of 141 sorties per month by F-4 aircraft, would indicate a net reduction in sorties flown to about 36% of the current activity. If the ratio of sonic booms (at ground level) to the number of sorties flown in the airspace is similar to that under current conditions, then the sonic boom occurrences would be decreased by the action by a similar amount, that is to about 36% of those occurring at present.

The change in use of the airspace would not significantly change the statistical pattern of sonic boom levels occurring at ground level. The reduction in number of occurrences would therefore be equivalent to a reduction in L_{cdn} levels of about 48 dB at the enter of the land area and a typical value over the entire area of between 40 dB and 45 dB L_{cdn}.

The resultant exposure to sonic booms over the land area under the WSMR supersonic airspace would therefore be a significant reduction in occurrences and no change in the magnitude of sonic boom levels.

Valentine and Reserve Supersonic Airspace: The use of these airspaces for supersonic flight activies is entirely associated with 49th TFW ACM training. Under this alternative, the 49th TFW would no longer use the area. Future supersonic activity would require environmental analysis.

4.2.2.3.3. Military Training Routes

Changes in noise exposures under low-level MTRs would be caused by the inactivation of the 49th TFW and reduction of AT-38B operations where in current use, and the addition of F-4 aircraft operations. The routes where operational changes would occur are listed in Table 4.2-5 together with the predicted L_{dnmr} noise exposure values under the routes for current and future cases based on this alternative at Holloman AFB. Of the nine MTRs, two (VR-100 and VR-196) would have negligible change in L_{dnmr} noise values, four (VR-176, VR-1233, IR-111 and IR-144) would have changes of 2 dB, and three (VR-125, IR-133 and IR-134) would have noise exposure increases of between 4 dB and 8 dB. These increases are caused by the F-4 proposed operations on these routes. The town of Willard, which is about 1.5 miles from Routes IR-133, VR-100, VR-125 and IR-113 is estimated to have a current L_{dnmr} of about 59 dB which would indicate that about 7% of the population would be highly annoyed. Under this alternative the L_{dnmr} value would increase to 61 dB, which would indicate that 8.5% of the population would be highly annoyed.

4.2.2.4 Airspace Management

4.2.2.4.1 Holloman AFB Terminal Airspace

This alternative, relative to Holloman AFB, provides that the 37th TFW operate within the existing ATC environment and terminal airspace structure for flying missions. Additionally, the description of this alternative does not indicate that the beddown of the RF-4C/F-4 aircraft would require any changes to the existing terminal airspace structure. Since there would be no changes to the overall terminal airspace structure, the new flying unit's operational demands on the terminal airspace are the key factors for assessing the potential airspace impacts of this alternative.

Major factors in assessing the effects of the operational demand of the 37th TFW and the RF-4C/F-4 aircraft on the existing terminal airspace are the scheduled reduction of the 479th TTW and the proposed inactivation 49th TFW. The activity generated by

Table 4.2-5 L_{dnmr} Noise Exposures Under Low Level MTRs Near Holloman AFB (Baseline and Projected Conditions)

MTR	Primary User Aircraft	L_{dnmr}, dB Baseline	L_{dnmr}, dB Projected
VR-100	F-111, F-4 and others	51-59	51-59
VR-125	F-111, F-4 and others	46-55	52-56
VR-176	A-7, AT-38 F-4 and others	54-58	54-56
VR-196	F-4	50	50
VR-1233	F-16, AV-8, A-7 A-10, A-4, F-4 and others	51	53
IR-111	F-111, F-4 and others	59	61
IR-133	F-4, AT-38B	54	58
IR-134	F-4, AT-38B	50	58
IR-144	F-4 and others	49-51	50-52

these two flying units constitutes the major percentage of the total aircraft operations at Holloman AFB. Information obtained from Holloman indicates that the 479th TTW alone generates more than 50% of the total military operations.

The actions with respect to the 479th TTW, and the 49th TFW would result in the withdrawal of 153 aircraft from Holloman (72 F-15; 81 AT-38B). The beddown of the 37th TFW and the RF-4C/F-4 aircraft would result in the basing of 126 aircraft at Holloman (54 37th TFW; 72 RF-4C/F-4). Thus the cumulative effect of these two actions is a net decrease of 27 military aircraft based at Holloman AFB. The net decrease in total based aircraft will result in overall decrease in aircraft operations at Holloman AFB.

In summary, the Holloman alternative would not require changes to the existing terminal airspace or ATC environment, nor would the beddown of the F-117A and RF-4C/F-4 aircraft increase the number of aircraft operations at Holloman AFB. With this alternative, there may be a beneficial impact on controlled airspace in the Holloman ROI. With the decrease in daytime military operation, there should be no adverse impact to aircraft transiting the Holloman approach control area. Aircraft operating within the traffic patterns of the Alamogordo-White Sands Regional Airport or any of the other civil airports in the vicinity of Holloman AFB would not be adversely affected by the Holloman alternative.

4.2.2.4.2 Holloman AFB/WSMR Special Use Airspace

Projected sorties data for the Holloman alternative indicate that the total number of sorties to be flown at the Red Rio Bombing Range in R-5107B and J and the Oscura Bombing Range in R-5107B would exceed the number of sorties currently flown in these areas. The data also indicate that the number of sorties at the McGregor Bombing Range in R-5103B and C would be less than the current sorties in that area. The existing available monthly capacity in hours for each range was determined from the current scheduled hours of operation. The average available hour capacities of each range are shown in Table 4.2-6 along with the projected monthly hours of use, by range, for the military aircraft. The data indicates that the projected activity would be less than the available capacities of the ranges. Due to the availability of several existing bombing ranges in the immediate area, the additional military aircraft range requirements associated with this alternative may be accommodated with no significant adverse impact.

Upon relocation to Holloman AFB, the 37th TFW aircraft would use the Melrose Bombing Range, located in the Cannon AFB associated R-5104A restricted area, and the Barry M Goldwater Bombing Range located in southwestern Arizona. The F-4G/E aircraft would also use the Melrose Bombing Range. No airspace changes are proposed to accommodate this activity. The increased use of these restricted areas should have no adverse effect on civil aviation since it would not create any new airspace restrictions, nor do the areas conflict with any federal airways, jet routes (high altitude airways), or airports in the local vicinity (Cannon AFB Realignment FEIS 1990).

The RF-4C and F-4G/E aircraft are projected to use the Pecos MOA which is also controlled by Cannon AFB. The Cannon AFB Realignment FEIS (1990) states that under

Table 4.2-6 Weapons Range Monthly Usage vs Capacity for Holloman Alternative Activity

Bombing Range	Current Available Capacity (Hrs.)	Projected Use (hours)
Oscura	168.4	121.9
Red Rio	141.4	109.8
McGregor	164.7	25.9
Melrose	237.7*	53.4*

* (Thomas 1991)

the realignment action proposed for Cannon AFB, the Pecos MOA would be used at nearly full capacity. The decrease of sorties in the Pecos MOA from the F-15 drawdown will be offset by those generated by the relocation of the RF-4Cs and F-4G/Es to Holloman AFB.

The projected 37th TFW airspace events data indicate that its aircraft would use the Beak A, B, an C MOAs and the Talon MOA less than the current use of these areas by military aircraft. The RF-4C and F-4G/E aircraft are projected to fly 1,740 annual sorties in the Beak and Talon MOAs. As indicated in Table 3.2-10, aircraft of the 479th TTW, the 49th TFW, and others flew 19,540 airspace events in the Beak and Talon MOAs in a nine month period (26,053 airspace events extrapolated over a one year period). Most of these airspace events were flown by the 479th TTW and the 49th TFW. The cumulative impact upon the Beak and Talon MOAs of the reduction of the 479th TTW, the inactivation of 49th TFW, and the beddown of the 37th TFW and the RF-4C/F-4 aircraft would be to reduce military aircraft operations in those areas. The actions proposed by this alternative should have no significant adverse impacts on the Beak and Talon MOAs.

4.2.2.4.3 Military Training Routes

To determine the potential impacts of the modified MTR's, the vertical and lateral limits associated with the MTR's were examined relative to existing controlled airspace and civil airports. Figure 2.2-2 indicates that there are route segments of the proposed modified IR-134/XXX that interact with the lateral boundaries of several federal airways (the width of a federal airway is 4 NM either side of the airway centerline). Corridor widths of the new MTR segments are shown in Figure 4.2-3. A comparison of the vertical limits of the main portion of IR-134/XXX with the lowest published Minimum Enroute Altitudes (MEA) of these federal airways indicated that military aircraft on the new MTR would remain below the lowest published MEAs of the affected airways.

The proposed alternate exit from the south loop of IR-134 would also serve as a part of the alternate entry to IR-XXX. This route segment crosses a segment of the V-560 federal airway. A floor altitude of 9,800 feet MSL has been established on this MTR segment for flight safety considerations over an area with rapid changes in ground elevation. This 9,800 foot floor altitude exceeds the existing MEA of 8,000 feet MSL for the segment of V-560 that crosses the MTR. During the planning for this alternate entry/exit segment, the 833 AD/CSS coordinated this airspace interaction with the FAA. An acceptable resolution was identified wherein ATC would raise the MEA of V-560 when the MTR segment is in use to an altitude that would ensure the separation of military and civil aircraft. It should be noted also that both IFR enroute traffic and military aircraft on the IR route would be under the control of an ATC facility. In summary, IR-134/XXX should have no significant adverse impacts upon the controlled airspace environment.

Neither of the proposed alternative exits from VR-100 to the Oscura or Red Rio Bombing Ranges interact with any controlled airspace.

Six civil, private use airports would underlie the proposed revised IR-134/XXX (see Figure 2.2-2). These are the Big Tank Ranch, CLM Ranch, LWB Ranch, Seven Rivers Ranch, Mayfield Ranch, and Triangle Ranch. Four conditions preclude any significant

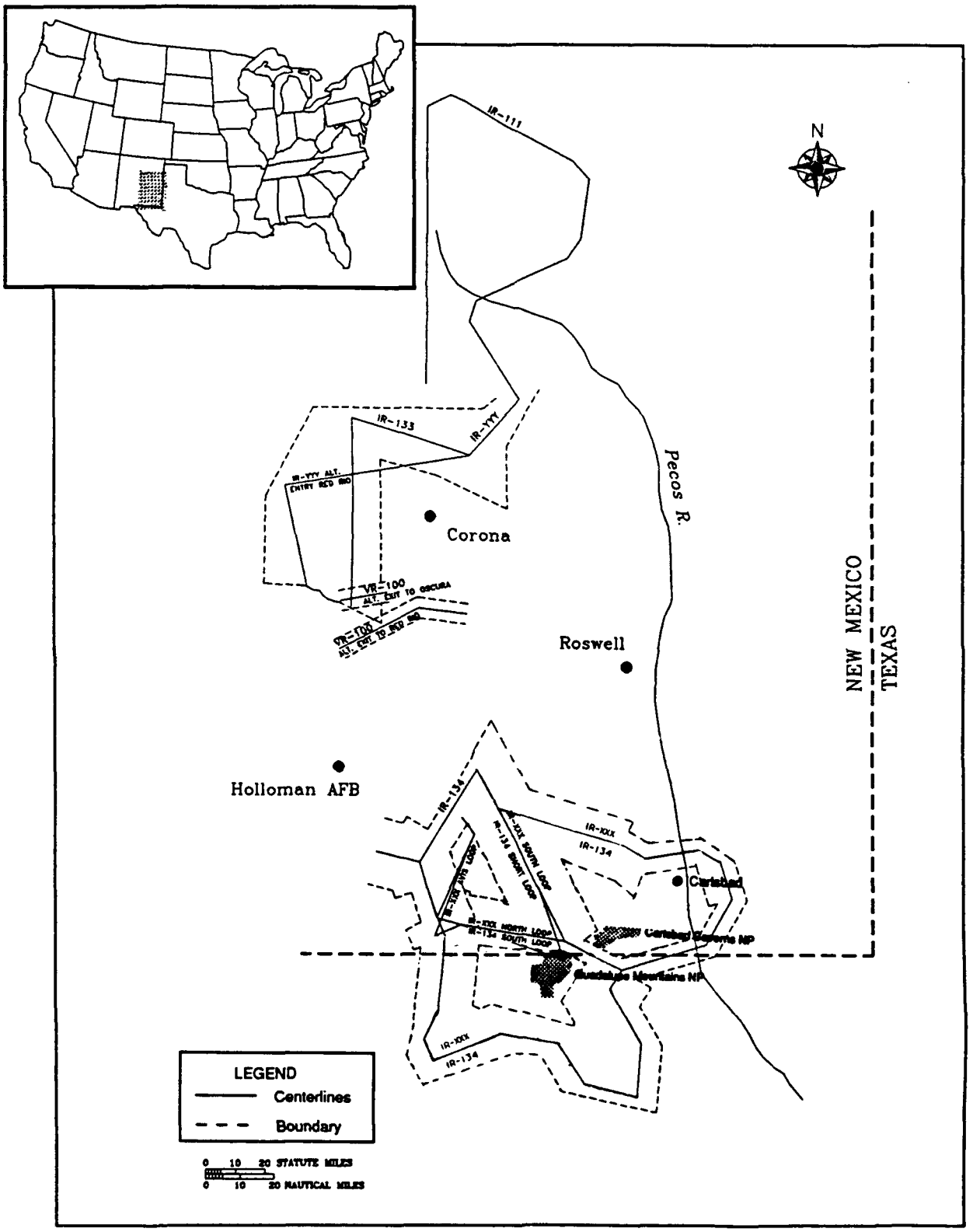

Figure 4.2-3 Corridor Widths for Segments of MTR Affected by Various Alternatives

adverse impacts upon these airports. Firstly, establishment of the MTR does not restrict access to any of these airports. Secondly, because flight operations at these airports are conducted only in visual meteorological conditions (VMC), both civil and military pilots can maintain visual separation between aircraft (Federal Air Regulations also require that all pilots "see and avoid" other aircraft when flying in VMC weather). Thirdly, MTR route information that military pilots review during flight planning includes information about all airports along the route. Finally, three of the airports, LWB Ranch, Mayfield Ranch, and Triangle Ranch, presently lie within existing MTR airspace. The proposed IR-134/XXX does not, therefore, establish a new airspace condition relative to these three airports. The public-use Carrizozo Airport is located between the proposed VR-100 alternate exits to the Oscura and Red Rio Bombing Ranges. Aircraft arriving or departing from or to the north or south would traverse these route segments. However, operations at this airport are conducted only in VMC conditions wherein civil and military pilots can maintain visual separation between aircraft. The private-use Timberon Airport is located immediately adjacent to the exit segment of the proposed IR-134/YYY at the McGregor Bombing Range. The VFR traffic pattern for this airport would extend into the MTR. Because this is a VMC-only airport, civil and military pilots flying in the area would be able to maintain visual separation between aircraft.

Because IR-111 and IR-133 are existing MTRs, the only airspace consideration associated with the proposed concurrent use of the two routes is the new segment between the two MTRs (shown in Figure 2.2-3). This new segment would cross V-264. The proposed ceiling of 9,000 feet MSL on the new segment is 2,000 feet below the MEA of the airway. There are no civil or military airports underlying this new route segment. Given these factors, the new route segment connecting IR-111 and IR-133 should have no significant airspace impacts.

4.2.2.5 Socioeconomics

This section presents estimates of the socioeconomic impacts to Otero County of the three action -- relocation of the 37th TFW, inactivation of the 49th TFW and relocation of selected units of F-4s -- included in the Holloman alternative. The reduction of the 479th TTW is taken into consideration in baseline conditions. However, for comparative purposes, the reduction of the 479th TTW is considered with the other three actions when making statements regarding the cumulative impacts of all realignment activities at Holloman AFB. Construction impacts related to the arrival of the 37th TFW and the incoming F-4s are not considered impacts to the "steady state" economy of the County and are reported separately.

4.2.2.5.1 Population

This alternative would increase the population of Otero County. Table 4.2-7 indicates that the net number of military households would increase by 2,560 and the number of civilian households by 28. The number of school-age children would increase by an estimated 1,555 students, and the total population would increase by 7,242 persons - roughly a 14% increase over the baseline population of 51,500 persons. If the reduction of the 479th TTW is considered, the net cumulative population increase would be an

Table 4.2-7 Demographic Impacts of the Holloman Alternative on Otero County (not including the Reduction of the 479th TTW)

	37th TFW	49th TFW	F-4s	Net Impacts
Military households	1,976	-1,827	2,411	2,560
Civilian households	25	-29	32	28
School Aged Children	1,203	-1,116	1,468	1,555
Total Population	5,600	-5,193	6,835	7,242

Note: Demographic impacts differ from changes to employment. Typically a percentage of both military and civilian workers elect to remain in an area even after losing their jobs. For example, inactivation of the 49th TFW reduces the number of military manpower authorizations at Holloman AFB by 2,149. Experience has demonstrated that a portion of the military workers would retire and enter the local civilian labor market. This results in fewer military households leaving the area. This table shows that a 1,827 reduction in households would result from the 2,149 reduction in jobs.

estimated 5,714 persons or 11% over the population prior to the reduction of the 479th TTW.

4.2.2.5.2 Employment and Income

This alternative would increase employment and earnings in Otero County. Total net employment would increase by 3,170, including 2,238 military manpower authorizations and 932 direct and indirect civilian jobs. This would represent a 13 percent increase in jobs to baseline employment in the County. Some portion of these new jobs would be taken by an estimated 1,851 incoming spouses and dependents seeking work. Detailed employment impacts are shown in Table 4.2-8. If the reduction of the 479th TTW is considered, the net cumulative employment increase would be 2,126 (3,170 minus 1,044 jobs), or 9 percent.

Net earnings in the County would increase by an estimated $67.1 million, as shown in Table 4.2-9. This would amount to a 17% increase in earnings over the roughly $390 million in earnings left after the reduction of the 479th TTW. If the reduction of the 479th TTW is considered an additional impact rather than included in baseline, cumulative earnings would increase by $39.3 million or 9%. Construction related to the 37th TFW and scheduled for FY 91 would support 168 jobs (direct and indirect) and $3.2 million in earnings. Construction in support of the F-4s in FY 92 would lead to 47 jobs and roughly $900 thousand in earnings.

Construction of other on- and off-base facilities noted in Section 2.2.2.4 is not related to this alternative but would have employment and earnings impacts. These projects would total roughly $8.0 million per year in FY 91 and FY 92. Those would lead to an additional 19 local jobs, and roughly $360 thousand in local earnings.

4.2.2.5.3 Housing

This alternative would increase the net demand for housing by an estimated 2,588 households. This demand would consist of roughly 665 single airmen, 1,060 families seeking rentals, and 863 families expected to purchase houses. These estimates are based on housing tenure patterns shown in a recent study of the Holloman housing market (SAIC 1990).

With a relatively high rate of current vacancies, and the reduction of the 479th TTW, it is likely that the demand of dormitory space and the demand for owned-houses would be met from the current inventory. There would be approximately 800 houses for sale in the area following the reduction of the 479th TTW, an inventory which would be fully used by the increased demand. The 679 rentals available off-base, however, would not fully meet the anticipated demand for 1,060 units. This short-fall would probably be met in the shortrun by renting houses taken off the sales market. In the long term new apartment units would be constructed - a large number of units have already been planned by local developers. Few vacancies would be available in MFH on-base. Prices for rentals and houses for sale would be likely to increase, at least in the short-term, with the relatively large increase in demand.

Table 4.2-8 Employment Impacts of the Holloman Alternative in Otero County (not including Reduction of the 479th TTW)

	37th TFW	49th TFW	F-4s	Net Impacts
Military Manpower Authorizations	1,976	-2,149	2,411	2,238
Civilian Workers:				
Appropriated funds	71	-83	90	78
NAF and others	184	-201	225	208
Contractors	0	0	0	0
Indirect	568	-623	701	646
Total Military and Civilian	2,799	-3,056	3,427	3,170

Table 4.2-9 Earnings Impacts of the Holloman Alternative in Otero County (not including the Reduction of the 479th TTW)

	37th TFW	49th TFW	F-4s	Net Impacts
Military Manpower Authorizations	$46,996,211	-51,268,854	58,772,246	$54,499,603
Civilian Workers:				
Appropriated funds	1,976,881	-2,307,219	2,481,300	2,150,962
NAF and others	1,364,407	-1,487,717	1,667,017	1,543,707
Contractors	0	0	0	0
Indirect	7,870,157	-8,633,360	9,703,954	8,940,751
Total Military & Civilian	$58,207,656	-63,697,150	69,193,552	$67,135,023

4.2.2.5.4 Community Facilities and Services

Education. The number of school children would increase by 1,555 with the preferred alternative. The scheduled reduction of the 479th TTW, noted in baseline conditions, would reduce the number of school children by 351. Thus, local school officials would have to accommodate an effective increase of 1,204 students. Such an increase of 14.7% would require additional staff, possibly the expansion of facilities, and/or reevaluation of the plan for junior school assignments.

Police and Fire Protection. Following the reduction of the 479th TTW, this alternative would lead to an increased demand for protection services. Demand would rise in rough proportion with the population and would require a commensurate increase in personnel.

Health Services. Hospitals and related health care service providers are currently operating below capacity and should have facilities adequate for meeting the increase in demand expected with the additional population.

Utilities. Public utilities and services, including water supply, sewage systems, landfills, and power are currently below capacity and, based on preliminary estimates, would be able to meet the increased demand expected with the additional population.

4.2.2.5.5 Public Finance

This alternative would increase the demand for public services and require a commensurate rise in public expenditures. Public revenues would be expected to rise in rough proportion to demand, in the absence of any required capital investment. There would however, be a delay in meeting immediate expenditure requirements because of the lag effect of revenue collection.

4.2.2.5.6 Transportation

The estimated 14% increase in population due to this alternative would increase traffic in the local area road network and at Holloman AFB. The heaviest local traffic is along U.S. Highway 54, immediately south of Alamogordo, before intersecting U.S. 70/82. Current traffic on these roadways is light, and the increased traffic due to this alternative would generally be accommodated with no degradation of level of service. No additional road service maintenance or capital improvements would be required.

4.2.2.6 Biological Resources

4.2.2.6.1 Vegetation

Construction activity at Holloman AFB would have negligible impact on the area vegetation primarily because of the limited scope of construction (70 acres) and the fact that most of the construction (80%) would be on previously disturbed land. Location of

the construction sites on Melrose Bombing Range has not been determined, approximately 7 acres would be disturbed. Given the small magnitude of construction activities, pre-site selection surveys to determine the location of sensitive habitats should be sufficient to permit avoidance of significant adverse impacts.

Flight operations would be expected to have no significant impact on the vegetation in the vicinity of Holloman AFB, the affected MTRs and MOAs, or the affected ranges. The use of magnesium flares dropped by aircraft during some training missions over Melrose Bombing Range could result in fires in woodlands and grasslands in range areas. The minimum altitude at which flares are authorized to be released is 600 feet AGL. The flares are designed to burnout within 300 feet after ejection from the aircraft. The potential for a live flare reaching the ground and initiating a brush fire is considered slight. Since past training activities on the range have included the use of flares, this activity does not represent a new source of impact. Given this, and the low probability of occurrence, impacts from this source are considered negligible.

4.2.2.6.2 Fauna

Given the relatively small scale of construction activities (cf. Section 4.2.2.6.1) at both Holloman AFB and on Melrose Bombing Range, impacts from this source to the area fauna are expected to be negligible. Brush fires ignited by flares released from aircraft during range training activities, though considered rare events, could result in loss or displacement of fauna. Changes in plant species composition and the quantity and quality of plant growth following a fire are of greater potential consequence to the fauna of the area. These changes could benefit some species, and be detrimental to others. Since the use of flares is not a change over past training practices on Melrose Bombing Range, flare induced fires are not considered a significant source of impact.

Chaff ejected during activities over ranges, and aluminum chaff fragments resulting from physical degradation of chaff fibers, could be ingested or inhaled by animals. Chaff is composed of fiberglass fibers (nearly pure silica glass drawn to a fine thread). Aluminum composes about 39% of the chaff fiber. Neither fiberglass nor aluminum are considered toxic materials (Venugopal and Luckey, 1978; Browning, 1969). Oral ingestion of chaff would not be expected to cause adverse impacts to livestock or wildlife. Exposure to fiberglass dust (from break up of chaff bundles) might result in irritation of skin, eyes, ears, nose or throat, through mechanical irritation. Man made fibers such as, fiberglass, are considered to be substantially less hazardous to domestic animals and wildlife than asbestos (Westfal, 1988). No impacts to the fauna are expected from this source.

With respect to noise, substantial literature (recently reviewed in Manci et al. 1988, and ORNL 1988) exists discussing the impacts of elevated sound levels, and startle effects due to the sudden onset of aircraft generated noise. As a generalization, findings in the literature are highly variable and inconclusive, both with respect to the significance of elevated noise levels, startle effects, and diel and interspecies differences. Based on this literature, this analysis assumes that an increase in L_{dn} of 2 dB or less would elicit

little response of any kind from domestic animals or wildlife. Studies of cliffnesting raptors by Ellis (1981) indicate no significant response to aircraft noise at distances beyond 1,640 feet.

Changes in the near base noise environment would be small in scale, with general improvement away from the runway approaches, and slight deterioration in the area immediately underlying the approaches. No significant impact, positive or negative, is anticipated for the fauna near Holloman AFB as a result of these changes. Changes in noise environment in areas underlying the MOAs are considered negligible, or slightly reduced; no adverse noise related impact to the fauna would be expected in these areas. Impacts to the fauna associated with the various bombing ranges would be similar to that described for the 37th TFW/49th TFW alternative.

No adverse impact to the fauna is projected for existing MRTs and proposed MTR segments. Potential sources of impact along the MTR are associated with increased noise levels and bird-aircraft strike.

With respect to noise related impacts, average noise levels are projected to increase no more than 2 dB under most MTRs. In no case would average noise levels exceed 61 dB, a level which must be considered moderate, as well as representing no drastic change to existing conditions. As a result, no impact to domestic animals or wildlife species would be expected due to the projected average noise levels along these MTRs. The frequency of single event noise levels in excess of 100 dB(A) would remain about the same or increase slightly (maximum of 3 additional sorties per day on VR 1233) for areas underlying most MTRs. Sortie rates on IR-133 and IR-134, however, would increase by about 8 sorties per day, with new MTR segments experiencing 10 to 12 sorties per day. The following assessment of potential impacts from single event noise levels focuses on IR-133 and IR-134 since they have the largest increase in sortie rates, and are the only MTRs which would be modified under this alternative.

Approximately 70% of the sorties on IR-133 and IR-134 would occur at altitudes of 300 to 500 feet AGL, 27% at altitudes in excess of 500 feet AGL, and less than 3% at altitudes between 100 and 300 feet AGL. Single event noise levels for the F-4 aircraft are summarized in Appendix J. Centerline ground noise levels vary between 112 and 123 dB(A) for aircraft flying between 300 and 100 feet AGL; between 106 and 112 dB(A) for aircraft between 500 and 300 feet AGL; and from 98 to 106 dB(A) for aircraft between 1000 and 500 feet AGL. Few of the projected sorties on IR-133 and IR-134 would result in single event noise levels above 112 dB(A), though the majority of sorties on these MTRs would result in levels above 100 dB(A). The time duration for these noise levels is a few seconds per event and would be centralized within the immediate area of actual overflight. This position is supported by Fletcher and Bushnell (1978). These levels are not expected to cause adverse impact to the general domestic animal and wildlife populations. Minimum route widths for IR-133 and IR-134 are approximately 6 statue miles. Noise levels drop off rapidly with distance form the centerline (see Appendix J); for an F-4 at 500 feet, the single event noise level drops to less than 100 dB(A) within 750 feet of the centerline. It is expected that individual sorties would be broadly dispersed over the full width of the MTR. Given the widths of the MTR corridors, and the rapid

decrease in noise levels with distance from the centerline, it is expected that any given location would receive no more than one event in excess of 100 dB(A) over the course of several days. Given such dispersion, impact to the fauna of the area should be minimal, though individuals of some species might be adversely affected. Similar dispersion would be expected on the other MTRs (minimum widths of 3.5 to 23 statute miles, with increases of from .3 to less than 3 sorties per day); no adverse impact to area fauna from single event noise levels would therefor be anticipated along any of the MTR routes.

As discussed in Section 3.2.6.2, major riparian and wetland habitat in the Pecos River drainage basin support substantial winter populations of ducks, geese and wading birds. Because of the large waterfowl population density in the area, low level F-4 training flights on IR 134, which overlies the Pecos River valley, may result in adverse impacts on the area avifauna through collisions. However, since a bird/aircraft strike can be catastrophic to both involved parties, the Air Force constantly monitors this problem, and operations in situations where this threat is high are avoided or modified. As a result of this effort, there were only 3500 reported impacts involving all bird species Air Force-wide in 1989. Since monitoring for this kind of problem is a routine part of Air Force operations, it would be quickly addressed and resolved should it ever arise, thereby eliminating any possible adverse impact to the avifauna.

4.2.2.6.3 Endangered and Threatened Species

No adverse impact to threatened and endangered species would be expected due to this alternative. Potential impacts to such species could arise through construction on Holloman AFB, and Melrose Bombing Range, through fires produced by unextinguished flares in Melrose impact area, through increased noise levels, and through bird/aircraft strikes.

Ground construction in support of this proposal will be minimal (less than 70 acres), and virtually all will be on lands that had been previously disturbed, and therefore have reduced ecological value. Any impacts to threatened and endangered species in the areas affected by construction can be avoided by conducting preliminary ground surveys of construction sites to identify any threatened and endangered species present. Disturbance to any identified species can be avoided by protecting them during the construction activities (e.g., by re-positioning construction sites, if necessary).

There is a small potential for impact to threatened and endangered plant species through fires produced by unextinguished flares released during training exercises above Melrose Bombing Range. Flares have been used on Melrose Bombing Range in the past, and their use under this alternative is not seen as a new or additional source of impact to threatened or endangered species of plants or animals.

No significant impact on threatened and endangered animal species is expected from jet aircraft noise. The maximum increase in noise levels (L_{dnmr}) are expected along IR-133 north of Holloman AFB, and the proposed modification of IR-134. The maximum resulting sound levels involved are 61 dB, which must be considered moderate, as well

as representing no drastic change to existing conditions. Introduced populations of big horn sheep are present in the Sierra Diablo Mountains in an area well to the south of any MTR affected by this alternative. As a result, no adverse impact to this species would be expected. Endangered species consultation with the U.S. Fish and Wildlife Service (Appendix I) indicated potential concern for bald eagles and peregrine falcons. Bald eagles are present in the area only as transients. This action would not, therefore, be expected to adversely affect the bald eagle population. The consultation did, however, indicate concern for breeding populations of peregrine falcons southwest of Carlsbad, NM, in the area overflown by a segment of the proposed modifications to IR-134. The minimum altitude of this segment is set at 3,000 feet AGL. Ellis (1981) found no significant response of cliff-dwelling raptors, such as the peregrine falcon, at distances beyond 1,640 feet. Since the minimum altitude is in excess of this distance in the area inhabited by breeding pairs of peregrine falcon, no adverse impact to this species is predicted. Noise related impacts in the various affected bombing ranges and MOAs would be similar to that described for the 37th TFW/49th TFW alternative.

No impact to threatened and endangered bird species is expected through bird aircraft strikes. Such instances are statistically uncommon, and existing Air Force programs would take rapid steps to modify operations in any situation where the risk was significant.

4.2.2.7 Water Resources

4.2.2.7.1 Surface Water

The primary surface water features at Holloman AFB are the aeration/evaporation lagoons associated with the Base wastewater treatment system (WWTS). Discharge to the WWTS is expected to increase by about 112,000 gpd, or 7% of the existing throughput. Given the relatively slight increase in throughput, and the absence of any significant change in wastewater quality, no adverse effect on wastewater discharge is expected and no impact on local surface water features is predicted.

4.2.2.7.2 Groundwater

There are two primary sources of impact to the groundwater on and in the vicinity of Holloman AFB. They are generation and discharge of wastewater that may percolate and recharge the groundwater aquifer and withdrawal of water from the local groundwater reservoir. The groundwater in the vicinity of Holloman is generally considered nonpotable and unfit for human consumption with TDS greater than 10,000 mg/L. Percolation of surface waters into the local groundwater is not expected to significantly increase as a result of this alternative.

Holloman AFB obtains potable water from two offsite sources, Bonito Lake and several deep well fields. During the peak water usage months of May through September Holloman AFB receives water from sixteen wells located in several well fields southeast of the base with a combined output capacity of 11 mgd. This alternative would result in

an increase of 1,484 personnel at Holloman AFB. This would result in a total demand of 2.52 mgd (an increase of about 7% over the 1989 consumption). This is a small fraction of the 11 mgd capacity of the well fields and is expected to have no significant impact. The decrease in total aircraft caused by this alternative in conjunction with the reduction of the 479th TTW would decrease potable water demand by aircraft maintenance operations. No impacts are anticipated to the non-potable water supply as a result of the preferred alternative.

4.2.2.8 Archaeological, Cultural, and Historical Resources

Impacts under this alternative would be similar to those projected for the 37th/49th TFW alternative (cf. Section 4.1.2.8). The cultural/historical resource survey for Holloman AFB will be performed prior to any construction on undisturbed land associated with this alternative to minimize possible impacts. Additional impacts could arise through construction of a target emitter site on Melrose Bombing Range, and by increased use of low-level MTRs. Construction or use related impacts are not expected at Melrose Bombing Range because of the absence or near absence of significant resources. Incremental use of low-level MTRs could impact archaeological, cultural or historical resources through vibration related damage. The increase in MTR use would be substantial for IR-134 and IR-133/111. Airspeed along MTRs would be subsonic and well over 90% of all low-level flights would be at 300 feet AGL or greater. Recent experiments involving vibro-acoustic monitoring of F-4 overflights at a fragile 1,000 year-old prehistoric structure near Kayenta, Arizona, indicate that subsonic flights as low as 400 feet AGL are not likely to pose a significant danger to archaeological resources (Battis 1988).

Noise impacts could occur as a result of increased use of IR-YYY. This route crosses over traditional areas still occupied by the Eastern Pueblo Indians. Increased overflight could interfere with ceremonial and other culturally important activities, many of which occur out of doors in remote areas.

Use of IR-YYY could result in potential noise and vibration effects at the Gran Quivera Unit of the Salinas Pueblo Missions National Monument. Increased noise could disturb visitors to the National Monument if flights came closer than 2,000 horizontal or vertical feet. Although unlikely, vibration effects could occur if planes flew over standing ruins at altitudes less than 400 feet AGL. Gran Quivera and White Sands National Monument have experienced numerous sonic booms over the past several years without any significant impact to the structures. The potential for effect is several orders of magnitude greater for sonic boom than for vibration from subsonic overflight at 300 feet AGL. A vibration study conducted by the U.S. Geological Survey at White Sands National Monument indicated normal takeoff patterns at Holloman AFB do not result in a measurable effect at the monument.

To reduce the potential for significant annoyance impacts, the USAF proposes to do the following:

- All F-117A and other aircraft shall continue to avoid overflight of the Gran Quivera Unit of the Salinas Pueblo Missions

National Monument and the museum and associated adobe structures located on the White Sands National Monument to the maximum extent possible commensurate with mission requirements.

- Coordinate with SHPO to include consideration of cultural resources in the siting of base and range facilities.

4.2.2.9 Hazardous Materials and Wastes

This alternative in conjunction with the reduction of the 479th TTW would result in a net reduction in aircraft on base. As a result, hazardous waste production on base associated with aircraft maintenance and operation should be generally reduced, and no significance hazardous waste related impacts would be expected. In general, since this alternative would result in a net reduction in aircraft at the base, hazardous material handling and waste production would be reduced. While the mix of aircraft would change significantly, hazardous material handling and waste generation activities should be similar to existing circumstances. As a result, no significant qualitative changes in hazardous waste generation are expected. The addition of a photo reconnaissance unit at Holloman AFB could provide an exception to this conclusion. Activities of this unit would result in the generation of a waste stream not previously present. For example, photo support can generate hazardous waste by use of fixers, developer, florescent penetrant (zyglo), and photographic waste, such as spent cartridges and film. A silver recovery system in conjunction with such operations should virtually eliminate hazardous discharge. These waste are characterized by silver and mercury compounds, chromates, and acids. Any actions regarding cleanup of the lagoon system and west ramp contamination will proceed with Federal and State oversight regardless of the decision to implement this alternative. While the waste stream involved with the photo reconnaissance unit is different from those currently generated, the disposal of these hazardous materials and waste are within the capability of the Defense Reutilization Marketing Office (DRMO) at Holloman AFB. Therefore, this alternative is not anticipated to produce any significant adverse impacts with regards to hazardous materials and wastes.

4.2.3 Nellis AFB

Under this alternative the resulting impacts at Nellis AFB are identical to those presented in Section 4.1.3.

4.3 THE HOLLOMAN-NELLIS ALTERNATIVE

This alternative involves inactivation of the 49th TFW at Holloman AFB, the relocating of the GAF F-4E unit, a notional TRS unit and a SEAD unit to Holloman AFB, and the relocation of the 37th TFW to Nellis AFB.

4.3.1 Tonopah Test Range

The impacts resulting at TTR and surrounding area (except special use airspace) would be the same under this alternative as those presented in Section 4.1.1.

4.3.2 Holloman AFB

Under this alternative, Holloman AFB would gain 269 manpower authorizations. The total number of aircraft would remain unchanged from baseline. Approximately 10 acres of previously disturbed land would be affected by construction on the base, while 7 acres would be affected on Melrose Bombing Range. Taking into account the scheduled reduction of the 479th TTW, net manpower authorizations at Holloman AFB would be reduced by 35, and contractor positions by 528. The total number of aircraft would be reduced by 42 units.

4.3.2.1 Land Use

This alternative would result in facilities modifications and construction within the boundaries of Holloman AFB. A portion of the operation and maintenance functions associated with this alternative would be located in existing facilities made available by the reduction of the 479th TTW. A small increase in personnel at Holloman AFB may result if all components of the alternative are implemented. This increase is not expected to adversely affect land uses in the County around the base since these changes would offset personnel losses due to the scheduled reduction of the 479th TTW at Holloman AFB (TAC 1990g).

Aircraft operations at Holloman AFB would be about half of baseline under this alternative. There would be little or no flying between 10:00 pm and 7:00 am, so disturbance of surrounding land use from aircraft noise would be less than for the Holloman alternative.

R-5107B, C, H, and J; R-5103A, B, and C; R-5111 A, B, and C; and R-2301 are located primarily over vacant land with limited agricultural activities, mainly cattle grazing. The Gran Quivera Unit of the Salinas Pueblo Missions National Monument lies in the extreme northeast corner of R-5107C and H. Significant impacts to land use under these airspaces are not expected to occur. Use of R-5104 by F-4 aircraft would result in an additional 18 residents in the vicinity of the range being exposed to noise levels of L_{dn} 65 dB or greater. Use of the Beak and Talon MOAs by F-4s would roughly offset the inactivation of the 49th TFW, resulting in no impacts. Impacts to land uses along the MTRs would be the same as reported for the Holloman alternative (Section 4.2.2.1).

4.3.2.2 Atmospheric Resources

Maximum predicted near field air pollutant concentrations at Holloman AFB as a result of the inactivation of the 49th TFW and the relocation of the F-4 aircraft are shown in Table 4.3-1. Maximum air pollutant concentrations deviations from baseline in the potentially affected special use airspace and MTRs are shown in Table 4.3-2. Net air

Table 4.3-1 Maximum Ground Level Air pollutant concentrations (ug/m^3) at Holloman AFB from the 49th TFW inactivation and F-4 relocation

Aircraft Type	CO	HC	NOx	SOx	PM
49th TFW *	-33.75	-4.9	-13.8	-3.1	-0.4
F-4s					
TRS	4.1	0.7	1.1	0.2	0.3
SEAD	4.8	0.8	2.3	0.4	0.2
GAF	1.6	0.3	0.8	0.1	0.1
Subtotal	10.5	1.8	4.2	0.7	0.6
Net Total	-23.25	-3.1	-9.6	-2.4	+.2

* Negative values indicate emission reduction.

Table 4.3-2 Air Pollutant Concentrations from low altitude, (less than 6,000 feet) Special Use Airspace Operations (ug/m^3) in the vicinity of Holloman AFB for the Holloman-Nellis Alternative

Aircraft Type	CO	HC	NOx	SOx	PM
49th TFW					
Beak MOA	1.042	0.083	10.42	0.042	0.142
Talon MOA	1.18	0.094	11.77	0.047	0.168
Pecos MOA	1.627	0.130	16.22	0.065	0.22
R-5107	1.3	0.104	13.01	0.052	0.177
MTR	6.8	0.8	205	7.6	2.6
TRS					
Pecos MOA	0.3	0.03	1.4		0.3
Melrose Range		No range operations			
MTR	0.2	0.02	0.8		0.2
SEAD					
Pecos MOA	0.6	0.01	1.1		0.1
Melrose Range	1.6	0.1	3.3		1.1
MTR	1.8	0.03	3.7		0.3
GAF					
Pecos MOA	1.8	0.03	3.6		0.3
Red Rio	0.2	0.0	0.3		0.03
MTR	0.5	0.01	1.0		0.1
F-4 TOTAL					
Pecos	2.7	0.07	6.1		0.7
Maximum Range	1.8	0.1	3.6		1.13
Maximum MTR	2.5	0.06	5.5		0.6

MTR = most used military training route

quality impacts of these actions would be slightly beneficial to CO, HC, NOx and SOx and slightly negative to PM. All impacts would be insignificant. Since this alternative would not result in an adverse change in air quality, it is not expected to lead to non-conformance with the Clean Air Act of 1990.

4.3.2.3 Noise

4.3.2.3.1 On Base

The Holloman-Nellis alternative action would cause L_{dn} noise exposure contours around Holloman AFB to be similar to those for existing conditions at L_{dn} levels of 75 dB and 70 dB levels. The respective land areas are shown in Table 4.3-3 for three conditions, including current, baseline (after reduction of the 479th TTW), and the Holloman-Nellis alternative in which the 37th TFW is relocated to Nellis AFB.

The L_{dn} noise contours for the Holloman-Nellis alternative are shown in Figure 4.3-1 for the Holloman AFB vicinity. These noise contours are based on flight operations of AT-38B aircraft from the Top-Off training and the F-4 aircraft from the relocation to Holloman AFB.

4.3.2.3.2 Special Use Airspace

The sonic boom environment under the WSMR, Valentine and Reserve supersonic airspace would be identical to that predicted for the Holloman alternative in Section 4.2.2.3.2.

4.3.2.3.3 MOAs

Noise exposures in other land areas within the region of influence of Holloman AFB would be affected by the alternative action a follows:

Beak A, B, and C MOAs: Table 4.3-4 summarizes the analysis of noise exposures that would occur under the Beak MOAs for existing, baseline and future operations of the Holloman-Nellis alternative. The inactivation of the 49th TFW aircraft would cause a major reduction in noise exposures. Introduction of F-4 aircraft operations will result in negligible noise impacts. Single event noise levels from F-4 aircraft at 5,000 feet AGL would be about 87 dB SEL.

Talon MOA: The L_{dn} noise exposure under the Talon MOA is also shown in Table 4.3-4 for the various conditions. In the Talon MOA case, the noise exposures would be reduced to about L_{dn} 38 dB for the Holloman/Nellis alternative, with single event levels similar to those discussed for Beak MOAs. These noise exposures are insignificant in terms of community relations.

Oscura Bombing Range: Noise exposure under the lowest altitude portions of the Oscura Bombing Range flight paths would be almost identical in L_{dn} level to those existing (L_{dn} 83 dB) and slightly greater than baseline conditions (L_{dn} 81 dB).

Table 4.3-3 Land Areas Within L_{dn} Noise Exposure Contours at Holloman AFB for the Holloman-Nellis Alternative Action

L_{dn} Contour	Land Area, Square Miles				
	Current[1]	Baseline[2]	Alternative	% Change from Current	% Change from Baseline
65	42.4	38.5	30.5	-28.1%	-20.8%
70	19.6	16.6	17.0	-13.3%	+2.4%
75	9.0	7.1	9.1	+1.1%	+28.2%
80	4.6	3.7	4.9	+6.5%	+32.4%

1. Current = Conditions including 479th TTW activity
2. Baseline = Current conditions including the Reduction of the 479th TTW
3. Land areas computed using NOISEMAP 6.0 Noise Exposure Model

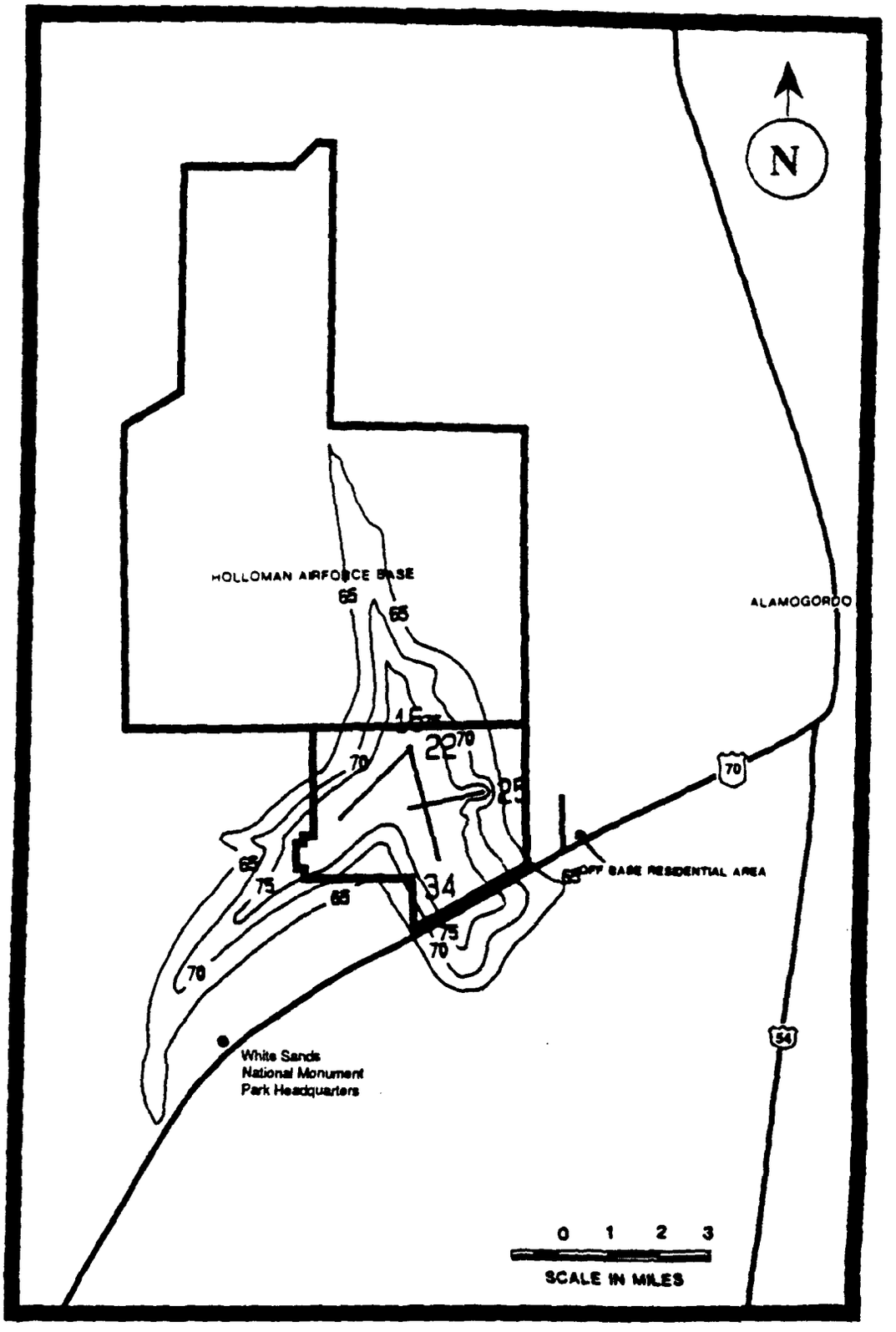

Figure 4.3-1 Ldn Contours for Holloman AFB with Holloman-Nellis Alternative (scale 1:200,000)

Table 4.3-4 Flight Activity and L_{dn} Noise Exposure Levels Under Beak and Talon MOAs for the Holloman-Nellis Alternative

	Beak A	Beak B	Beak C	Talon
Sorties per year				
Existing	3,387	7,858	7,433	7,376
Baseline	1,438	1,435	1,477	4,415
Holloman/Nellis	1,510	1,488	1,481	4,435
L_{dn}, dB, Average*				
Existing	46	48	47	49
Baseline	46	47	47	49
Holloman/Nellis	38	38	37	38

* Assuming all aircraft operations at an average height of 5,000 ft. AGL and distributed equally across the MOA.

Red Rio Bombing Range: The L_{dn} noise exposures at Red Rio would be similar (L_{dn} 80 dB) to those of existing (L_{dn} 81 dB) or baseline (L_{dn} 79 dB), with similar single event levels.

McGregor Bombing Range: L_{dn} noise exposures at McGregor Bombing Range would be L_{dn} 72 dB due to this alternative action. This is much less than existing (L_{dn} 77 dB) conditions, and much greater than baseline (L_{dn} 64 dB) conditions. There would be no night-time operations at this range.

Melrose Bombing Range: This alternative would cause an increase in flight activity at Melrose Bombing Range by the addition of 2,808 annual sorties by F-4 aircraft. All current and proposed flight activity at the range would be conducted during daytime hours (0700 hrs to 2200 hrs), although some would be during hours of darkness before 2200 hrs. These would be additive to the current (1989 - 1990) activity of 5,930 sorties per year on the range and a long-term projected 10,685 sorties per year inclusive of other TAC and SAC activities.

The noise environment in the vicinity of Melrose Bombing Range would be adversely impacted by the increased flight activity. L_{dn} noise exposures would increase by about 1.7 dB relative to current conditions. The land area within the L_{dn} 65 dB contour would increase from about 60 square miles (current) to about 75 square miles. The resident population within this contour would increase from 74 persons to about 92 persons, based on local rural population density. Single event noise levels of the F-4 aircraft would be about 7 dB higher than those of the most prevalent current aircraft using the range. The typical change in noise environment would therefore be perceived as about a 50% increase in operations by louder F-4 aircraft.

The long-term projected noise environment at the range would also be increased by the addition of F-4 aircraft operations. The additional 2,808 annual sorties would add a further 2 dB to the cumulative L_{dn} noise exposures. The land area within the L_{dn} 65 dB noise contour would increase from a projected 88 square miles for the long-term case to about 94 square miles after inclusion of the F-4 aircraft activity. The resident population within the contour would increase from a projected 108 persons in the long-term case to about 116 after inclusion of the F-4 aircraft activity.

4.3.2.3.4 MTRs

Low Level MTRs: Noise exposures under the low level MTRs in the Holloman region of influence would be identical to those listed in Table 4.2-5 for the Holloman alternative.

4.3.2.4 Airspace Management

Airspace management impacts under this alternative would be similar to those discussed under the Holloman alternative (Section 4.2.2.4). The only variance would be the reduction in aircraft operations in the controlled airspace and special use airspace resulting from the absence of the F-117A at Holloman. Relative to Holloman AFB the

airspace area actions associated with the Holloman-Nellis alternative are the same as those delineated for the Holloman alternative. The modified MTRs main routes and alternate entry and exits to existing routes would still be established to support the RF-4C and F-4G/E aircraft. Oscura, Red Rio, McGregor and Melrose Bombing Ranges would be used by the RF-4Cs and F-4G/Es. Both RF-4C and F-4G/E would use Beak A, B, and C MOA, Talon MOA, and Pecos MOAs.

The analysis of potential airspace impacts associated with this alternative indicated there would be no significant adverse impacts to the airspace environment. This alternative involves fewer aircraft than the Holloman alternative because the 37th TFW would not transfer to Holloman, resulting in less impact.

4.3.2.5 Socioeconomics

This section presents the net socioeconomics impacts of the inactivation of the 49th TFW and the relocation of the three F-4 units at Holloman AFB. Baseline conditions for the analysis include the population and local expenditure losses related to the reduction of the 479th TTW. However, for comparative purposes the reduction of the 479th TTW is considered with the other two actions when making statements regarding the cumulative impact of all realignment activities at Holloman AFB.

The impacts of $19.5 million in peak year construction related to the F-4 units are not considered changes to the "steady-state" economy of Otero County and are noted separately. The detailed estimates of impacts of inactivation of the 49th TFW and the relocation of the F-4 units at Holloman AFB are shown in Appendix B.

4.3.2.5.1 Population

The demographic impacts of the action for Otero County are summarized in Table 4.3-5. The number of military households would increase by 584, while civilian households would increase by 3. The number of school-aged children would increase by 352, and the total population would increase by 1,642, a 3 percent increase over the baseline population of roughly 51,500 persons. The cumulative change would be a net increase of less than 120 persons, or less than 1 percent of the total population.

4.3.2.5.2 Employment and Income

This alternative would lead to a relatively small increase in employment and earnings in Otero County. Table 4.3-6 indicates that uniformed military positions would increase by 262 positions, and civilian jobs would increase by 109. The total employment impact would be a net increase of 371 jobs or 1.5% of County employment. The cumulative net impact including the reduction of the 479th TTW, would be a reduction in 673 jobs or 2.8%. New construction in FY 91 related to the relocation of the F-4 units would create 47 direct and indirect jobs.

As shown in Table 4.3-7, earnings in the County would increase by $8.9 million or roughly 2% over $390 million in earnings after the reduction of the 479th TTW. The

Table 4.3-5 Demographic Impacts of the Holloman-Nellis Alternative on Otero County (not including the Reduction of the 479th TTW)

	49th TFW	F-4s	Net Impacts
Military households	-1,827	2,411	584
Civilian households	-29	32	3
School Aged Children	-1,116	1,468	352
Total Population	-5,193	6,835	1,642

Note: Demographic impacts differ from changes to employment. Typically a portion of both military and civilian workers elect to remain in an area despite losing their jobs.

Table 4.3-6 Employment Impacts of the Holloman-Nellis Alternative on Otero County (not including the Reduction of the 479th TTW)

	49th TFW	F-4s	Net Impacts
Military Manpower Authorizations	-2,149	2,411	262
Civilian Workers:			
Appropriated funds	-83	90	7
NAF and others	-201	225	24
Contractors	0	0	0
Indirect	-623	701	78
Total Military and Civilian	-3,056	3,427	371

Table 4.3-7 Earning Impacts of the Holloman-Nellis Alternative on Otero County (not including the Reduction of the 479th TTW)

	49th TFW	F-4s	Net Impacts
Military Personnel	$-51,268,854	58,772,246	$7,503,392
Civilian Workers:			
Appropriated funds	-2,307,219	2,481,300	174,081
NAF and others	-1,487,717	1,667,017	179,300
Contractors	0	0	0
Indirect	-8,633,360	9,703,954	1,070,594
Total Military and Civilian	$-63,697,150	69,193,552	$8,927,367

cumulative impact including the reduction of the 479th TTW, would be a reduction of $19 million or 4.5%. Construction earnings related to this alternative would be an estimated $898 thousand.

Construction of other on- and off-base facilities noted in Section 2.3.2.4 is not related to the alternative but would have employment and earnings impacts. These projects would total roughly $8.0 million per year in FY 91 and FY 92. These would create an additional 19 local jobs and roughly $360 thousand in earnings.

4.3.2.5.3 Housing

This alternative would increase the demand for housing by 587 units. This increased demand would be met with the approximately 800 homes for sale and 679 vacant rental units expected to be available in the area following the reduction of the 479th TTW.

4.3.2.5.4 Community Facilities and Services

Education. The number of school-aged children would increase by 352 students, or a 4.3 percent change over the total enrollment of 8,190 in Alamogordo. The cumulative impacts represented a decrease of 215 students or 2.6%.

Police and Fire Protection. The population increase of 1,642 persons related to this alternative may lead to a slight increase in the demand for protection services. Cumulative effects would be negligible.

Health Services. Hospitals and related health care service providers are currently operating below capacity and would be capable of meeting the small increase in demand which might follow from this alternative. Cumulative effects would be negligible.

Utilities. Public utilities and services, including water supply, sewage systems, landfills, and power, are currently below capacity and would be capable of meeting the increased demand related to the alternative.

4.3.2.5.5 Public Finance

The small population increase related to this alternative would lead to small increases in public revenues through various taxes and subventions. Cumulative effects would be negligible. No capital improvements would be necessary and public expenditure would be expected to increase in rough proportion with the increase in population.

4.3.2.5.6 Transportation

The relatively slight increase in area population due to this alterative would have little or no impact on the local air and rail transportation networks. Cumulative effects would have no increase in traffic volume.

4.3.2.6 Biological Resources

4.3.2.6.1 Vegetation

Under this alternative impacts to vegetation would be similar to that described for the Holloman alternative. Since the area of land affected by base construction (10 acres) would be smaller, net impacts to vegetation would be somewhat less than under the Holloman alternative. In both cases impacts to vegetation are considered to be negligible.

4.3.2.6.2 Fauna

Impacts to the fauna on and around the base are expected to be less than for the Holloman alternative because of the substantial reduction in construction activity under this alternative. In both cases construction related impacts on the base are considered to be negligible. Impacts to the fauna on the ranges, MTRs and MOAs would be similar to those incurred under the Holloman alternative.

No adverse impact to the fauna of the bombing ranges would be expected under this alternative, either because L_{dn} noise levels would not increase appreciably, (a maximum of 2 dB on Melrose Bombing Range), would remain constant (Oscura Bombing Range), or would decrease (Red Rio and McGregor Bombing Ranges).

4.3.2.6.3 Endangered and Threatened Species

Impacts to threatened or endangered species under this alternative would be similar to those described for the Holloman alternative.

4.3.2.7 Water Resources

4.3.2.7.1 Surface Water

This alternative, coupled with other actions being undertaken at Holloman AFB, would result in a net reduction in aircraft and a negligible change in personnel. These changes would not produce any adverse impact to surface water resources.

4.3.2.7.2 Groundwater

This alternative is not expected to produce any adverse impacts to the quantity or quality of groundwater on or in the vicinity of Holloman AFB.

4.3.2.8 Archaeological, Cultural, and Historical Resources

This alternative would result in impacts to archaeological cultural and historical resources similar to, but lower than those described for the Holloman alternative (see Section 4.2.2.8). The cultural/historical resource survey will identify any significant resources requiring protection prior to construction, thereby minimizing potential impacts. This alternative would result in fewer potential impacts to archaeological sites at the

various ranges because of reduced range utilization compared to the Holloman alternative.

4.3.2.9 Hazardous Materials and Wastes

Under this alternative the number of aircraft based at Holloman would be the same as under baseline conditions. As a result generation and handling of hazardous wastes would be about the same. However, given the scheduled reduction of the 479th, the total number of aircraft under this alternative will be less than the number currently based at Holloman AFB. Any actions regarding cleanup of the lagoon system and west ramp contamination will proceed with Federal and State oversight regardless of the decision to implement this alternative. Therefore, this alternative is not anticipated to produce any significant adverse impacts with regards to hazardous materials and wastes.

4.3.3 Nellis Air Force Base

4.3.3.1 Land Use

The relocation of the 37th TFW to Nellis AFB would not result in significant land-use impacts in the area. Approximately 65 acres on the east side of Nellis AFB would be required to accommodate the relocation. The east side of the base is primarily vacant land and not extensively developed.

4.3.3.2 Atmospheric Resources

No significant adverse impacts to air quality in Clark County are expected as a result of this alternative. It would not affect the special use airspace R-4809 or the Nellis Range since the 37th TFW already operates in these areas. Worst case air pollutant concentrations at Nellis AFB as a result of 37th TFW operations are shown in Table 4.3-8. This contribution would be approximately 22% of the NAAQS for CO and less than 2% for all other pollutants. The maximum concentration would occur approximately 5 kilometers from the end of the runway and would rapidly decrease with distance from that location. As a result, it is unlikely that they would significantly contribute to CO hot spots within the metropolitan area of Las Vegas. If the projected maximum concentration of CO were to occur directly on the maximum monitored concentration, the maximum expected concentration would be 16.5 ppm, less than half the one hour standard. Further, it is unlikely that the maximum operations would coincide with the monitored maximum concentration since the peak CO concentrations generally occur in the night or early morning hours while peak operational periods are during daylight hours.

Changes to the air quality within 3 miles of Nellis AFB due to the changes in aircraft operations would not be expected to result in non-conformity with the Clean Air Act of 1990. Emissions from other sources, including ground operations, refueling, support vehicles and other miscellaneous mobile sources are expected to be small throughout the base and the local urbanized area. Air Force bases emissions are generally less than two percent of the regional emissions of all pollutants (Naugle et al 1978). Temporary

Table 4.3-8 Maximum Ground-Level Air Pollutant Concentrations ($\mu g/m^3$) at Nellis AFB From 37th TFW Operations

Aircraft Type	CO	HC	NO_x	SO_x	PM
F-117A	6.4	2.4	2.9	0.2	0.0
AT-38B	2.5	0.4	0.1	0.0	0.0
TOTAL	8.9	2.8	3.0	0.2	0.0

construction emissions of particulate matter (PM_{10}) would be expected to be approximately 78 tons/acre/month.

4.3.3.3 Noise

The Holloman-Nellis alternative action would result in increases in noise exposure around Nellis AFB due to the additional operations of the F-117A and AT-38B aircraft. The elimination of the Nellis-TTR transport aircraft activity would provide negligible positive impacts (less than 1 dB) in the L_{dn} noise exposures.

Table 4.3-9 shows the land areas that would be within the various L_{dn} noise contours under baseline and projected conditions. The L_{dn} noise contours for this Holloman-Nellis alternative are illustrated in Figure 4.3-2. Increases in L_{dn} values would be caused on land areas below the departure and approach paths to Nellis AFB. Due to conflict of traffic on departure paths northeast of Nellis (from Runways 03L and 03R) with traffic into McCarran International Airport, the 37th TFW operations would depart mainly to the southwest (from Runways 21L and 21R). This route is towards residential areas and would cause increases in residential noise exposure. While the L_{dn} noise contours for the Holloman/Nellis alternative enclose a larger land area around Nellis AFB than those for baseline conditions, by about 4 square miles of land at the L_{dn} 65 dB level, the increase in population impacted is estimated to be about 2%. This population is in community areas south of the base and in North Las Vegas. Table 4.3-10 summarizes the additional noise impact in terms of resident populations within the L_{dn} noise contours and the number of persons expected to "highly annoyed" by noise for baseline and alternative action aircraft operations.

4.3.3.4 Airspace Management

The relocation of the 37th TFW to Nellis AFB would result in increased flight operations in the local ATC airspace environment but generally in no change in the TFWC Range airspace use. The basing of 54 additional aircraft at Nellis AFB would increase the number of flight operations, both at the airfield (takeoffs, landings, etc.) and within the approach and en route control airspace areas. The extent of this increase is not known; however, it would not be expected to exceed previous operational levels prior to the 474th TFW inactivation at Nellis AFB. No changes to the ATC airspace structure would be needed since the F-117As do not require any unusual operational procedures while operating in the terminal Nellis environment.

The majority of aircraft operations at Nellis AFB occur during daylight hours. Because the mission of the F-117A is to conduct low-visibility operations at night, 70% of the 37th TFW flight activity is conducted after dark. It is not expected that the number of daytime operations of the 37th TFW (30% of the total F-117A operations) would exceed operational levels of the 474th TFW prior to that unit's inactivation. Therefore, the relocation of the 37th TFW to Nellis AFB should have no significant adverse effects upon the Nellis air traffic operations.

Table 4.3-9 Land Areas Within L_{dn} Noise Contours at Nellis AFB for Holloman-Nellis Alternative

L_{dn} Contour	Land Area, Square Miles		
	Baseline	Alternative	% Change from Baseline
65	42.5	46.1	+8.5%
70	21.1	23.1	+9.4%
75	10.7	11.3	+5.6%
80	5.3	5.6	+5.6%

1. Land areas computed using NOISEMAP 6.0 Noise Exposure Model

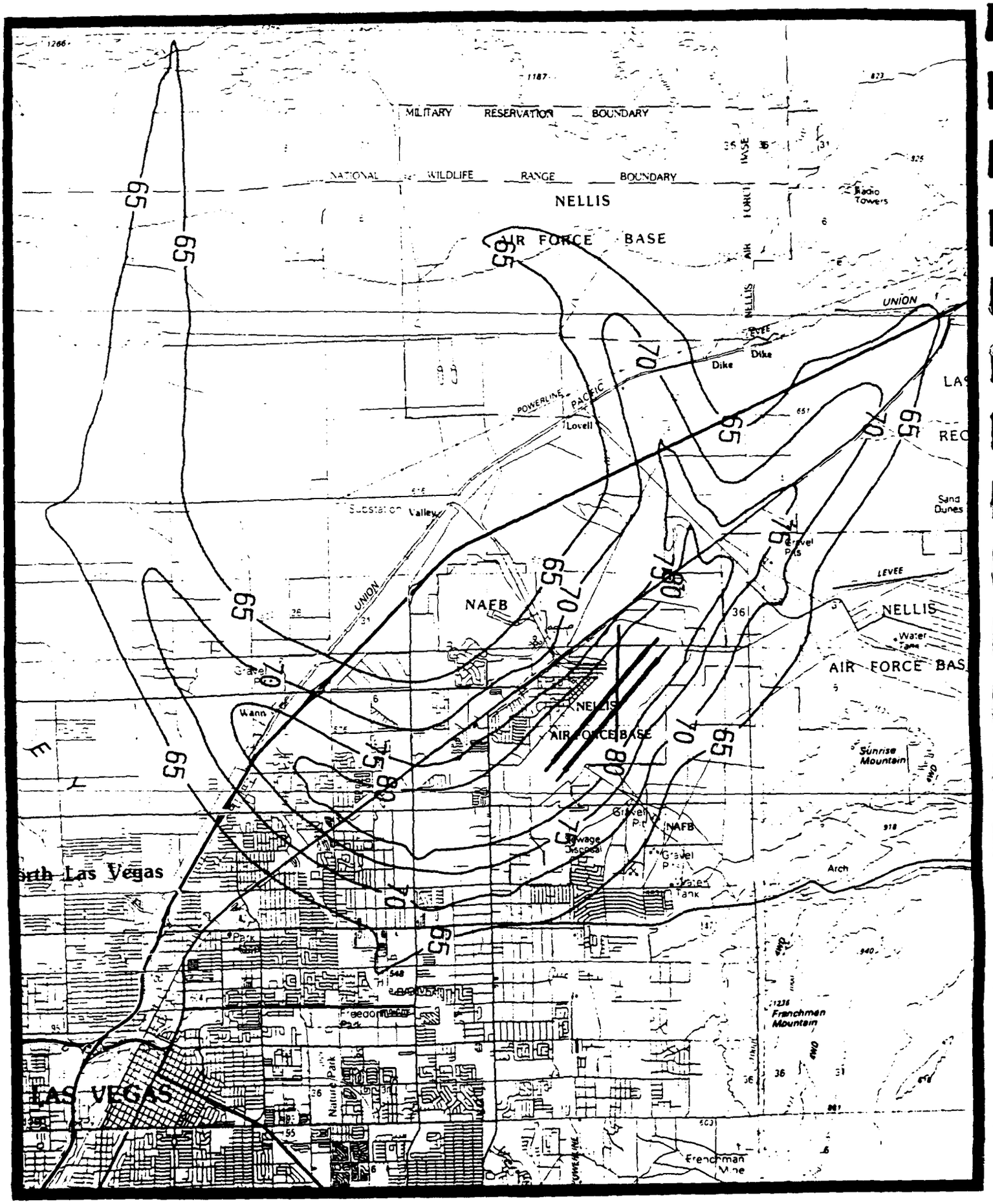

Figure 4.3-2 L_{dn} Noise Contours for Nellis AFB with Holloman-Nellis Alternative (scale 1:100,000)

Table 4.3-10 Populations Within Nellis AFB L_{dn} Contours for Baseline and Holloman-Nellis Alternative

L_{dn} Contour	Number of Residents		Number Expected to be Highly Annoyed	
	Baseline	Alternative	Baseline	Alternative
65	23,200	23,700	7,880	8,025
70	13,600	13,900	6,160	6,265
75	6,600	6,700	4,080	4,130
80	1,800	1,810	1,100	1,110

4.3.3.5 Socioeconomics

This section describes the socioeconomics impacts of relocating the 37th TFW to Nellis AFB. According to this alternative military manpower authorizations at Nellis AFB would be reduced by 649. These authorizations are currently used to facilitate the transport of personnel and equipment between Tonopah and Nellis AFB. The reduction in contractors living in Clark County (but working at TTR) would be the same as the 37th/49th TFW alternative. Nellis has sufficient base facilities for aircraft maintenance in place, and additional contractors would not be needed. Transport aircraft operations between Nellis and TTR, by transport aircraft operations, with an estimated valued of $21 million, would end. Construction costs at Nellis to accommodate the 37th TFW would be $159 million beginning in FY 93. Detailed estimates of impacts for the 37th TFW at Nellis are presented in Appendix B.

4.3.3.5.1 Population

The demographic impacts of this alternative are summarized in Table 4.3-11. Households (uniformed and civilian) would be reduced by 542 (calculated by 604 minus 62). The number of civilian contractor households in Clark County would be reduced by 191. Note that all of the 547 contractors living in Clark County and losing their jobs would not relocate. The net change in school children would be a reduction of 453. The total population would be reduced by 2,035 persons, a negligible proportion of the populations of Las Vegas and Clark County.

4.3.3.5.2 Employment and Income

Relocation of the 37th TFW to Nellis AFB would reduce employment in Clark County. Employment impacts are summarized in Table 4.3-12. The net number of appropriated fund positions (military and civilian) would be reduced by 649. The number of contractor positions at TTR would be reduced by 1,130 -- 547 of these workers live in Clark County. The number of NAF and base-related jobs at Nellis AFB would decline by 62 positions. Indirect jobs, supported by expenditures in Clark County, would be reduced by 1,195. The total job loss in Clark County would be 1,909. Part of this job loss would be attenuated by the estimated 320 working spouses and dependents leaving Clark County. The $159 million in construction expenditures related to the 37th TFW would create a temporary demand for 3,943 construction and indirect workers.

The net reduction of earnings related to this alternative would be $40.7 million, of which $21.9 million is actually reported in Nye County. These are substantial reductions, but are relatively small compared to the total $6.2 billion in Clark County earnings reported in 1988. New construction would temporarily increase earnings by $91.7 million. Earnings impacts are shown in Table 4.3-13.

4.3.3.5.3 Housing

Additional units placed on the Las Vegas real estate market because of this departure of 542 households would probably have little or no appreciable effect on the

Table 4.3-11 Demographic Impacts of the Holloman-Nellis Alternative on Clark County

Military Households	-604
Civilian Households	62
Contract Households [a]	-191
School-aged Children [b]	-453
Total Population	-2,035

Note: Demographic impacts usually differ from changes in employment. Typically a portion of workers elect to remain in an area despite losing their jobs.

(a) Civilian workers leaving Clark County are contractors living in Clark County, but working at TTR in Nye County.

(b) Net change in school children.

Table 4.3-12 Employment Impacts of the Holloman-Nellis Alternative on Clark County

Military Manpower Authorizations	-711
Civilian Workers:	
Appropriated funds	62
NAF and others	-65
Contractors	(a)
Indirect	-1,195
Military and Civilian [b]	-1,909

(a) Employment is usually reported by place of work. The 547 contract workers would formally be counted by BLS as workers in Nye County.

(b) Does not include new construction impacts.

Table 4.3-13 Earnings Impacts of the Holloman-Nellis Alternative on Clark County

Military	$-16,488,072
Civilian workers:	
Appropriated funds	1,820,196
NAF and others	-629,980
Contractors	(a)
Indirect	-25,446,389
Net military and Civilian [b]	-40,744,242

(a) The direct payrolls of the 547 contractors, 21.9 million, are reported by place of work, Nye County.

(b) Does not include new construction impacts.

overall availability of rentals or houses for sale. Currently there are approximately 290,000 permanent housing units in Clark County.

4.3.3.5.4 Community Facilities and Services

Education - The number of school-aged children in Clark County would be reduced by 453 students.

Police and Fire Protection - Impacts to the demand for local protection services would be negligible.

Health Services - Impacts to the demand for local health services would be negligible.

Utilities - Impacts to Public utilities and services would be negligible.

Public Finance - Impacts to public finance would be negligible.

4.3.3.5.6 Transportation

Currently, about 550 personnel commute weekly to TTR from Nellis AFB in Clark County, using ground transportation. Under the Nellis realignment alternative, these individuals would be added to the pool of people commuting to and from Nellis AFB on a daily basis. Adding these commuters would increase traffic volumes, especially during the peak commuting hours. Traffic flow in the area is considered good; and because these commuters would presumably be spread throughout the different access routes, no significant impacts are expected from this source.

4.3.3.6 Biological Resources

4.3.3.6.1 Vegetation

Approximately 130 acres would be permanently or temporarily disturbed by construction activity. The locations of specific facilities and construction sites are uncertain at this time. If this alternative is implemented, surveys would be performed prior to construction to locate areas with sensitive plant species or populations.

4.3.3.6.2 Fauna

Construction would be the only activity to affect animal resources on the base. The locations of specific facilities and construction sites are uncertain at this time; surveys would be performed prior to construction to locate areas with sensitive animal species or populations.

4.3.3.6.3 Endangered and Threatened Species

The FWS has identified one threatened animal species (desert tortoise, Gopherus agassizii) and one candidate plant species (desert poppy, Arctemecon californica) that may be present at Nellis AFB (Harlow 1990). Due to the uncertainty as to specific locations of construction activity, it is not known whether these species would be affected by this alternative action. However, should this alternative be implemented, issues relevant to the Endangered Species Act would be resolved with the FWS prior to construction.

4.3.3.7 Water Resources

The water demand at Nellis AFB is met using a combination of surface water from Lake Mead and groundwater. The large demand for water at Nellis AFB during the summer depletes the available supply to the point that water volumes stored on base become extremely low. During this period, there is usually enough water for regular consumption; but this situation jeopardizes on-base fire protection. The relocation of the operations of the 37th TFW from TTR to Nellis AFB would increase the number of planes at Nellis AFB. This increase is expected to increase the demand for water to support normal operations. This additional demand would further reduce the available stored water during the summer season, having an adverse impact upon the base water-supply system. However, the number of planes involved is small compared to the level of activity at Nellis AFB, and no significant adverse impact is predicted.

4.3.3.8 Archaeological, Cultural, and Historical Resources

Under this alternative, the 37th TFW would operate out of Nellis AFB instead of TTR. Range operations would otherwise be the same as in the current situation. This alternative would require construction of new facilities at Nellis AFB. Impacts are unlikely because of the area's low sensitivity (Rafferty 1988), which is due in part to a lack of permanent water and a scarcity of resources that could have been utilized by prehistoric groups. A cultural-resource site records and literature search by the Environmental Research Center, University of Nevada at Las Vegas, revealed that large amounts of land around the base have been surveyed (Rafferty 1988). Only two sites have been located within 2 or 3 miles of Nellis: one is a small lithic scatter and the other is a heavily vandalized turn-of-the-century Union Pacific Railroad Station. Areas proposed for new construction are located immediately adjacent to existing facilities and probably have been at least partially disturbed by earlier construction. These factors indicate that this alternative would not result in significant impacts to cultural resources. If this alternative is selected, the Air Force would consult with the SHPO to determine if any additional actions are required.

4.3.3.9 Hazardous Materials and Wastes

The operational activities of the 37th TFW utilize hazardous materials and produce hazardous wastes. The activities associated with hazardous materials include maintenance of aircraft, aircraft corrosion control, vehicle maintenance, fuel handling and

storage, munitions storage, and ground support equipment maintenance. Waste-generating activities include grounds maintenance, munitions storage and disposal, medical service, and laboratory operations (including nondestructive inspection, and fuels analysis). Wastes generated in maintenance activities include spent solvents, waste oils, contaminated fuels, and greases removed from the equipment. Wastes from corrosion control operations include paint chips, paint, spent solvents, and spent strippers. Soap, detergent and small amounts of PD-680 wastes are generated by aircraft washing activities. Transfer of the 37th TFW to Nellis AFB would result in an increase in the amount of hazardous materials used and hazardous wastes produced. However, the increase is not anticipated to produce any significant adverse effects.

4.4 THE NO ACTION ALTERNATIVE

Under the no-action alternative, the 37th TFW would continue to operate from TTR, and would continue to operate with TDY personnel stationed at Nellis AFB. No construction activities would be initiated at TTR and no changes to the biophysical or socioeconomic environment is projected under this alternative.

No construction, changes in personnel, or new activities would occur at either Holloman or Nellis AFB. As a result, selection of this alternative would not result in any changes to the biophysical or socioeconomic environment.

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6.0 LIST OF PREPARERS

This chapter lists the preparers of the Draft EIS. Each individual who made a significant contribution to the development, preparation, or drafting of the Draft EIS is included in the listing. The professional credentials of each author are provided along with the person's specific contribution in preparing this Draft EIS.

R.E. Ambrose	Ph.D. Zoology, University of Tennessee; M.S. Zoology, University of Tennessee; B.S. Biology, Jacksonville State University; 24 years of experience in environmental impact assessment.	Biological Resources
G. Anderson	B.S. Biology, Middle Tennessee State University; 27 years of experience in environmental impact assessment.	Biological Resources
G.A. Baca	B.S. Chemical Engineering, University of New Mexico Registered Professional Engineer, New Mexico, 21 years of Environmental Analysis Experience	Air Quality
R. Blakely	B.S. Aviation Management, Auburn University; U.S. Air Force Air Traffic Control School; 27 years of experience in airport and airspace management, airport operations, airport planning, and marketing related to aviation.	Airspace Management
R. Brandin	M.C.R.P. City and Regional Planning, Rutgers University; B.A. Art History, Bryn Mawr College; 19 years of experience in environmental impact assessment.	Description and Need for Proposed Action Land Use

D. Brown	Principal Scientist, Wyle Laboratories B.Sc., Mechanical Engineering with Aeronautics, University of Strathclyde, Glasgow, Scotland M.Sc., Transport Technology, School of Engineering, Loughborough University, England Years of Experience: 25	Noise Assessment
D. Clark	Environmental Program Manager, HQ TAC/DEVE Langley AFB M.S. Engineering Management, Air Force Institute of Technology, Wright Patterson AFB B.S.C.E., Norwich University, Northfield VT; Registered Professional Engineer Years of Experience: 9	Air Force Project Manager
M. Conley	Ph.D. Biology, New Mexico State University M.S. Biology, University of Texas at El Paso M.Ed. Curriculum & Instruction, Texas A&M University B.S. Biology, Lamar University 10 years of research in population and community ecology and statistical ecology	Biological Resources
J. Groton	M.S. Forestry, University of Tennessee; B.S. Natural Resources, University of the South; 11 years of experience in environmental impact assessment.	Biological Resources
F.X. Gonzales	B.S. Civil Engineering, University of New Mexico 4 years experience in systems and facilities engineering	Hazardous Waste, Hazardous Materials, Water Resources

T. Heitzman	M.S. (expected 1990) Civil Engineering, University of Tennessee; B.S. Civil Engineering, University of Tennessee; 3 years of experience in environmental impact assessment.	Transportation
P.S. Lufkin	M.S. Political Science and Economics, University of California; B.A. Political Science, University of California; 14 years of experience in environmental impact assessment.	Socioeconomics
J.R. McDowell	M.S. Environmental Engineering, University of Tennessee; B.S. Mechanical Engineering, University of Tennessee; 15 years of experience in air quality services including dispersion modeling and emission impact analyses.	Air Quality
J. Raines	M.S. Economics, Regional Economics, Public Finance, University of Wyoming; M.S. Management and Engineering, George Washington University; B.S. General Engineering, University of Wyoming; 30 years of experience in environmental impact assessment.	Socioeconomics
R.H. Rea	Senior Engineer, B.S.,Civil Engineer, Texas A&M, 1960, C.E. Civil Engineer, Columbia University, 1961 M.S., Aeronautical Engineering, Air Force Institute of Technology, MBA, Business Administration, University of Phoenix; Registered Professional Engineer Years of Experience: 34	Project Description Water Resources

J. Rush	M.S. Planning, University of Tennessee; B.A. Sociology/ Psychology, Maryville College; 2 years of experience in environmental impact assessment.	Land Use
T. Taylor	B.S., Biology, New Mexico State University, B.A., Economics, New Mexico State University, 2 years of experience in environmental assessment	Water Resources
R. Thomson	M.S. Ecology, University of California; B.S. Ecology, University of California; 17 years of experience in environmental impact assessment.	Air Quality
B. Thompson	M.A. Human Resources Management Peperdine University, Gulfport Mississippi; B.S. Mathematics, Heidelberg College, Tiffin, Ohio; 20 years of air traffic control and airspace management.	Airspace Management and Technical Review
W.W. Tolbert	Ph.D. Ecology, University of Tennessee; M.S. Ecology, University of Tennessee; B.S. Biology, Wake Forest University; A.A. Biology, Wingate Jr. College; 19 years of experience.	Quality Assurance
J.B. Turnmire	Ph.D. Civil Engineering, University of Tennessee; M.S. Environmental Engineering, University of Tennessee; B.S. Civil Engineering, University of Tennessee; 15 years of experience in environmental assessment and water quality.	Surface Water
R. Van Tassel	M.A., B.A. Economics, University of California, Santa Barbara; 15 years of experience in program management.	Program Management

W.M. Willis	Ph.D. Marine Ecology, Old Dominion University; M.S. Biological Oceanography, Old Dominion University; B.S. Biology, College of William and Mary; 23 years of experience.	Contractor Project Manager
C. Woodman	Doctoral Studies in Anthropology, University California, Santa Barbara; M.A. Anthropology, University of California, Santa Barbara; B.A. Anthropology, Wichita State University; 16 years of experience in archaeology, cultural resource law, environmental planning and impact analysis, and native American concerns.	Archaeological, Cultural and Historical Resources

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7.0 DISTRIBUTION LIST

GOVERNMENT AGENCIES

State Office of Community Service
John B. Walker, Clearinghouse Coordinator
Capital Complex
Carson City NV 89710

AF Representative, FAA
AWP-910
PO Box 92007 WPC
Los Angeles CA 90009-2007

Department of the Interior
Office of Environmental Project Review
Washington DC

Environmental Protection Agency
Region IX
Office of Federal Activities
75 Hawthorn Street
San Francisco CA 94105

USAF Regional Environmental Office
LEEV/WR
630 Sansome Street, Room 1316
San Francisco CA 94111

Mr Duffy Rodriguez, Director, State Budget Division
Management & Program Analysis Division
Department of Finance & Administration
Room 424, State Capital Building
Santa Fe NM 87503

Mr I. J. Ramsbottom
US Department of Housing and Urban Development
221 W Lancaster
PO Box 2905
Fort Worth TX 76113-2095

US Federal Aviation Administration
Southwest Region
Regional Director
PO Box 1689
Fort Worth TX 76101-1689

Mr Norm Thomas
US Environmental Protection Agency
1445 Ross
Dallas TX 75202-2733

Mr Thomas C. Adams
Office of Budget and Planning
Office of the governor
PO Box 12428
Austin TX 78711

AF Rep, FAA Southwest
PO Box 1689
Fort Worth TX 76101

Robert J. DeMorte, Regional Administrator
US Department of Housing and Urban Development
450 Golden Gate Avenue
San Francisco CA 94102

John Wise, Regional Administrator
US Environmental Protection Agency
215 Fremont Street
San Francisco CA 94105

Executive Director
Eastern Plains Council of Governments
Curry County Courthouse
Clovis NM 88101

Executive Director
Middle Rio Grande Council of Governments
505 Marquette Avenue, NW, Suite 1320
Albuquerque NM 87101

Executive Director
Southeastern New Mexico Economic Development District
PO Box 2157
Silver City NM 88061

Executive Director
Southern Rio Grande Council of Governments
575 South Alameda
City-County Office Building
Las Cruces NM 88001

Texas Parks and Wildlife Department
4200 Smith School Road
Austin TX 78744

General Land Office
Austin TX 78701

Texas State Historical Commission
PO Box 12276
Austin TX 78711

Executive Director
West Texas Council of Governments
The Mills Building, Suite 700
303 N Oregon Street
El Paso TX 79901

The Attorney General of Texas
PO Box 12548, Capital Station
Austin TX 78711

Office of the Governor
Economic and Natural Resources Section
Budget and Planning Office
411 West 13th Street
Austin TX 78701

Texas Animal Health Commission
PO Box 12966
Austin TX 78711

Texas Air Control Board
8520 Shoal Creek Blvd
Austin TX 78756

Van Horn City - County Library
805 Sannin Street
Box 129
Van Horn TX 79855

Alamogordo Public Library
920 Oregon Avenue
Alamogordo NM 88310

Albuquerque Bernalillo County Library
501 Copper Street, NW
Albuquerque NM 87102

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Department 3140
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Albuquerque NM 87185

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Clovis-Carver Public Library
4th and Mitchell
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Thomas Branigan Memorial Library
200 E. Picacho Avenue
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Roswell Public Library
301 N Pennsylvania Avenue
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Las Vegas - Clark County District Library
1401 E Flamingo Road
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University of Nevada at Las Vegas
James R. Dickinson Library
4505 Maryland Parkway
Las Vegas NV 89154-0001

El Paso Public Library
501 N. Oregon Street
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TFWC/CS
Nellis AFB NV 89191-5000

833 CSG/CC
Holloman AFB NM 88330-5000

35 TFW/DO
George AFB CA 92394-5000

27 CSG/CC
Cannon AFB NM 88103-5000

Commander
US Army Air Defense Artillery Center and Fort Bliss
Attn: ATZC-ISE-E (Mr F Rob)
Fort Bliss TX 79916-6103

Council for the Preservation of the West Texas Frontier
PO Box 400
Fort Davis TX 79734-0400

SCOPING COMMENTORS

Adams, Randall P.	Alamogordo NM
Alverson, Oscar	Alamagordo NM
Bailey, Tony L.	Alamogordo NM
Burgin, Daniel D.	Alamogordo NM
Carroll, Don	Alamogordo NM
Christopher, R. M.	Alamogordo NM
Cookson, Jr., Charlie	Alamogordo NM
Cordero, Mauro B.	Alamogordo NM
Costentino, Dennis L.	Alamogordo NM
Curtis, Monroe, A.	Alamogordo NM
Diaz, Marie A.	Alamogordo NM
Ditmanson, Dennis	Alamogordo NM
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Edwards, Rebecca	Alamogordo NM
Fettinger, George E.	Alamogordo NM
Flones, Patricia	Alamogordo NM
Flotte, Robert J.	Alamogordo NM
Fredericksen, John E.	Alamogordo NM
French, Anne F.	Alamogordo NM
Furr, Vera	Alamogordo NM

Gentile, CSMGT (Ret), Frank S.	Alamogordo	NM
Gomez, Johnny M.	Alamogordo	NM
Gonzales, Manny	Alamogordo	NM
Griffin, Jeff and R.	Alamogordo	NM
Haley, Allen D.	Alamogordo	NM
Hall, John W,	Alamogordo	NM
Henke, Marvin and E.	Alamogordo	NM
Higley, Steven G.	Alamogordo	NM
Hobson, Maurice	Alamogordo	NM
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Holmes, R. B.	Alamogordo	NM
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Korzan, Al	Alamogordo	NM
Landschoot, Ron	Alamogordo	NM
Lengel, Stephen	Alamogordo	NM
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McMakin, Roger	Alamogordo	NM
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Nehson, Fred	Alamogordo	NM
Pawuk, Kevin P.	Alamogordo	NM
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Rich, Thomas F.	Alamogordo	NM
Robling, Richard	Alamogordo	NM
Romine, John E.	Alamogordo	NM
Roth, David	Alamogordo	NM
Scott, Mary	Alamogordo	NM
Shaw, Timothy A.	Alamogordo	NM
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Slattery, Neil A.	Alamogordo	NM
Soffera, Thomas	Alamogordo	NM
Stephens, Lowell	Alamogordo	NM
Strong, Delmar L.	Alamogordo	NM
Townsend, Dr. David H.	Alamogordo	NM

Vaughan, Robert W.	Alamogordo NM
Wareing, Johm L.	Alamogordo NM
Wood, Fred and C.	Alamogordo NM
Wynham, Andrew C.	Alamogordo NM
Martin, Bob	Albuquerque NM
Grady, Mike	High Rolls Mtn NM
Sidwell, Ella	High Rolls Mtn NM
MacDonald, Brian	Holloman AFB NM
Sullenkyer, Donald S.	Holloman AFB NM
Alpha-Omega Research	La Luz NM
Tilman, Tracy M.	La Luz NM
Anderson, Kurt S. J.	Las Cruces NM
Robertson, Roy H.	Tularosa NM
Taylor, George F.	Beatty NV
Buchanan, Gordon	Boulder City NV
Lively, Deborah	Henderson NV
Brown, Chris	Las Vegas NV
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Hill, Mary	Las Vegas NV
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Spencer, Harry P.	Nellis AFB NV
Frome, John L.	North Las Vegas NV
Price, Bob and Nancy	North Las Vegas NV
Clifford, Philip D.	Pahrump NV
Collins Bob and Anna	Pahrump NV
Stundon, David M.	Pahrump NV
Winklen, Sr., William L.	Pahrump NV
Bradhurst, Stephen T.	Reno NV
Koutz, F. R.	Reno NV
Aguiar, Jay	Tonopah NV
Atkinson, Lawrence T.	Tonopah NV
Barber, Greg	Tonopah NV

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Bradshaw, Jerry	Tonopah NV
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Wharff, Zelinda	Tonopah NV
Williams, Nicholas M.	Tonopah NV
Roy, Dela Rosa	El Paso TX
Hudspeth, Commander	Virginia Beach VA

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APPENDIX A

THREATENED AND ENDANGERED SPECIES

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**Table A-1. U.S. Fish and Wildlife Service,
Endangered Species Act.
Threatened and Endangered Species of
Nellis Air Force Range and Tonopah Testing Range, Nevada**

Status	Scientific Name	Common Name
	Birds	
E	Haliaeetus leucocephalus	Bald eagle
E	Falco peregrinus anatum	American peregrine falcon
	Fish	
E	Empetrichthys latos	Pahrump killifish
E	Gila robusta seminuda	Virgin River roundtail chub
E	Moapa coriacea	Moapa dace
E	Plagopterus argentissimus	Woundfin
E	Ptychocheilus lucius	Colorado squawfish
E	Gila elegans	Bonytail chub
E	Cyprinodon diabolis	Devils Hole pupfish
E	Cyprinodon nevadensis mionectes	Ash Meadows Amargosa pupfish
E	Cyprinodon nevadensis pectoralis	Warm Springs pupfish
E	Lepidomeda albivallis	White River spinedace
E	Rhinichthys osculus nevadensis	Ash Meadows speckled dace
E	Crenichthys baileyi baileyi	White River springfish
E	Crenichthys baileyi grandis	Hiko White River springfish
E	Gila robusta jordani	Pahranagat roundtail chub
T	Crenichthys nevadae	Railroad Valley springfish
T	Lepidomeda mollispinis pratensis	Big Spring spinedace
T	Oncorhynchus clarki henshawi	Lahontan cutthroat trout
	Reptiles	
T	Gopherus agassizii	Desert tortoise
	Invertebrates	
T	Ambrysus amargosus	Ash Meadows naucorid bug
	Plants	
T	Astragalus phoenix	Ash Meadows milk-vetch
T	Centaurium namophilum	Spring-loving centaury
T	Enceliopsis nudicaulis var. currugata	Ash Meadows sunray
T	Grindelia fraxino-pratensis	Ash Meadows gumplant
T	Ivesia eremica	Ash Meadows ivesia
T	Mentzelia leucophylla	Ash Meadows blazing star
E	Nitrophila mohavensis	Amargosa niterwort

Notes:
T = Threatened
E = Endangered
Source: U.S. Fish and Wildlife Service 1990b.

Table A-2. State of Nevada
Rare, Endangered, Protected and Sensitive Wildlife Species of
Nellis Air Force Range and Tonopah Testing Range, Nevada

Status	Scientific Name	Common Name
	Mammals	
R,S	Euderma maculatum	Spotted bat
P	Aplodontia rufa	Mountain beaver
P	Ochotona princeps	Pika
P	Tamiasciurus spp.	Douglas squirrel
P	Glaucomys spp.	Flying squirrel
P	Sciurus spp.	Grey squirrel
S	Oris canadensis canadensis	Bighorn sheep
S	O. c. nelsoni	Bighorn sheep
S	O. c. californiana	Bighorn sheep
	Birds	
E,S	Haliaeetus leucocephalus	Southern bald eagle
E,S	Falco peregrinus	Peregrine falcon
P	Aquila chrysaetos	Golden eagle
P	Falco columbarius	Pigeon hawk
P	Falco mexicanus	Prairie falcon
P	Falco sparverius	Sparrow hawk
P	Accipiter cooperii	Cooper's hawk
P	Buteo regalis	Ferruginous hawk
P	Accipiter gentilis	Goshawk
P	Parabuteo unicinctus	Harris hawk
P	Circus cvaneus	Marsh hawk
P	Buteo jamaicensis	Red-tailed hawk
P	Buteo lagopus	Rough-legged hawk
P	Accipiter striatus	Sharp-shinned hawk
P	Buteo swainsoni	Swainson's hawk
P	Megaceryle alcyon	Kingfisher
P	Chordeiles spp.	Nighthawk
P	Pandion haliaetus	Osprey
P	Tyto alba	Barn owl
P	Speotyto cunicularia	Burrowing owl
P	Bubo virginianus	Great horned owl
P	Asio otus	Long-eared owl
P	Asio flammeus	Short-eared owl
P	Geococcyx californianus	Roadrunner
P	Cathartes aura	Turkey vulture
	Fish	
E,S	Gila robusta jordani	Pahranagat bonytail
E,S	Empetrichythys latos	Pahrump killifish
E,S	Cyprinodon diabolis	Devils hole pupfish
E,S	Ptychocheilus lucius	Colorado squawfish
R,S	Gila robusta elegans	Colorado bonytail
R,S	Moapa coriacea	Moapa dace

Table A-2. State of Nevada
Rare, Endangered, Protected and Sensitive Wildlife Species of
Nellis Air Force Range and Tonopah Testing Range, Nevada (continued)

Status	Scientific Name	Common Name
	Fish (Continued)	
R,S	Cyprinodon nevadensis	Nevada pupfish
R,S	Lepidomeda mollispinis mollispinis	Virgin River spindace
R,S	Lepidomeda albivallis	White River spinedace
R,S	Crenichthys nevadae	Railroad Valley springfish
R,S	Crenichthys baileyi	White River springfish
R,S	Xyrauchen texanus	Humpback sucker
R	Pantosteus intermedis	White River sucker
R,S	Plagopterus argentissimus	Woundfin
P,S	Lepidomeda mollispinis pratensis	Big Spring spinedace
	Reptiles	
R,S	Heloderma suspectum	Gila monster
R,S	Gopherus agassizi	Desert tortoise
	Plants	
CE	Astragalus beatleyae	Beatley's milk-vetch
CY	Coryphantha vivipara var. rosea	Clokey's pincushion

Notes:

ENDANGERED (E) – An endangered species or subspecies is one whose prospects of survival and reproduction are in immediate jeopardy. Its peril may result from one or many causes: loss of habitat or change in habitat, over-exploitation, predation, competition, disease. An endangered species must have help, or extinction will probably follow.

RARE (R) – A rare species or subspecies is one that, although not presently threatened with extinction, is in such small numbers throughout its range that it may be endangered if its environment worsens. Close watch of its status is necessary.

PROTECTED (P) – A protected species is one not classified as a game animal, fur-bearing animal, or endangered or rare species for which there is no open hunting season.

SENSITIVE (S) – A sensitive species is one whose population levels are used as an indicator species used by the Nevada Department of Fish and Game and the Nevada Bureau of Land Management (BLM) to determine the health of a habitat area.

CRITICALLY ENDANGERED (CE) - Species declared to be threatened with extincction; special permit required for removal or destruction (NRS 527.270).

CACTUS AND YUCCA LAW (CY) - Protected under provisions of the Cactus and Yucca law.

Source: Donaldson 1990.
Kolar 1990.

Table A-3. U.S. Fish and Wildlife Service,
Candidate Species of Endangered Species Act.
Nellis Air Force Range and Tonopah Test Range, Nevada

Category	Scientific Name	Common Name
	Mammals	
2	Eutamias palmeri	Palmer's (Charleston Mt.) chipmunk
2	Eutamias umbrinus nevadensis	Hidden Forest chipmunk
2	Vulpes vulpes necator	Sierra Nevada red fox
2	Euderma maculatum	Spotted bat
2	Microdipodops megacephalus albiventor	Desert Valley kangaroo mouse
2	Microtus montanus fucosus	Pahranagat Valley montane vole
2	Thomomys umbrinus abstrusus	Fish Spring pocket gopher
2	Thomomys umbrinus curratus	San Antonio pocket gopher
2	Microtus montanus nevadensis	Ash Meadows montane vole
	Birds	
2	Buteo regalis	Ferruginous hawk
2	Charadrius alexandrinus nivosus	Snowy plover
2	Charadrius montanus	Mountain plover
2	Plegadis chihi	White-faced ibis
2	Numenius americanus	Long-billed curlew
	Fish	
1	Xyrauchen texanus	Razorback sucker
2	Catostomus clarki intermedius	White River desert sucker
2	Gila bicolor ssp.	Hot Creek Valley tui chub
2	Gila bicolor ssp.	Big Smoky Valley tui chub
2	Gila bicolor ssp.	Railroad Valley tui chub
2	Rhinichthys osculus ssp.	White River speckled dace
2	Rhinichthys osculus ssp.	Monitor Valley speckled dace
2	Rhinichthys osculus ssp.	Oasis Valley speckled dace
2	Crenichthys baileyi moapae	Moapa White River springfish
2	Gila robusta ssp.	Moapa roundtail chub
2	Lepidomeda mollispinis mollispinis	Virgin spinedace
2	Rhinichthys osculus moapae	Moapa speckled dace
2	Rhinichthys osculus ssp.	Meadow Valley Wash speckled dace
2	Catostomus clarki ssp.	Meadow Valley Wash desert sucker
2	Rhinichthys osculus velifer	Pahranagat speckled dace
	Amphibians	
2	Bufo microscaphus microscaphus	Arizona southwestern toad
2	Bufo nelsoni	Amargosa toad
	Invertebrates	
2	Pelocoris shoshone	Amargosa naucorid bug
2	Agabus rumppi	Death Valley agabus diving beetle
2	Stenelmis calida calida	Devils Hole warm spring riffle beetle
2	Aegialia magnifica	Large aegialian scarab beetle
2	Aphodius sp.	Big Dune aphodius scarab beetle

Table A-3. U.S. Fish and Wildlife Service
Candidate Species of Endangered Species Act
Nellis Air Force Range and Tonopah Test Range, Nevada

Category	Scientific Name	Common Name
	Invertebrates (continued)	
2	Aegialia crescenta	Crescent Dune aegialian scarab beetle
2	Aphodius sp.	Crescent Dune aphodius scarab beetle
2	Serica sp.	Crescent Dune serican scarab beetle
2	Pseudocotalpa giulianii	Giuliani Dune scarab beetle
2	Psychomastax deserticola	Desert monkey grasshopper
2	Pseudocopaeodes eunus eunus	Wandering skipper
2	Miloderes rulieni	Rulien's miloderes weevil
1	Pyrgulopsis cristalis	Crystal Spring springsnail
1	Fluminicola erythopoma	Ash Meadows pebblesnail
1	Pyrgulopsis fairbanksensis	Fairbanks springsnail
1	Pyrgulopsis isolatus	Elongate-gland springsnail
1	Pyrgulopsis nanus	Distal-gland springsnail
1	Pyrgulopsis pisteri	Median-gland Nevada springsnail
2	Pyrgulopsis micrococcus	Oasis Valley springsnail
1	Tryonia angulata	Sportinggoods tryonia snail
2	Tryonia clathrata	Grated tryonia
1	Tryonia elata	Point of Rocks tryonia snail
1	Tryonia ericae	Minute tryonia snail
2	Tryonia variegata	Amargosa tryonia snail
1	(undescribed)	Virile Amargosa snail
2	Fluminicola avernalis	Moapa pebblesnail
2	Plejebus shasta charlestonensis	Spring Mountain blue butterfly
2	Euphydryas anicia morandi	Morand's checkerspot butterfly
2	Speyeria zerene carolae	Carole's silverspot butterfly
2	Hesperopsis gracielae	MacNeill sooty wing skipper
2	Stenelmis calida moapa	Moapa warm spring riffle beetle
2	Fluminicola merriami	Pahranagat pebblesnail
	Plants	
2	Angelica scabrida	
2	Antennaria soliceps	
2	Arctomecon californica	Desert poppy
2	Arenaria kingii spp. rosea	
2	Astragalus aequalis	
2	Astragalus mohavensis var. hemigyrus	Curve podded Mojave milk-vetch
2	Astragalua musimonum	Sheep Mountain milk-vetch
1	Astragalus oophorus var. clokeyanus	
2	Astragalus remotus	Spring Mountain milk-vetch
2	Astragalus triquetrus (or A. geyeri var. triquetrus)	
2	Arabis ophira	
2	Arctomecon merriamii	White bear desert poppy
2	Asclepias eastwoodiana	Eastwood's milkweed
1	Astragalus beatleyae	Beatley milk-vetch

Table A-3. U.S. Fish and Wildlife Service
Candidate Species of Endangered Species Act
Nellis Air Force Range and Tonopah Test Range, Nevada

Category	Scientific Name	Common Name
	Plants (continued)	
2	Astragalus eurylobus (or A. tephrodes var. eurylobus)	
2	Astragalus funereus	Black wooly-pod
1	Astragalus lentiginosus sesquimetralis	Sodaville milk-vetch
2	Astragalus uncialis	
2	Calochortus striatus	Alkali mariposa
2	Camissonia megalantha	Intermountain evening primrose
2	Cordylanthus tecopensis	Tecopa bird's beak
2	Cryptantha hoffmannii	Hoffmann's cryptantha
2	Cryptantha welshii	Welsh's cryptantha
2	Cymopterus ripleyi var. saniculoides	Ripley's bisquitroot
2	Draba arida	
2	Eriogonum bifurcatum	Forked buckwheat
2	Frasera gypsicola	
2	Frasera pahutensis	Pahute green-gentian
2	Galium hilendiae var. kingstonense	Kingston bedstraw
2	Haplopappus alpinus	
2	Lewisia maguirei	
2	Penstemon arenarius	
2	Penstemon fructiciformis ssp. amargosae	Amargosa penstemon
2	Penstemon pahutensis	Pahute Mesa beardtongue
2	Penstemon pudicus	
2	Phacelia beatleyae	Beatley's scorpion weed
2	Phacelia monoensis	Mono phacelia
2	Phacelia nevadensis	
2	Primula nevadensis	
2	Sclerocactus blainei	Blaine's fishhook cactus
2	Silene nachlingerae	Jan's catchfly
2	Sphaeralcea caespitosa	Jone's globemallow
1	Spiranthes infernalis	Ash Meadows lady tresses
2	Townsendia jonesii tumulosa	
2	Astragalus oophorus var. lonchocalyx	
2	Chrysothamnus eremobius	Remote rabbitbrush
2	Epilobium nevadense	Nevada willowherb
2	Erigeron ovinus	Sheep fleabane
2	Sclerocactus schleseri	Schleser's fishhook cactus
2	Cryptantha insolita	Catseye
2	Draba jaegeri	
2	Draba paucifructa	
2	Eriogonum viscidulum	
2	Forsellesia clokeyi	Clokey's forsellesia
2	Forsellesia pungens var. glabra	Smooth pungent forsellesia
2	Ivesia cryptocaulis	
2	Ivesia jaegeri	

**Table A-3. U.S. Fish and Wildlife Service,
Candidate Species of Endangered Species Act.
Nellis Air Force Range and Tonopah Test Range, Nevada**

Category	Scientific Name	Common Name
	Plants (continued)	
1	Opuntia whipplei var. multigeniculata	
2	Penstemon bicolor var. bicolor	
2	Penstemon bicolor var. roseus	
2	Salvia dorrii var. clokeyi	
2	Selaginella utahensis	
2	Silene clokeyi	
1	Sphaeromeria compacta	
1	Synthyris ranunculina	Kittentails

Notes:

Category 1: Taxa for which the service currently has on file substantial information on biological vulnerability and threat(s) to support the appropriateness of proposing to list them as endangered or threatened species.

Category 2: Taxa for which information now in possession of the service indicates that proposing to list them as endangered or threatened species is possibly appropriate, but for which substantial data on biological vulnerability and threat(s) are not currently known or on file to support the immediate preparation of rules.

Source: U.S. Fish and Wildlife Service 1990a.

Table A-4. New Mexico State Endangered Plant Species Known to Occur Within Area of Alternative Actions

Scientific Name	Common Name
Allium gooddingii	Gooding's onion
Aquilegia chaplinei	Chaplin's columbine
Argemone pleicantha spp. pinnatisecta	Sacramento prickly poppy
Astragalus gypsodes	Gypsum milk-vetch
Cereus greggii	Night-blooming cereus
Chaetopappa elegans	Sierra Blanca cliff daisy
Chaetopappa hersheyi	Hershey's cliff daisy
Cirsium vinaceum	Mescalero thistle
Cleome multicaulis	Slender spiderflower
Coryphantha duncanii	Duncan's pincushion cactus
Coryphantha organensis	Organ Mountain pincushion cactus
Coryphantha scheeri	Scheer's pincushion cactus
Coryphantha sneedii var. leei	Lee's pincushion cactus
Coryphantha sneedii var. sneedii	Sneed's pincushion cactus
Cypripedium calceolus var. pubescens	Golden lady's slipper
Echinocereus kuenzleri	Kuenzler's hedgehog cactus
Echinocereus lloydii	Lloyd's hedgehog cactus
Epithelantha micromeris	Button cactus
Erigeron densum	Woolly buckwheat
Erigeron gypsophilum	Gypsum buckwheat
Escobaria sandbergii	Sandberg's pincushion cactus
Escobaria villardii	Villards' pincushion cactus
Euphorbia antisyphilitica	Candillia
Hedeoma apiculatum	McKittrick pennyroyal
Hedeoma todsenii	Todsen's pennyroyal
Hexalectris nitida	Crested coralroot
Hexalectris spicata	Crested coralroot
Lepidospartum burgesii	Gypsum scalebroom
Lycopodium annotinum	Clubmoss
Mammillaria viridiflora	Green-flowered fish-hook cactus
Mammillaria wrightii	Wright's fish-hook cactus
Neoloydia intertextus	White-flowered visnagita
Opuntia arenaria	Sand prickly pear
Penstemon alamosensis	Alamo penstemon
Perityle cernua	Nodding cliff daisy
Polygala rimulicola	Guadalupe milkwort
Potentilla sierrae-blancae	White Mountain cinquefoil
Proboscidea sabulosa	Dune unicorn plant

Table A-4. New Mexico State Endangered Plant Species Known to Occur Within Area of Alternative Actions (continued)

Scientific Name	Common Name
Sclerocactus parviflora	Small-flowered devil's claw barrel cactus
Sclerocactus whipplei	Whipple's devil's claw barrel cactus
Scrophularia macrantha	Mimbres figwort
Senecio quaerens	Gilia groundsel
Sibara grisea	Gray sibara
Sophora gypsophila var. guadalupensis	Guadalupe Mountain mescal bean
Sphaeralcea procera	Porter's globemallow
Spiranthes parasitica	Lady tresses
Talinum humile	Pinos Altos flame flower
Talinum longipes	Long-stemmed flame flower
Toumeya papyracantha	Grama grass cactus

Source: New Mexico Natural Resources Department 1985

Table A-5. New Mexico State Endangered Animal Species Known to Occur Within Area of Alternative Actions

Scientific Name	Common Name
Gammarus desperatus	Noel's amphipod
Lymnaea caperata	Say's pond snail
Assiminea pecosensis	Pecos assiminea
Fontilicella pecosensis	Pecos spring snail
Fontelicella roswellensis	Roswell spring snail
Thermosphaeroma thermophilum	Socorro isopod
Cyprinodon tularosa	White Sands pupfish
Gila intermedia	Gila chub
Gila nigrescens	Chihuahua chub
Salmo gilae	Gila trout
Aneides hardii	Sacramento Mountain salamander
Sceloporus scalaris	Bunch grass lizard
Sceloporus graciosus arenicolous	Sagebrush lizard
Ictinia mississippiensis	Mississippi kite
Haliaeetus leucocephalus	Bald eagle
Buteogallus anthracinus	Common black-hawk
Falco peregrinus	Peregrine falcon
Grus americana	Whooping crane
Sterna antillarum	Least tern
Columbina passerina	Common ground-dove
Trogon elegans	Elegant trogon
Vireo bellii	Bell's vireo
Vireo vinvinior	Gray vireo
Passerina versicolor	Varied bunting
Pipilo aberti	Abert's towhee
Phalacrocorax olivaceus	Olivaceous cormorant
Meleagris gallopavo mexicana	Wild turkey
Ammodramus bairdii	Baird's sparrow
Cryptotis parva	Least shrew
Euderma maculatum	Spotted bat
Eutamias minimus atristriatus	Least chipmunk
Eutamias quadrivittatus australis	Colorado chipmunk
Zapus hudsonius	Meadow jumping mouse
Ovis canadensis mexicana	Desert bighorn sheep
Mustela nigripes *	Black-footed ferret

Source: New Mexico Department of Game & Fish 1988
* TAC, 1985

Table A-6. Texas State Endangered and Threatened Animal Species Known to Occur Within Area of Alternative Actions

Scientific Name	Common Name
Threatened:	
Euderma maculatus	Spotted bat
Buteogallus anthracinus	Common black-hawk
Phrynosoma cornutum	Texas horned lizard
Phrynosoma douglassii hernandesi	Mountain short-horned lizard
Trimorphodon biscutatus vilkinsonii	Texas lyre snake
Gila pandora	Rio Grande chub
Cyprinodon pecosensis	Pecos pupfish
Endangered:	
Ursus americanus	Black bear
Haliaeetus leucocephalus	Bald eagle
Falco peregrinus anatum	American peregrine falcon
Cyprinodon elegans	Comanche Springs pupfish

Source: Texas Parks and Wildlife 1988, 1989

Table A-7. Texas State Endangered and Threatened Plant Species Known to Occur Within Area of Alternative Actions

Scientific Name	Common Name
Threatened:	
Hedeoma apiculatum	McKittrick pennyroyal
Quercus hinckleyi	Hinckley's oak
Endangered:	
Echinocereus lloydii	Lloyd's hedgehog cactus
Coryphantha sneedii var. sneedii	Sneed's pincushion cactus

Source: Texas Parks and Wildlife 1989

Table A-8. Arizona Special Status Species for Maricopa, Pima, and Yuma Counties

Scientific Name	Common Name	State Status
Cyprinodon macularius eremus	Quitobaquito desert pupfish	Endangered
Xyrauchen texanus	Razorback sucker	Endangered
Gila intermedia	Gila chub	Threatened
Poeciliopsis occidentalis occidentalis	Gila topminnow	Threatened
Pternohyla fodiens	Northern casque-headed frog	Candidate
Phrynosoma mcallii	Flat-tailed horned lizard	Threatened
Uma notata	Colorado desert fringe-toed lizard	Candidate
Uma scoparia	Mojave fringe-toed lizard	Candidate
Eumeces gilberti	Gilbert skink	Candidate
Xerobates agassizii	Desert tortoise	Candidate
Thamnophis eques	Mexican garter snake	Candidate
Empidonax fulvifrons	Buff-breasted flycatcher	Endangered
Tyrannus melancholicus	Tropical kingbird	Candidate
Tyrannus crassirostris	Thick-billed kingbird	Candidate
Pachyramphus aglaiae	Rose-throated becard	Candidate
Laterallus jamaicensis coturniculus	California black rail	Endangered
Falco peregrinus	Peregrine falcon	Candidate
Rallus longirostris yumanensis	Yuma clapper rail	Threatened
Coccyzus americanus occidentalis	Western yellow-billed cuckoo	Threatened
Strix occidentalis	Spotted owl	Threatened
Dendrocygna autumnalis	Black-bellied whistling-duck	Candidate
Pandion haliaetus	Osprey	Threatened
Ictinia mississippiensis	Mississippi kite	Candidate
Haliaeetus leucocephalus	Bald eagle	Endangered
Buteogallus anthracinus	Common black-hawk	Candidate
Bueto nitidus	Gray hawk	Threatened
Polyborus plancus	Crested caracara	Candidate
Falco peregrinus	Peregrine falcon	Candidate
Colinus virginianus ridgwayi	Masked bobwhite	Endangered
Sorex arizonae	Arizona shrew	Candidate
Leptonycteris sanborni	Sanborn's long-nosed bat	Endangered
Euderma maculatum	Spotted bat	Candidate
Antilocapra americana mexicana	Chihuahuan pronghorn	Threatened

Source: Walker 1990.

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APPENDIX B
SOCIOECONOMIC ANALYSIS

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B.1 ECONOMIC IMPACTS TO NYE COUNTY OF RELOCATING THE 37th TFW

This appendix outlines the methodology used to determine economic impacts to Nye County, both direct and indirect, of relocating the 37th TFW. Estimation of the economic impacts of the relocation of the 37th TFW was done in a three-stage process.

- **Definition of direct impacts.** These are payrolls and expenditures related to this alternative and spent within Nye County.

- **Estimation of indirect impacts.** The spending and respending of direct impact monies create a secondary or indirect impact. Indirect impacts are calculated with output, earnings, and employment multipliers generated by the Regional Impact Modeling System (RIMS II). This methodology is described in detail in Appendix C.

- **Calculation of demographic impacts.** This part of the process translates direct and indirect impacts into potential demographic changes. The change in employment related to actions will lead to an estimated out-migration, expressed in terms of households, school children, and population.

The supporting assumptions and calculations for these steps are presented in the following sections.

Direct Payrolls and Expenditures

The direct impacts used in this analysis are summarized in Tables B.1-1 and B.1-2. According to Table B.1-1, payrolls related to this alternative total $22.4 million in Nye County. The amount estimated to be spent within the county is $13.4 million. Service and procurement contracts related to this alternative are shown in Table B.2-2. These contracts total $1.8 million in Nye County; direct payrolls and expenditures total $15.3 million.

Table B.1-1 Direct Employment and Payrolls Impacts to Nye County from the Relocation of the 37th TFW

Employment	Number	Gross Salaries[1]	Adjustments[2]	Local Payroll Expenditures
AF uniformed	0			
AF civilian	0			
NAF & misc. services	0			
School employees[3]	28	$887,520	.60	$532,512
Resident Contractors	511	21,575,448	.60	12,945,268
Total	511	$22,462,968		$13,477,780

Notes: 1. Gross salaries were provided by the contractors.

2. Local expenditure rates were provided by Nellis AFB Economic Resource Impact Statement, FY89.

3. Includes 10 teachers and 18 support staff, as estimated by Nye County School District.

Table B.1-2 Services and Procurement Expenditures Related to the 37th TFW in Nye County

Contracts	Total Local Expenditures[1]
Materials & supplies	$310,000
TDY Expenditures [2]	1,493,960
Total	$1,803,960

Notes: 1. Local expenditures are contract amounts spent within the county; figures are based on discussions with contractors and base finance and contracting offices.

2. Local per diem expenditures by 37th TFW personnel and contractors.

Estimation of Indirect Impacts

Direct impacts are allocated to industrial sectors and, with the appropriate multiplier, used to estimate the indirect (and induced) output, earnings, and employment impacts. Note that only trade and transport margins of materials expenditures are considered. Table B.1-3 summarizes the impact calculations. The total output (value of goods and services) generated by the payrolls and expenditures is $5.2 million in Nye County. Those expenditures also generated $556,706 in earnings and supported 41 indirect jobs.

Demographics Impacts

Table B.1-4 summarizes the demographic impacts of the Holloman alternative. A total of 580 civilian jobs will be lost to residents of Nye County. However, the number of civilian jobs lost to the county will be somewhat mitigated by the working spouses and dependents also leaving the area. In Nye County, an estimated 307 working spouses and dependents of relocating personnel would leave the county, increasing local employment opportunities.

All of the 511 affected contractor employees in Nye County are assumed to relocate, as a worst-case. The indirect employees (primarily in the retail trade and services industries) are not assumed to relocate, but instead will try to find other positions in the local economy. The same assumption is made for the 28 school workers losing jobs. An estimated 358 school children will leave with the relocating families. Total population loss to Nye County will be about 1,380 persons.

Impacts of Mining Layoffs

Late in the preparation of this study it was learned that an estimated 315 jobs in Nye County would be lost due to mine closings. Estimates of the impacts of the mine closings were made using the same procedure described above.

Based on information provided by the Nye County Board of Commissioners, it was assumed that mining earnings would be reduced by $11,970,000 and local purchases would be reduced by $2,100,000. It is estimated that 17 indirect jobs supported by mine payrolls and purchases would be lost. An estimated 17 school workers would be laid off because of the reductions; their earnings of $538,849 were included in the estimated indirect job loss.

Assuming all 315 miners relocate they would be accompanied by an estimated 221 school children, and lead to an overall population reduction of 851 persons.

Table B.1-3 Output, Earnings, and Employment Impacts of the Relocation of the 37th TFW from Nye County

Industrial Sector	Expenditures[1]	MULTIPLIERS			IMPACTS		
		Output[2]	Earning[3]	Employment[4]	Output	Earnings	Employment
25. Transportation	$ 4,030	1.1816	.2521	9.7808	$4,762	$1,016	0.04
29. Retail Trade	108,500	1.1778	.2410	14.9884	127,791	26,149	1.63
33. Hotels, lodging, amusement	636,480	1.2038	.1800	9.8519	766,195	114,566	6.27
36. Eating & drinking places	857,480	1.1095	.1523	15.6059	951,374	130,594	13.38
39. Households[5]	13,477,780	.2496	.0211	1.4541	3,364,054	284,381	19.60
TOTAL	$15,084,270				$5,214,176	$556,706	41

Notes:

1. Local procurements and payrolls attributable to the 37th TFW.
2. Each entry in this column represents the total dollar change in output that occurs for each dollar that is not spent in the local economy by the 37th TFW.
3. Each entry in this column represents the total dollar change in earnings for each dollar that is not spent in the local economy by the 37th TFW.
4. Each entry in this column represents the total change in the number of jobs for each million dollars that is not spent in the local economy by the 37th TFW.
5. Represents local personal consumption expenditures, including 37th TFW-related payroll adjusted for taxes, savings, and percentage of nonlocal purchases.

Sources: U.S. Department of Commerce, Bureau of Economic Analysis 1990.

Table B.1-4 Demographic Impacts Related to the Relocation of the 37th TFW from Nye County

	Jobs	Relocating[1]		
		Workers	School Children	Population
Nye County				
Direct contractor jobs	511	511	358	1,380
School workers	28	0	0	0
Indirect jobs	41	0	0	0
Total civilian jobs lost	580	511	358	1,380
Working spouses & dependents	307			

Notes: 1. Assumes all contract personnel will relocate.

B.2 ECONOMIC IMPACTS OF 37th/49th TFW ALTERNATIVE ON OTERO COUNTY

This appendix outlines the methodology used to determine economic impacts, both direct and indirect, of the relocation of the 37th TFW and inactivation of the 49th TFW on Otero County. Estimation of the economic impacts was done in a three-stage process:

- **Definition of direct impacts.** These are payrolls and expenditures related to this alternative and spent within Otero County.

- **Estimation of indirect impacts.** The spending and respending of direct impact monies create a secondary or indirect impact. Indirect impacts are calculated with output, earnings, and employment multipliers generated by the Regional Impact Modeling System (RIMS II). This methodology is described in detail in Appendix C.

- **Calculation of demographic impacts.** This part of the process translates direct and indirect impacts into potential demographic changes. The change in employment related to actions will lead to an estimated out-migration, expressed in terms of households, school children, and population.

The supporting assumptions and calculations for these steps are presented below.

Direct Payrolls and Expenditures

The direct impact used in this analysis are summarized in Tables B.2-1 and B.2-2. According to Table B.2-1, direct payrolls would increase by $50.3 million with arrival of the 37th TFW, and would decrease by $55 million with the inactivation of the 49th TFW. Actual payroll expenditures in Otero County would increase by $30.9 million with the 39 TFW and decrease by $33.8 million with inactivation. The net change in payroll expenditures would be a $2.9 million decline.

Service and procurement expenditures relative to the actions are shown in Table B.2-2. These expenditures would increase an estimated $13.1 million with 37th TFW and decline by $6.8 million with the inactivation of the 49th TFW. Net service and procurement expenditures would increase by $6.6 million, largely because of $6.9 million in construction related to the 37th TFW. Note that this is a one-time benefit to Otero County and is not reported as a long-term impact in Section 4.3.2.5 of the EIS.

Table B.2-1 Direct Employment and Payrolls Related to the 37th/49th TFW Alternative at Otero County

Employment	Number	Gross Salaries[1]	Adjustments[2]	Local Payroll Expenditures
37th TFW				
Air Force, uniform	1976	46,996,211	.61	28,667,689
Air Force, Civilian	71	1,976,881	.68	1,346,256
NAF and misc srvcs	184	1,364,407	.68	927,797
Contractors	0	0	.80	0
Total	2231	50,337,499		30,941,742
49th TFW				
Air Force, uniform	2149	51,268,844	.61	31,274,001
Air Force, Civilian	83	2,307,219	.68	1,571,216
NAF and misc srvcs	201	1,487,717	.68	1,011,648
Contractors	0	0	.80	0
Total	2433	55,063,780		33,856,865

1. Military payrolls were estimated using composite rates from AFR 173-13, October 1989.

2. Percentage of salaries spent in the local area was taken from the Holloman AFB Economic Resource Impact Statement, FY 1989.

Table B.2-2 Services and Procurement Expenditures Related to the 37th TFW/49th TFW Alternative at Otero County

Contracts	Total	Local Expenditures	Unit Share[1]
37 TFW :			
New construction	$69,700,000	$6,970,000	$6,970,000
O&M construction	10,949,910	1,204,490	454,093
Business services	15,154,143	1,666,956	628,442
Misc services	10,018,085	1,101,989	415,450
Material and supplies	19,506,210	2,145,683	808,923
Commissary and BX	14,649,408	872,495	328,931
Education impacts	2,187,683	2,187,683	824,756
Health services	2,100,064	2,100,064	774,924
Local TDY expend	5,222,420	5,222,420	1,968,852
Total	149,487,923	23,471,780	13,174,371
49th TFW			
O&M construction	10,949,910	1,204,490	502,031
Business services	15,154,143	1,666,956	694,787
Misc services	10,018,085	1,101,989	459,309
Material and supplies	19,506,210	2,145,683	894,321
ommissary and BX	14,649,408	872,495	349,870
ucation impacts	2,187,683	2,187,683	911,826
ealth services	2,100,064	2,100,064	842,126
Local TDY expend	5,222,420	5,222,420	2,176,705
Total	$79,787,923	$16,501,780	$6,830,975

1. Unit Share is based on proportional extrapolation from current Holloman AFB expenditures and personnel.

Estimation of Indirect Impacts

Direct impacts are allocated to industrial sectors and, with the appropriate multiplier, used to estimate the indirect (and induced) output, earnings, and employment impacts. Table B.2-3 summarizes the impact calculations. The total economic output (value of goods and services) generated by the payrolls and procurements of the 37th TFW would be $25.5 million ($10.3 million in new construction), while output related to the inactivation of the 49th TFW would decline by $27.9 million. Indirect earnings would increase $7.8 million (and $3.1 million because of new construction) with the 37th TFW, and decrease by $8.6 million because of the inactivation. Estimated indirect jobs in Otero County would increase by 568 (and 168 because of new construction) with the 37th TFW and decrease by 623 with the inactivation.

Demographic Impacts

Table B.2-4 summarizes the demographic impacts of the two actions. The net number of households in the area would increase by 145, accompanied by 87 school-aged children. Total population would increase by 407 persons.

Table B.2-3 Output, Earnings, and Employment Related to the 37th/49th TFW Alternative at Otero County

Industrial Sector	Expenditures[1]	MULTIPLIERS Output[2]	Earning[3]	Employment[4]	IMPACTS Output	Earnings	Employment
37th TFW							
6. New Construction	$6,970,000	1.4869	.4589	24.1800	$10,363,693	$3,198,533	168.55
7. Maint. & repair constr.	454,093	1.4059	.5305	27.83	638,409	240,896	12.64
25. Transportation	20,246	1.4222	.5972	26.52	28,794	12,091	.54
28. Wholesale trade	390,165	1.4048	.4686	23.60	548,104	182,831	9.21
33. Hotels, lodging, amusem't	1,968,852	1.4404	.4376	44.34	2,835,934	861,570	87.30
35. Business services	1,043,892	1.4550	.6026	30.71	1,518,863	629,049	32.05
37. Health Services	774,924	1.4635	.6553	31.95	1,134,101	507,808	24.76
38. Miscellaneous services	824,756	1.4703	.5058	32.36	1,212,639	417,162	26.69
39. Households[5]	30,941,742	.5687	.1622	12.12	17,596,568	5,018,750	375.04
TOTAL [6]	$43,388,670				$25,513,413	$7,870,157	568
49th TFW							
7. Maint. & repair constr	502,031	1.4059	.5305	27.83	705,805	266,327	13.97
25. Transportation	417,583	1.4222	.5972	26.52	44,624	18,738	.83
28. Wholesale trade	417,583	1.4048	.4686	23.60	586,621	195,679	9.85
33. Hotels, lodging, amusem't	2,176,705	1.4404	.4376	44.34	3,135,326	952,526	96.52
35. Business services	1,154,096	1.4550	.6026	30.71	1,679,210	695,458	35.44
37. Health services	842,126	1.4635	.6553	31.95	1,232,451	551,845	26.91
38. Misc. services	911,826	1.4703	.5058	32.36	1,340,658	461,202	26.51
39. Households[5]	33,856,865	.5687	.1622	12.12	19,254,399	5,491,584	410.38
TOTAL	$39,892,609				$27,979,094	$8,633,360	623

Notes:

1. Local procurements and payrolls.
2. Each entry in this column represents the total dollar change in output that occurs for each dollar that is not spent in the local economy.
3. Each entry in this column represents the total dollar change in earnings for each dollar that is not spent in the local economy.
4. Each entry in this column represents the total change in the number of jobs for each million dollars that is not spent in the local economy.
5. Represents local personal consumption expenditures, including payroll adjusted for taxes, savings, and percentage of nonlocal purchases.
6. New construction not included in the total.

Table B.2-4 Demographic Impacts Related to the 37th/49th TFW Alternative at Otero County

	Jobs	Relocating Workers	Relocating School Children	Relocating Population
37 TFW :				
Direct military jobs	1,976	1,976	1,186	5,533
Direct federal civilian jobs(1)	255	25	17	67
Direct contractor jobs	0	0	0	0
Indirect jobs	568	0	0	0
Subtotal	2,799	2,001	1,203	5,600
Total Civilian jobs avail.	823			
in migr approp. fund civ.	25			
Working mil spouses and depends	790			
Working approp. fund civ spouse/dep	43			
49th TFW				
Direct military jobs	2,149	1,827	1,096	5,115
Dirct federal civilian jobs(1)	284	29	20	78
Direct contractor jobs	0	0	0	0
Indirect jobs	623	0	0	0
Subtotal	3,056	1,856	1,116	5,193
Total Civilian job loss	907			
Working mil spouses and depends	731			
Approp. civ spouse and depends	50			

1. Inlcudes appropriated fund and NAF civilians

B.3 ECONOMIC IMPACTS OF THE 37th TFW/49th TFW AND HOLLOMAN ALTERNATIVES ON CLARK COUNTY

This appendix outlines the methodology used to determine economic impacts, both direct and indirect, of the 37th TFW/49th TFW and Holloman alternatives on Clark County. Estimation of the economic impacts of the relocation of the 37th TFW was done in a three-stage process.

- **Definition of direct impacts.** These are payrolls and expenditures related to this alternative and spent within Clark County.

- **Estimation of indirect impacts.** The spending and respending of direct impact monies create a secondary or indirect impact. Indirect impacts are calculated with output, earnings, and employment multipliers generated by the Regional Impact Modeling System (RIMS II). This methodology is described in detail in Appendix C.

- **Calculation of demographic impacts.** This part of the process translates direct and indirect impacts into potential demographic changes. The change in employment related to actions will lead to an estimated out-migration, expressed in terms of households, school children, and population.

The supporting assumptions and calculations for these steps are presented in the following sections.

Direct Payrolls and Expenditures

The direct impacts used in this analysis are summarized in Tables B.3-1 and B.3-2. According to Table B.3-1, payrolls related to this alternative total $87.4 million in Clark County. The amount estimated to be spent within the county is $60.7 million. Service and procurement contracts related to this alternative are shown in Table B.3-2. Total Nellis AFB contract expenditures are $157.7 million in Clark County, of which $61 million is attributable to the 37th TFW. Direct payrolls and expenditures total over $120 million in Clark County.

Table B.3-1 Direct Employment and Payrolls Related to the 37th TFW/49th TFW and Holloman Alternatives at Clark County

Employment	Number	Gross Salaries[1]	Adjustments[2]	Local Payroll Expenditures
AF uniformed	2,687	$63,487,717.00	.73	$46,343,843.00
AF civilian	9	264,222.00	.60	158,533.00
NAF & misc. services	253	1,783,328.00	.60	1,069,997.00
Resident Contractors	*547*	*$21,941,819.00*	*.60*	*$13,165,091.00*
Total	3,496	$87,477,086.00		$60,737,465.00

Notes: 1. Gross salaries for contractors were provided by employers. Gross salaries were estimated for military personnel and AF civilians using composite rates (without retirement) reported in Table A-19-1, AFR 173.13, October 1989.

2. Percentages of salaries spent in the local area were provided by Nellis AFB Economic Resource Impact Statement, FY89.

Table B.3-2 Services and Procurement Expenditures Related to the 37th TFW/49th TFW and Holloman Alternatives at Clark County

Contracts	Total Local Expenditures[1]	Unit Share[2]
Maintenance & operations	$19,642,084	$4,910,521
Buildings & grounds	2,387,571	596,893
Computers/telecommunications	9,337,030	2,334,258
Other services	47,293,744	11,823,436
Commissary/BX	4,516,571	1,129,143
Education	4,081,121	1,020,280
Health	12,261,079	3,433,102
TDY	4,955,067	1,238,767
Other materials/equipment	24,972,867	6,243,217
Contractor materials/equipment	7,305,420	7,305,420
Key airlines	21,000,000	21,000,000
Total	$157,752,554	$61,035,037

Notes: 1. Local expenditures are contract amounts spent within the county; estimates are based on discussions with contractors and base finance and contracting offices.

2. Share is the part of contracts attributable to 37th TFW, determined by the proportion of 37th TFW appropriated fund personnel to total base appropriated fund personnel.

Estimation of Indirect Impacts

Direct impacts are allocated to industrial sectors and, with the appropriate multiplier, used to estimate the indirect (and induced) output, earnings, and employment impacts. Table B.3-3 summarizes the impact calculations. The total output (value of goods and services) generated by the payrolls and expenditures under the Holloman alternative is $134.3 million in Clark County. Those expenditures also generated $50 million in earnings in Clark County. An estimated 2,437 indirect jobs are supported by 37th TFW expenditures in Clark County.

Demographics Impacts

Table B.3-4 summarizes the demographic impacts of the Holloman alternative. Total military and civilian jobs lost in Clark County will be 5,932. However, the number of civilian jobs lost to the county will be mitigated by the working spouses and dependents also leaving the area. In Clark County, an estimated 993 working spouses and dependents of relocating personnel would leave the county, increasing the availability of employment.

An estimated 2,479 households of the military and contractor personnel losing their jobs will leave the area. Because of the growing economy of Clark County and the Las Vegas area, federal civilian and indirect employees are not expected to relocate. The out-migrating families will be accompanied by approximately 1,507 school children. Total population loss to Clark County will be about 6,920 persons.

Table B.3-3 Output, Earnings, and Employment Related to the 37th TFW/49th TFW and Holloman Alternatives at Clark County

Industrial Sector	Expenditures[1]	MULTIPLIERS Output[2]	MULTIPLIERS Earning[3]	MULTIPLIERS Employment[4]	IMPACTS Output	IMPACTS Earnings	IMPACTS Employment
7. Maintenance & repair construction	$4,910,524	1.6255	.6686	28.2044	$7,982,052	$3,283,174	138.50
25. Transportation	21,246,937	1.6220	.6566	28.1424	34,462,532	13,950,739	597.94
26. Communication	2,334,258	1.4496	.4096	17.3059	3,383,740	956,112	40.40
28. Wholesale trade	6,108,987	1.6448	.6035	27.0512	10,048,062	3,686,774	165.26
33. Hotels, lodging, and amusments	1,238,767	1.7163	.5768	31.2135	2,126,095	714,521	38.60
35. Business services	11,823,436	1.6969	.7414	36.1444	20,063,189	8,765,895	427.30
37. Health services	3,433,102	1.7746	.8546	31.9149	6,092,383	2,933,929	109.57
38. Misc. services	1,020,280	1.6027	.5399	27.7889	1,635,203	550,849	28.35
39. Households[5]	60,737,465	.7989	.2570	14.6623	48,523,161	15,609,528	890.55
TOTAL	$112,853,752				$134,316,416	$50,451,522	2,437.00

Notes:

1. Local procurements and payrolls attributable to the 37th TFW.
2. Each entry in this column represents the total dollar change in output that occurs for each dollar that is not spent in the local economy by the 37th TFW.
3. Each entry in this column represents the total dollar change in earnings for each dollar that is not spent in the local economy by the 37th TFW.
4. Each entry in this column represents the total change in the number of jobs for each million dollars that is not spent in the local economy by the 37th TFW.
5. Represents local personal consumption expenditures, including 37th TFW payroll adjusted for taxes, savings, and percentage of nonlocal purchases.

Sources: U.S. Department of Commerce, Bureau of Economic Analysis 1990.

Table B.3-4 Demographic Impacts Related to the 37th TFW/49th TFW and Holloman Alternatives at Clark County

	Lost Jobs	Relocating[1] Workers	Relocating[1] School Children	Relocating[1] Population
Direct military jobs	2,687	2,284	1,370	6,395
Direct federal civilian jobs[2]	262	3	2	8
Direct contractor jobs[3]	547	191	134	517
Indirect jobs	2,437	0	0	0
Subtotal[3]	5,932	2,479	1,507	6,920
Total civilian jobs lost[3]	3,245			
Working military spouses & dependents	914			
Civilian spouses & dependents	2			
Contract spouses & dependents	77			

Notes:
1. Assures .85 military personnel will relocate and .35 civilians.
2. Includes appropriated funds civilians and NAF employees.
3. Contract workers residing in Clark County but are employed at TTR in Nye County. They are not counted in employment statistics for Clark County, but are used in the calculation of indirect impacts.

B.4 ECONOMIC IMPACTS OF THE HOLLOMAN ALTERNATIVE ON OTERO COUNTY

This appendix sets out the methodology and key assumptions used to determine the economic impacts, of the Holloman alternative on Otero County, specifically the relocation of the 37th TFW, inactivation of the 49th TFW, and relocation of 72 F-4 aircraft. Estimation of the economic impacts was done in a three step process:

- **Definition of direct impacts.** These are payrolls and expenditures related to this alternative and spent within Otero County.

- **Estimation of indirect impacts.** The spending and respending of direct impact monies create a secondary or indirect impact. Indirect impacts are calculated with output, earnings, and employment multipliers generated by the Regional Impact Modeling System (RIMS II). This methodology is described in detail in Appendix C.

- **Calculation of demographic impacts.** This part of the process translates direct and indirect impacts into potential demographic changes.

Any change in employment related to the actions may lead to an estimated in- and out-migration, experienced in terms of households, school children, and population. The supporting assumptions and calculations for these steps are presented below.

Direct Payrolls and Expenditures

The direct impacts used in this analysis are summarized in Tables B.4-1 and B.4-2. According to Table B.4-1, payrolls would increase by $50.3 million with the arrival of the 37th TFW, decrease by $55 million with the inactivation of the 49th TFW, and increase by $62.9 million with the F-4s. Gross payrolls would increase by $58.2 million. Not all earning are spent in Otero County. The net increase in total payroll expenditures in the county would be $35.7 million.

Service and procurement expenditures relative to the three actions are shown in Table B.4-2. These expenditures would increase by an estimated $13.1 million with the 37th TFW, decline by $6.8 million with the departure of 49th TFW; and increase by $9.3 million with the arrival of F-4s. Net service and procurement expenditures would increase by $15.7 million, largely because of local construction expenditures related to the 37th TFW ($6.9 million) and F-4s ($1.9 million). New construction expenditures are a one time benefit to Otero County and are reported separately in the body of the EIS.

Table B.4-1 Direct Employment and Payrolls Related to the Holloman Aternative at Otero County

Employment	Number	Gross Salaries[1]	Adjustments[2]	Local Payroll Expenditures
37 TFW				
Air Force, uniform	1976	$46,996,211	.61	$28,667,689
Air Force, Civilian	71	1,976,881	.68	1,346,256
NAF and Msc srvcs	184	1,364,407	.68	927,797
Contractors	0	0	.80	0
Total	2231	50,337,499		30,941,742
49th TFW				
Air Force, uniform	2149	51,268,844	.61	31,274,001
Air Force, Civilian	83	2,307,219	.68	1,571,216
NAF and misc srvcs	201	1,487,717	.68	1,011,648
Contractors	0	0	.80	0
Total	2433	55,063,791		33,856,865
F-4s				
Air Force, uniform	2411	58,772,246	.61	35,851,070
Air Force, civilian	90	2,481,300	.68	1,689,765
NAF and misc srvcs	225	1,667,017	.68	1,133,571
Contractors	0	0	.80	0
Total	2726	$62,920,563		$38,674,406

1. Military payrolls were estimated using composite rates from AFR 173-13, October 1989.

2. Percentage of salaries spent in the local area was taken from the Holloman AFB Economic Resource Impact Statement, FY 1989.

Table B.4-2 Services and Procurement Expenditures Related to the Holloman Alternative at Otero County

Contracts	Total	Local Expenditures	Unit Share[1]
37 TFW :			
New construction	$69,700,000	$6,970,000	$6,970,000
O&M construction	10,949,910	1,204,490	454,093
Business services	15,154,143	1,666,956	628,442
Misc services	10,018,085	1,101,989	415,450
Material and supplies	19,506,210	2,145,683	808,923
Commissary and BX	14,649,408	872,495	328,931
Education impacts	2,187,683	2,187,683	824,756
Health services	2,100,064	2,100,064	774,924
Local TDY expend	5,222,420	5,222,420	1,968,852
Total	149,487,923	23,471,780	13,174,371
49th TFW			
O&M construction	10,949,910	1,204,490	502,031
Business services	15,154,143	1,666,956	694,787
Misc services	10,018,085	1,101,989	459,309
Material and supplies	19,506,210	2,145,683	894,321
Commissary and BX	14,649,408	872,495	349,870
Education impacts	2,187,683	2,187,683	911,826
Health services	2,100,064	2,100,064	842,126
Local TDY expend	5,222,420	5,222,420	2,176,705
Total	79,787,923	16,501,780	6,830,975
F-4s			
New construction	19,570,000	1,957,000	1,957,000
O&M construction	10,949,910	1,204,490	554,065
Business services	15,154,143	1,666,956	750,130
Misc services	10,018,085	1,101,989	495,895
Material and supplies	19,506,210	2,145,683	965,557
Commissary and BX	14,649,408	872,495	392,623
Education impacts	2,187,683	2,187,683	984,457
Health services	2,100,064	2,100,064	945,029
Local TDY expend	5,222,420	5,222,420	2,350,089
Total	$99,357,923	$18,458,780	$9,934,845

1. Unit share based on proportional extrapolation from current Holloman AFB expenditure and personnel.

Estimation of Indirect Impacts

Direct impacts are allocated to sectors and, with the appropriate multipliers, used to estimate the indirect (and induced) output, earnings, and employment impacts. Table B.4-3 summarizes the impact calculations for each of the actions. Output (value of goods and services) in Otero County would increase by $25.5 million with the 37th TFW, decrease by $27.9 million with the departure of the 49th TFW, and increase by $31.5 million with the F-4s. The net value of output in the county would increase by $29.1 million.

Indirect earnings would increase $7.9 million with the 37th TFW, decrease by $8.6 million with the 49th TFW, and increase by $9.7 million with the F-4s. The net increase in earnings would be $8.9 million.

Indirect employment would increase by 568 jobs with the 37th TFW, decrease by 623 with the 49th TFW, and increase by 701 with the F-4s. The net increase in permanent indirect employment would be 646 jobs.

Construction impacts are not included in the impacts described above. Construction related to the 37th TFW will result in a short-term increase of $3.2 million in earnings and 168 jobs. Construction related to the F-4s will have an additional short-term effect (in FY 92) of $2.9 million in earnings and 47 jobs.

Demographics Impacts

Table B.4-4 summarizes the demographic impacts of the three actions. Note that some portion of workers (.15 military and .85 civilians) losing their jobs do not leave the area, electing instead to retire or find other employment. The number of households in Otero County would increase by 2,001 with the 37th TFW, decrease by 1,856 with the 49th TFW, an increase by 2,443 with the F-4s. The net increase in households would be 2,588, accompanied by a increase of 1,555 school age children, and lead to a total population increase of 7,242.

Table B.4-3 Output, Earnings and Employment Related to the Holloman Alternative at Otero County

Industrial Sector	Expenditures[1]	----Multipliers---- Output[2]	Earnings[3]	Employment[4]	----Impacts---- Output	Earnings	Employment
37 TFW							
6. New construction	$6,970,000	1.4869	.4589	24.18	$10,363,693	$3,198,533	168.55
7. Maint and repair const	454,093	1.4059	.5305	27.83	638,409	240,896	12.64
25.Transportation	20,246	1.4222	.5972	26.52	28,794	12,091	.54
28.Wholesale trade	390,165	1.4048	.4686	23.60	548,104	182,831	9.21
33.Hotels,lodging,&amusmnt	1,968,852	1.4404	.4376	44.34	2,835,934	861,570	87.30
35.Business services	1.043,892	1.4550	.6026	30.71	1,518,863	629,049	32.05
37.Health services	774,924	1.4635	.6553	31.95	1,134,101	507,808	24.76
38.Misc services	824,756	1.4703	.5058	32.36	1,212,639	417,162	26.69
39.Households[5]	30,941,742	.5687	.1622	12.12	17,596,568	5,018,750	375.04
Total[6]	$36,418,670				$25,513,413	$7,870,157	568
49th TFW							
7. Maint and repair const	$502,031	1.4059	.5305	27.83	$705,805	$266,327	13.97
25.Transportation	31,377	1.4222	.5972	26.52	44,624	18,738	.83
28.Wholesale trade	417,583	1.4048	.4686	23.60	586,621	195,679	9.85
33.Hotels,lodging,&amusmnt	2,176,705	1.4404	.4376	44.34	3,135,326	952,526	96.52
35.Business services	1.154,096	1.4550	.6026	30.71	1,679,210	695,458	35.44
37.Health services	842,126	1.4635	.6553	31.95	1,232,451	551,845	26.91
38.Misc services	911,826	1.4703	.5058	32.36	1,340,658	461,202	29.51
39.Households[5]	33,856,865	.5687	.1622	12.12	19,254,399	5,491,584	410.38
Total[6]	$39,892,609				$27,979,094	$8,633,360	623
F-4s							
6. New construction	$1,957,000	1.4869	.4589	24.18	$2,909,863	$898,067	47.32
7. Maint and repair const	554,093	1.4059	.5305	27.83	778,960	293,931	15.42
25.Transportation	35,203	1.4222	.5972	26.52	50,066	21,023	.93
28.Wholesale trade	468,507	1.4048	.4686	23.60	658,159	219,542	11.06
33.Hotels,lodging,&amusmnt	2,350,089	1.4404	.4376	44.34	3,385,068	1,028,399	104.20
35.Business services	1.246,025	1.4550	.6026	30.71	1,812,966	750,855	38.26
37.Health services	945,029	1.4635	.6553	31.95	1,383,050	619,277	30.19
38.Misc services	984,457	1.4703	.5058	32.36	1,447,447	497,938	31.86
39.Households[5]	38,674,407	.5687	.1622	12.12	21,994,135	6,272,989	468.73
Total[6]	$45,257,782				$31,509,851	$9,703,954	701

Notes:
1. Local procurements and payrolls attributable to activities.
2. Each entry in this column represetns the total dollar change in output that occurs for each dollar that is spent in the local economy.
3. Each entry in this column represents the total dollar change in earnings for each dollar that is spent in the local economy.
4. Each entry in this column represents the total chane in the number of jobs for each million dollars that is spent in the local economy.
5. Represents local personal consumption expenditures, including paytoll adjusted for taxes, savings, and percentage of nonlocal purchases.
6. New construction not included in total impacts.

Sources: U.S. Department of Commerce, Bureau of Economic Analysis 1990.

Table B.4-4 Demographic Impacts Related to the Holloman Alternative at Otero County

	Jobs	Relocating		
		Workers	School Children	Population
37 TFW :				
Direct military jobs	1,976	1,976	1,186	5,533
Dirct federal civilian jobs[1]	255	25	17	67
Direct contractor jobs	0	0	0	0
Indirect jobs	568	0	0	0
Subtotal	2,799	2,001	1,203	5,600
Total Civilian jobs avail.	823			
in migr approp. fund civ.	25			
Working mil spouses and depends	790			
Working approp. fund civ spouse/dep	43			
49th TFW				
Direct military jobs	2,149	1,827	1,096	5,115
Dirct federal civilian jobs[1]	284	29	20	78
Direct contractor jobs	0	0	0	0
Indirect jobs	623	0	0	0
Subtotal	3,056	1,856	1,116	5,193
Total Civilian job loss	907			
Working mil spouses and depends	731			
Approp. civ spouse and depends	50			
F-4s				
Direct military jobs	2,411	2,411	1,446	6,750
Dirct federal civilian jobs[1]	315	32	22	85
Direct contractor jobs	0	0	0	0
Indirect jobs	701	0	0	0
Subtotal	3,427	2,443	1,468	6,835
Total Civilian job loss	1,016			
Working mil spouses and depends	964			
Approp. civ spouse and depends	54			

1. Includes appropriated fund and NAF civilians.

B.5 ECONOMIC IMPACTS OF THE HOLLOMAN-NELLIS ALTERNATIVE AT OTERO COUNTY

This appendix sets out the methodology and key assumptions used to determine the economic impacts on Otero County of the inactivation of the 49th TFW, and relocation of 72 F-4s. Estimation of the economic impacts was done in a three step process:

- **Definition of direct impacts.** These are payrolls and expenditures related to this alternative and spent within Otero County.

- **Estimation of indirect impacts.** The spending and respending of direct impact monies create a secondary or indirect impact. Indirect impacts are calculated with output, earnings, and employment multipliers generated by the Regional Impact Modeling System (RIMS II). This methodology is described in detail in Appendix C.

- **Calculation of demographic impacts.** This part of the process translates direct and indirect impacts into potential demographic changes.

Any change in employment related to the actions may lead to an estimated in- and out-migration, experienced in terms of households, school children, and population. The supporting assumptions and calculations for these steps are presented below.

Direct Payrolls and Expenditures

The direct impacts used in this analysis are summarized in Tables B.5-1 and B.5-2. According to Table B.5-1, payrolls would decrease by $55 million with the inactivation of the 49th TFW, and increase by $62.9 million with the F-4s. Net payrolls would increase by $7.9 million.

Service and procurement expenditures relative to the three actions are shown in Table B.5-2. These expenditures would decline by $6.8 million with the 49th TFW increase by $9.3 million with the arrival of F-4s. Net service and procurement expenditures would increase by $2.5 million, largely become of local construction expenditures related to the F-4s ($1.9 million). New construction expenditures are a one time benefit to Otero County and are reported separately in the text of the EIS.

Table B.5-1 Direct Employment and Payrolls Related to the Holloman-Nellis Alternative at Otero County

Employment	Number	Gross Salaries[1]	Adjustments[2]	Local Payroll Expenditures
49th TFW				
Air Force, uniform	2149	51,268,854	.61	31,274,001
Air Force, Civilian	83	2,307,219	.68	1,517,216
NAF and Misc services	201	1,487,717	.68	1,011,648
Contractors	0	0	.80	0
Total	2433	55,063,791		33,856,865
F-4s				
Air Force, uniform	2411	58,772,246	.61	35,851,070
Air Force, Civilian	90	2,481,300	.68	1,689,765
NAF and misc srvcs	225	1,667,017	.68	1,133,571
Contractors	0	0	.800	0
Total	2726	62,920,563		38,674,406

1. Military payrolls were estimated using composite rates from AFR 173-13, October 1989.

2. Percentage of salaries spent in the local area was taken from the Holloman AFB Economic Resource Impact Statement, FY 1989.

Table B.5-2 Services and Procurement Expenditures Related to the Holloman-Nellis Alternative at Otero County

Contracts	Total	Local Expenditures	Unit Share[1]
49th TFW			
O&M construction	$10,949,910	$1,204,490	$502,031
Business services	15,154,143	1,666,956	694,787
Misc services	10,018,085	1,101,989	459,309
Material and supplies	19,506,210	2,145,683	894,321
Commissary and BX	14,649,408	872,495	349,870
Education impacts	2,187,683	2,187,683	911,826
Health services	2,100,064	2,100,064	842,126
Local TDY expend	5,222,420	5,222,420	2,176,705
Total	$79,787,923	$16,501,780	$6,830,975
F-4s			
New construction	19,570,000	1,957,000	1,957,000
O&M construction	10,949,910	1,204,490	554,065
Business services	15,154,143	1,666,956	750,130
Misc services	10,018,085	1,101,989	495,895
Material and supplies	19,506,210	2,145,683	965,557
Commissary and BX	14,649,408	872,495	392,623
Education impacts	2,187,683	2,187,683	984,457
Health services	2,100,064	2,100,064	945,029
Local TDY expend	5,222,420	5,222,420	2,350,089
Total	$99,357,923	$18,458,780	$9,934,845

1. Unit share based on proportional extrapolation from current Holloman AFB expenditure and personnel.

Estimation of Indirect Impacts

Direct impacts are allocated to sectors and, with the appropriate multipliers, used to estimate the indirect (and induced) output, earnings, and employment impacts. Table B.5-3 summarizes the impact calculations for each of the actions. Output (value of goods and services) in Otero County would decrease by $27.9 million with the 37th TFW, increase by $31.5 million with the F-4s. The net value of output in the county would increase by $3.5 million.

Indirect earnings would decrease by $8.6 million with the departure of the 49th TFW, and increase by $9.7 million with the F-4s. The net increase earnings would be $1.1 million.

Indirect employment would decrease by 623 with the 49th TFW, and increase by 701 with the F-4s. The net increase in indirect employment would be 78 jobs.

Construction impacts are not included in the impacts described above. Construction related to the F-4s will have local short-term effect (in FY 92) of $2.9 million in additional earnings and 47 jobs.

Demographics Impacts

Table B.5-4 summarizes the demographic impacts of the three actions. Note that some portion of workers (.15 military and .85 civilians) losing their jobs do not leave the area, electing instead to retire or find other employment. The number of households in Otero County would decrease by 1,856 with the departure of the 49th TFW, and increase by 2,443 with the F-4s. The net increase in households would be 587, accompanied by a increase of 352 school age children, and lead to a total population increase of 1,642.

Table B.5-3 Output, Earnings and Employment Related to the Holloman-Nellis Alternative at Otero County

Industrial Sector	Expenditures[1]	Multipliers: Output[2]	Earnings[3]	Employment[4]	Impacts: Output	Earnings	Employment
49th TFW							
7. Maint and repair const	$502,031	1.4059	.5305	27.83	$705,805	$266,327	13.97
25.Transportation	31,377	1.4222	.5972	26.52	44,624	18,738	.83
28.Wholesale trade	417,583	1.4048	.4686	23.60	586,621	195,679	9.85
33.Hotels,lodging,&amusmnt	2,176,705	1.4404	.4376	44.34	3,135,326	952,526	96.52
35.Business services	1.154,096	1.4550	.6026	30.71	1,679,210	695,458	35.44
37.Health services	842,126	1.4635	.6553	31.95	1,232,451	551,845	26.91
38.Misc services	911,826	1.4703	.5058	32.36	1,340,658	461,202	29.51
39.Households[5]	33,856,865	.5687	.1622	12.12	19,254,399	5,491,584	410.38
Total[6]	$39,892,609				$27,979,094	$8,633,360	623
F-4s							
6. New construction	$1,957,000	1.4869	.4589	24.18	$2,909,863	$898,067	47.32
7. Maint and repair const	554,093	1.4059	.5305	27.83	778,960	293,931	15.42
25.Transportation	35,203	1.4222	.5972	26.52	50,066	21,023	.93
28.Wholesale trade	468,507	1.4048	.4686	23.60	658,159	219,542	11.06
33.Hotels,lodging,&amusmnt	2,350,089	1.4404	.4376	44.34	3,385,068	1,028,399	104.20
35.Business services	1.246,025	1.4550	.6026	30.71	1,812,966	750,855	38.26
37.Health services	945,029	1.4635	.6553	31.95	1,383,050	619,277	30.19
38.Misc services	984,457	1.4703	.5058	32.36	1,447,447	497,938	31.86
39.Households[5]	38,674,407	.5687	.1622	12.12	21,994,135	6,272,989	468.73
Total[6]	$45,257,782				$31,509,851	$9,703,954	701

Notes:
1. Local procurements and payrolls attributable to activities.
2. Each entry in this column represetns the total dollar change in oputput that occurs for each dollar spent in the local economy.
3. Each entry in this column represents the total dollar change in earnings for each dollar spent in the local economy.
4. Each entry in this column represents the total chane in the number of jobs for each million dollars spent in the local economy.
5. Represents local personal consumption expenditures, including paytoll adjusted for taxes, savings, and percentage of nonlocal purchases.
6. New construction not included in total impacts.

Sources: U.S. Department of Commerce, Bureau of Economic Analysis 1990.

Table B.5-4 Demographic Impacts Related to the Holloman-Nellis Alternative at Otero County

	Jobs	Relocating		
		Workers	School Children	Population
49th TFW				
Direct military jobs	2,149	1,827	1,096	5,115
Federal civilian jobs[1]	284	29	20	78
Direct contractor jobs	0	0	0	0
Indirect jobs	623	0	0	0
Subtotal	3,056	1,856	1,116	5,193
Total Civilian job loss	907			
Working mil spouses and depends	731			
Approp. civ spouse and depends	50			
F-4s				
Direct military jobs	2,411	2,411	1,446	6,750
Federal civilian jobs[1]	315	32	22	85
Direct contractor jobs	0	0	0	0
Indirect jobs	701	0	0	0
Subtotal	3,427	2,443	1,468	6,835
Total Civilian job loss	1,016			
Working mil spouses and depends	964			
Approp. civ spouse and depends	54			

Note: 1. Includes appropriation funds civilians and NAF employees.

B.6 ECONOMIC IMPACT OF THE HOLLOMAN-NELLIS ALTERNATIVE TO CLARK COUNTY

(This appendix outlines the methodology used to determine economic impacts, both direct and indirect, of the 37th TFW to Clark County. Estimation of the economic impacts was done in a three-stage process:

- **Definition of direct impacts.** These are payrolls and expenditures related to this alternative and spent within Clark County.

- **Estimation of indirect impacts.** The spending and respending of direct impact monies create a secondary or indirect impact. Indirect impacts are calculated with output, earnings, and employment multipliers generated by the Regional Impact Modeling System (RIMS II). This methodology is described in detail in Appendix C.

- **Calculation of demographic impacts.** This part of the process translates direct and indirect impacts into potential demographic changes. The change in employment related to actions will lead to an estimated out-migration, expressed in terms of households, school children, and population.

The supporting assumptions and calculations for these steps are presented in the following sections.

Direct Payroll and Expenditures

The impacts used in this analysis are summarized in Table B.6-1 and B.6-2. Total military and contractor payrolls were $37.2 million, with $24.4 million spent in Clark County, as shown in Table B.6-1. Local service and procurement expenditures are shown in Table B.6-2. These total $195 million, including $159 million in new construction and $21 million to local airline services.

Table B.6-1 Direct Employment and Payroll Impacts Related to the Holloman-Nellis Alternative at Clark County

Employment	Number	Gross Salary	Adjustments	Local Payroll Expenditures
Air Force, Uniform				
Officers	41	$1,955,536	.73	$1,427,541
Enllisted	670	14,532,536	.73	10,609,068
Air Force, Civilian	-62	-1,820,198	.6	-1,092,118
NAF and Misc. servs	65	629,980	.6	377,988
Contractors	547	21,941,819	.6	13,165,091
TOTAL	1,261	37,239,673		$24,487,571

Table B.6-2 Service and Procurement Expenditures Related to the Holloman-Nellis Alternative at Clark County

Contracts	Total Local Expenditures	Unit
New Construction	$159,000,000	$159,000,000
Maintenance and Ops	19,642,084	1,178,529
Buildings and Grounds	2,387,571	143,254
Computer/Telecom	9,337,030	560,222
Other Services	47,293,744	2,837,625
Commissary/BX	4,516,571	270,994
Educaiton	4,081,121	244,867
Health	12,261,079	858,276
TDY	4,955,067	297,304
Other material/Equipment	24,972,867	1,498,372
Contractor M&E	7,305,420	7,305,420
Key Airlines	21,000,000	21,000,000
TOTAL	$316,752,554	$195,194,859

Estimation of Impacts

The total reduction in output (value of goods and services) generated by the payrolls and expenditures related to the Holloman-Nellis alternative is $67 million. Indirect earnings would be reduced by $25.4 million and indirect employment would be 1,195 jobs. The impacts of new construction would be $91.7 million in earnings and 3,943 jobs. The estimation of impacts is shown in Table B.6-3.

Demographic Impacts

Table B.6-4 summarizes the demographic impacts of the action. The number of households in Clark County would be reduced by 733, accompanied by 453 school-aged children. Total population reduction would be 2,035 persons. The net number of working spouses and dependents would increase by 320.

Table B.6-3 Output, Earnings, and Employment Related to the Holloman-Nellis Alternative at Clark County

Industrial Sector	Expenditures	MULTIPLIERS			IMPACTS		
		Output	Earning	Employment	Output	Earnings	Employment
37th TFW							
6. New Construction	$159,000,000	1.6663	.5768	24.8014	264,941,700	91,71200	3,943.42
7. Maint. & repair constr.	1,321,779	1.6255	.6668	28.2044	2,148,552	883,742	37.28
25. Transportation	21,122,577	1.6220	.6566	28.1424	34,260,820	13,869,084	594.44
26. Communication	560,222	1.4496	.4096	17.3059	812,098	229,467	9.70
28. Wholesale trade	3,170,748	1.6448	.6035	27.0512	5,215,246	1,913,546	85.77
33. Hotels, lodging, amusem't	297,304	1.7163	.5768	31.2135	510,263	171,485	9.28
35. Business services	2,837,625	1.6969	.7414	36.1444	4,815,165	2,103,815	102.56
37. Health Services	858,276	1.7746	.8546	31.9149	1,523,096	733,482	27.39
38. Miscellaneous services	244,867	1.6027	.5399	27.7889	392,449	132,204	6.80
39. Households	24,487,571	.7989	.2570	14.6623	19,563,121	6,293,306	359.04
TOTAL[1]	$213,900,969				$67,092,257	$25,446,389	1,195.00

Notes: 1. New Construction is not included in totals

Sources: U.S. Department of Commerce, Bureau of Economic Analysis 1990.

Table B.6-4 Demographic Impacts Related to the Holloman-Nellis Alternative at Clark County

		Relocating		
	Jobs	Households	School-aged	Population
Direct military jobs	711	604	363	1,692
Federal Civilians [1]	3	-62	-43	-174
Contractor	547	191	134	517
Indirect	1,195	0	0	0
Subtotal	2,456	733	453	2,035
Tot. Civ. job loss	1,745			
Work. mil. sps/deps	242			
Ap Fund Civ. sps/deps	-37			
Contract sps/deps	115			

1. Includes 62 appropriated fund jobs gained and 63 NAF positions lost.

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APPENDIX C

SOCIOECONOMIC METHODOLOGY

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REGIONAL INPUT-OUTPUT MODELING SYSTEM

C.1 RIMS

An input/output (I/O) model describes the flow of goods and services to markets and between industries in a region. Each industry in the economy has a particular set of production input requirements that generally differ from those of other industries. Taking the form of a large mathematical matrix that relates each service and industrial sector to every other service and industrial sector, the I/O model describes the structure of the economy and may be used to analyze the implications of the changes in one portion of the economy set off by a final-demand change. Implicit in this process is a multiplier that relates the total change to a specific initial change. The Regional I/O Modeling System (RIMS) takes the set of inter-sectional relationships present at the national level and regionalizes them, using locations quotients that reflect the relationship of a local economy (sector by sector) to the national economy. RIMS was designed by the U. S. Department of Commerce, Bureau of Economic Analysis (BEA).

RIMS was developed to overcome costs and small-area data limitations of traditional approaches and to provide both geographical and industrial flexibility. It is a system of interrelated data files and computer programs designed to estimate I/O regional multipliers for any of the industries specified in the BEA's national I/O model and for any region, which can be defined as one or more counties in the United States. The system combines several advantages of the economic base and I/O approaches to regional impact analysis to produce multipliers that are conceptually similar to I/O multipliers. RIMS relies on secondary data sources, is sensitive to differences between industries, operates at a detailed industrial level, and is relatively inexpensive to apply.

The regional multiplier estimates the portion of succeeding cycles of expenditures that occur within a defined region, thus providing a measure of the increased economic activity within the region. RIMS estimates project-specific multipliers needed to estimate changes in regional gross output, regional employment, and regional earnings by first computing a given industry's dependence on other regional industries.

The relationship between one industry and others is used to estimate the multiplier effect of an increase in final demand for gross regional output. Earnings-to-gross-output ratios are then used to translate the output increase into increases in earnings. For any given region, the ratio of employment to earnings is used to obtain an estimate of the total increased employment within the region.

Each industry requires inputs that are converted to an output, which, in turn, serves as input to other industries. For example, the manufacturer of iron ore pellets requires, among other inputs, copper, electricity, labor, and transportation. When the ore is processed (becomes an output), it is purchased by (becomes inputs to) the steel manufacturing industry. Some of these suppliers and some of the consumers are located in the county, but some are not. An I/O model ordinarily requires the development of an entire I/O matrix to account for this interdependence. Although retaining many of the analytical opportunities of the I/O framework, RIMS avoids the need for this costly process by viewing the gross output multiplier as comprising four elements: the initial change, the direct effect, the indirect effect, and the induced effect.

The initial change component represents project expenditures that will occur in the study region. Since this initial change is exactly equal to project expenditures, it is always represented in the multiplier by unity (1.000). The remaining components, the secondary economic effects, are added to the initial economic effect to provide the total economic effect.

The direct effect component includes the industry input requirements and the ability of the area to meet them. The former is obtained from the national I/O model; the latter is derived from data relating to the study region (U.S. Bureau of the Census, County Business Patterns Program). Inputs required by the study industry but not produced in the region (or produced in insufficient quantity) must be imported by the region, thus reducing the direct effect component of the regional multiplier.

The input requirements are identified in the BEA national I/O model. The first step in regionalization is evaluating this set of input requirements for the particular project or specific industry. The suitability of the national model industry is assessed, and project-specific adjustments are made in the national model input requirements on the basis of available project descriptions or engineering information.

The input requirements that result from this first step represent the national level industry technical requirements that are indicative of the specific regional economy. The second step in regionalization reconciles the technical requirements of these industries with the capacity of the region to supply the required inputs. The national technical requirements are replaced by regional direct coefficients reflecting the actual purchases of input from suppliers within the study region. This step is accomplished with the use of the location quotient, which is a double ratio of the form:

$$\frac{\text{industry i employment in study region/total employment in study region}}{\text{industry i employment in the nation/total employment in the nation}}$$

County Business Patterns data are used to estimate these location quotients. If the location quotient for a given input is zero, no production is carried on in the region. Thus, all the required input must be imported and the regional direct effect is zero. If the

location quotient is equal to or greater than one, production in the region is assumed to be sufficient to supply the study industry, and the regional direct effect is equal to the national direct requirement. In cases where the location quotient is greater than zero but less than one, the region is assumed to supply some of the input requirement, the proportion being equal to the value of the location quotient.

The location quotient test is applied to each regional industry that potentially supplies inputs to the study industry. The column sum of all the resulting regionalized coefficients is the direct component of the regional multiplier.

The indirect component and the induced component are computed as a single combined value in RIMS. Indirect-induced effects are those resulting from expansion of supplier and service industries to meet the needs of the directly affected industry, as well as changes in local consumption expenditures. The indirect interactions measure additional rounds of expenditures and production that result from the initial stimulus. Incomes of local consumers are increased by direct and indirect effects, and some part of the income increases will be spent in the region, stimulating additional economic activity. This effect of increased incomes to local consumers is the induced effect and is an extension of the indirect component. In an I/O model, under empirically common conditions, the indirect-induced component can be estimated as a linear homogeneous function of the direct component.

C.2 UPDATED RIMS PROGRAM (RIMS II)

The Regional Input-Output Modeling System II (RIMS II) is a major revision of RIMS (discussion adapted from Bureau of Economic Analysis, May 1984). The basic differences between RIMS II and RIMS are the use of more recent national I/O tables (1972 and 1977), availability of more detailed and more current data for regionalizing the national I/O tables, and greater flexibility in the derivation of regional impact estimates using a matrix inversion technique that provides industrially disaggregated impacts. RIMS II developmental research is currently focused on estimating regional transactions tables and comparing RIMS II estimates of state-specific imports and exports with survey-based estimates from the Census Bureau's Commodity Transportation Survey. RIMS II is also being adapted to analyze the regional and industrial impacts of defense procurement. This overview briefly describes RIMS II multipliers, the multiplier-estimation procedures, and some of the advantages and uses of RIMS II.

C.2.1 RIMS II Multipliers

RIMS II multipliers are intended to show the total regional effects on industrial output and personal earnings for any county or group of counties in the United States and for any of the 500 industrial sectors in the 1972 and 1977 BEA national I/O tables. More specifically, RIMS II multipliers can be used to estimate changes in total regional output and earnings resulting from changes in regional final demand for the output of

specific industries. Regional output in the I/O context is similar to sales and includes sales to industries in the region and to final demand. In RIMS II, final demand includes sales to government, other regions, and capital formation.

For example, based on RIMS II multipliers, $1 million of new warehouse construction in the Denver-Boulder, Colorado, metropolitan statistical area (MSA) would increase personal earnings in the MSA by $700,000; the same expenditure in the Wilmington, North Carolina, MSA would increase earnings there by $500,000. The difference between the earnings impacts in the two MSAs occurs because the Denver-Boulder local economy provides more of the total input requirements for constructing warehouses than does the Wilmington economy. In general, multipliers are smaller in smaller regional economies. However, multipliers and estimated regional impacts also depend on which industry is initially affected. For example, if the initial $1 million were spent on the maintenance and repair of streets in Wilmington, the earnings effect there would be $700,000, which is the same as the effect of a $1 million expenditure for warehouse construction in the larger Denver-Boulder MSA.

C.2.2 RIMS II Methodology

In order to estimate impacts such as those presented above, RIMS II uses the BEA national I/O tables, which show the input and output structure of 500 industries. Since firms in all national industries are not found in each region, some direct requirements in a particular region typically cannot be supplied by that region's industries. Therefore, input requirements that are not produced in a study region are identified, using BEA four-digit Standard Industrial Classification (SIC) county earnings data. (Currently, data for 1979 through 1983 can be used.) The earnings data are used as proxies for the industry-specific input and output data, which are seldom available at the small-area level. Using the same earnings data, the resulting regional I/O table can be aggregated to the level of industrial detail appropriate for the impact study.

More specifically, the RIMS II approach can be viewed as a three-step process. In the first step, the national I/O matrix is made region-specific by using corresponding four-digit SIC location quotients (LQs). The LQs are used to estimate the extent to which requirements are supplied by firms within the region. For this purpose, RIMS II employs LQs based on two types of data. According to this mixed-LQ approach, BEA county personal income data by place of residence are used to calculate LQs in the service sectors, and BEA earnings data by place of work are used for the LQs in the non-service sectors.

The second step involves estimating the household row and the household column of the matrix. The household-row coefficients are estimated based on value-added gross-output ratios from the national I/O table and are introduced into each industry's coefficient column. A household column is constructed, based on national consumption and savings rate data and national and regional tax rate data.

The last step in the RIMS II estimating procedure is to calculate the multipliers. It is often necessary to trace the impact of changes in final demand on numerous directly and indirectly affected industries. RIMS II applications employ the Leontief inversion approach for obtaining multipliers. This inversion process produces output and earnings multipliers for all additionally affected industries.

C.2.3 Accuracy Of RIMS II

Empirical tests of the accuracy of RIMS II multipliers indicate that RIMS II yields estimates that are not substantially different from those generated by regional I/O models based on the costly gathering of survey data. For example, a comparison of 224 industry-specific multipliers from survey-based tables for Texas, Washington, and West Virginia indicate that the RIMS II average multipliers overestimate the average multipliers from the survey-based tables by approximately 5%, and, for the majority of individual industry-specific multipliers, the difference between RIMS II and survey-based multipliers is less than 10%. In addition, RIMS II and survey multipliers show a statistically similar distribution of affected industries.

C.2.4 Advantages of RIMS II

There are numerous advantages to RIMS II. First, it is possible to provide estimates of economic impact without building a complete survey I/O model for each region under study. RIMS II produces multipliers that are derived from secondary data sources, thus eliminating the costs associated with the compilation of data from a wide variety of these sources. Second, because RIMS II employs a disaggregated sectoring plan, analysis may be performed at a detailed industrial level, thereby avoiding aggregation errors that often occur when different industries are combined. Third, the RIMS II multipliers are based on a consistent set of procedures across areas, making comparisons among areas more meaningful than if the results were obtained from incompatible impact models designed only for individual areas. Fourth, the multipliers can be updated to reflect the most recent local area earnings and personal income data.

The industrial output and personal earnings impacts estimated by RIMS II can be crucial for estimating effects not directly specified by RIMS II itself. For example, the estimation of regional fiscal, labor migration, and environmental effects often depend on the estimation of the regional output and earnings impacts of the initial stimulus. Since many of these important effects are often best analyzed on a case-by-case basis, one of the major advantages of using RIMS II is that valuable research resources can be spent on the analysis of these effects, rather than on the construction of an impact model. Therefore, when using RIMS II, a cost-effective impact study can devote most of its research budget to specifying initial impacts in industry-specific detail, and analyzing the implications of RIMS II estimated impacts on other regional economic activities.

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APPENDIX D

AIRCRAFT INFORMATION

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Fact Sheet

United States Air Force

Secretary of the Air Force, Office of Public Affairs, Washington, D.C. 20330-1000

F-117A Stealth Fighter

The F-117A Stealth Fighter is the world's first operational aircraft designed to exploit low observable stealth technology. Flown by pilots of the Tactical Air Command's 37th Tactical Fighter Wing at Tonopah Test Range Airfield, Nev., this single-seat fighter is designed to penetrate dense threat environments and attack high value targets with pinpoint accuracy.

The unique design of the F-117A provides exceptional combat capabilities. About the size of an F-15 Eagle, the twin engine aircraft is powered by two General Electric F-404 turbofan engines and has quadruple redundant fly-by-wire flight controls. Air refuelable, it supports worldwide commitments and adds to the deterrent strength of the U.S. military forces.

The F-117A can employ a variety of weapons and is equipped with sophisticated navigation and attack systems integrated into a state-of-the-art digital avionics suite that increases mission effectiveness and reduces pilot workload. Detailed planning for missions into highly defended target areas is accomplished by an automated mission planning system developed specifically to optimize the unique capabilities of the F-117A.

A total of 59 F-117A aircraft have been procured. The first TAC aircraft were delivered in 1982, and the last delivery will be in the fall of 1990. Streamlined management by Aeronautical Systems Division, Wright-Patterson AFB, Ohio, combined breakthrough stealth technology with concurrent development and production to rapidly field the aircraft. The F-117A production decision was made in 1978 with a contract awarded to Lockheed Advanced Development Projects, the "Skunk Works," in Burbank, Calif. The first flight was in 1981, only 31 months after the full scale development decision. TAC's only F-117A unit, the 4450th Tactical Group (redesignated 37 TFW in October 1989), achieved initial operational capability in October 1983.

The F-117A program has demonstrated that a stealth aircraft can be designed for reliability and maintainability. The aircraft maintenance statistics are comparable to other tactical fighters of similar size and complexity. Logistically supported by Sacramento Air Logistics Center, McClellan AFB, Calif., the F-117A is kept at the forefront of technology through a planned weapon system improvement program located at USAF Plant 42 at Palmdale, Calif.

Specifications

Function: fighter, attack
Prime contractor: Lockheed Aeronautical Systems Company
Power plant/manufacturer: two General Electric F-404 engines
Dimensions: wingspan 43 ft. 4 in., length 65 ft. 11 in., height 12 ft. 5 in.
Max Gross Weight: 52,500
Speed: high subsonic
Range: unlimited with air refueling
Crew: one
Armament: internal weapons carriage
Status: operational

Current as of April 3, 1990

Fact Sheet

United States Air Force

Secretary of the Air Force, Office of Public Affairs, Washington, D.C. 20330-1000

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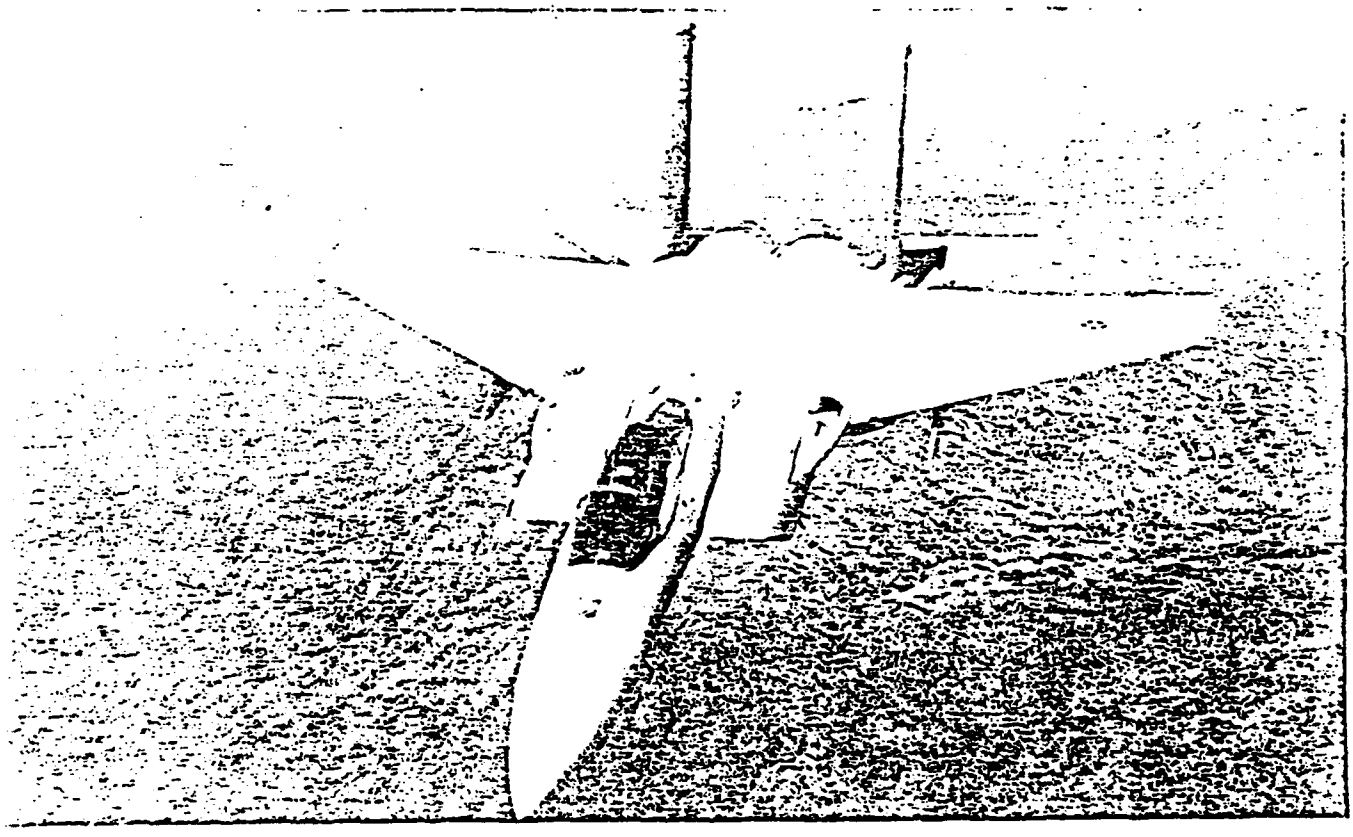


F-15 Eagle

The F-15 Eagle is an all-weather, extremely maneuverable, tactical fighter designed to gain and maintain air superiority in aerial combat. It can outperform and outfight any current or projected enemy aircraft and penetrate enemy defenses.

The Eagle's air superiority is achieved through a mixture of unprecedented maneuverability and acceleration, range, weapons and avionics. The F-15 has electronic systems and weaponry to detect, acquire, track and attack enemy aircraft while operating in friendly or enemy-controlled airspace. Its weapons and flight control systems are designed so one man can safely and effectively perform air-to-air combat.

The F-15's superior maneuverability and acceleration are achieved through high engine thrust-to-weight ratio and low wing loading. It is the first U.S. operational aircraft whose engines' thrust exceeds the plane's loaded weight, permitting it to accelerate even in a vertical climb. Low wing loading (the ratio of aircraft weight to its wing area) is a vital factor in maneuverability and, combined with the high thrust-to-weight ratio, enables the aircraft to turn tightly without losing airspeed.

The multimission avionics system sets the F-15 apart from other fighter aircraft. It includes a head-up display, advanced radar, inertial navigation system, flight instruments, UHF communications, tactical navigation system and instrument landing system. It also has an internally mounted, tactical electronic-warfare system, "identification friend or foe" system, electronic countermeasures set and a central digital computer.

The head-up display projects on the windscreen all essential flight information gathered by the integrated avionics system. This display, visible in any light condition, provides the pilot information necessary to track and destroy an enemy aircraft without having to look down at cockpit instruments.

The F-15's versatile pulse-Doppler radar system can look up at high-flying targets and down at low-flying targets without being confused by ground clutter. It can detect and track aircraft and small high-speed targets at distances beyond visual range down to close range, and at altitudes down to tree-top level. The radar feeds target information into the central computer for effective weapons delivery. For close-in dog fights, the radar automatically acquires enemy aircraft, and this information is projected on the head-up display.

The inertial navigation system enables the Eagle to navigate anywhere in the world. It gives the position of the aircraft at all times as well as pitch, roll, heading, acceleration and speed information.

The F-15's tactical electronic warfare system provides both threat warning and automatic countermeasures against selected threats.

The "identification friend or foe" system informs the pilot if an aircraft seen visually or on radar is friendly. It also informs U.S. or allied ground stations and other suitably equipped aircraft that the F-15 is a friendly aircraft.

Weaponry

A variety of air-to-air weaponry can be carried by the F-15. An automated weapon system enables the pilot to perform aerial combat safely and effectively, using the head-up display and the avionics and weapons controls located on the engine throttles or control stick. When the pilot changes from one weapon system to another, visual guidance for the required weapon automatically appears on the head-up display.

The Eagle can be armed with three different air-to-air weapons: four AIM-7F/M Sparrow missiles on its lower fuselage corners, four AIM-9L/M Sidewinder missiles on two pylons under its wings and an internal 20mm Gatling gun (with 940 rounds of ammunition) in the right wing root.

Low-drag, conformal fuel tanks were especially developed for the F-15C and D models. Conformal fuel tanks can be attached to the sides of the engine air intake trunks under each wing and are designed to the same load factors and airspeed limits as the basic aircraft. Each conformal fuel tank contains about 114 cubic feet of usable space. These tanks reduce the need for in-flight refueling on global missions and increase time in the combat area. All external stations for munitions remain available with the tanks in use. AIM-7F/M Sparrow missiles, moreover, can be attached to the corners of the conformal fuel tanks.

History

The first flight of the F-15A was made in July 1972, and the first flight of the two-seat F-15B (formerly TF-15A) trainer was made in July 1973. The first Eagle (F-15B) was delivered in November 1974 to the 58th Tactical Training Wing, Luke Air Force Base, Ariz., where pilot training is accomplished in both F-15A and B aircraft. In January 1976, the first Eagle destined for a combat squadron was delivered to the 1st Tactical Fighter Wing, Langley Air Force Base, Va.

Other units equipped with F-15s include the 36th Tactical Fighter Wing, Bitburg Air Base, West Germany; 49th Tactical Fighter Wing, Holloman Air Force Base, N.M.; 32nd Tactical Fighter Squadron, at Soesterberg, Netherlands; and the Alaskan Air Command, at Elmendorf Air Force Base. In January 1982, the 48th Fighter-Interceptor Squadron at Langley Air Force Base became the first Air Force air defense squadron to transition to the F-15.

The single-seat F-15C and two-seat F-15D models entered the Air Force inventory beginning in 1979. Kadena Air Base, Japan, received the first F-15C in September 1979. These new models have Production Eagle Package (PEP 2000) improvements, including 2,000 pounds of additional internal fuel, provision for carrying exterior conformal fuel tanks and increased maximum takeoff weight of up to 68,000 pounds.

Six of the eight world time-to-height records set in 1975 by the F-15A, Project Streak Eagle, remain unbeaten. These include a climb to 65,616 feet in 2 minutes, 2.94 seconds.

Specifications (F-15C)

Primary function: air superiority tactical fighter
Prime contractor: McDonnell Douglas Corp.
Power plant/manufacturer: two Pratt & Whitney F 100-PW-100 turbofan engines with afterburners
Thrust: 25,000 lb. each engine
Dimensions: wingspan 42 ft. 9 3/4 in., length 63 ft. 9 in., height 18 ft. 7 1/2 in.
Speed: Mach 2.5 plus
Combat ceiling: 65,000 ft.
Range: 3,450 miles ferry range with conformal fuel tanks and three external fuel tanks
Crew: one
Armament: one M-61A1 20mm multibarrel gun mount internally with 940 rounds of ammunition, four AIM-9L/M Sidewinder and four AIM-7F/M Sparrow missiles
Maximum takeoff weight: 68,000 lb.
Status: operational

Tactical Air Command uses a specially modified aircraft, the AT-38B, to prepare pilots and weapon systems officers for fighter aircraft such as the F-4, F-15, F-16, A-10 and F-111. This model carries external armament and associated weapons delivery equipment for training purposes only.

Strategic Air Command uses the T-38A for its Accelerated Co-pilot Enrichment Program. This program gives younger, less experienced co-pilots a chance to develop the self-confidence and decision-making skills needed to become an aircraft commander.

The National Aeronautics and Space Administration uses the T-38A as a trainer for astronauts and as an observer/chase plane on such programs as the space shuttle. Air Force Systems Command and Air Force Logistics Command use the T-38A to test experimental equipment such as electrical and weapon systems.

Pilots from most North Atlantic Treaty Organization countries are trained in the T-38A at Sheppard Air Force Base, Texas, through the Euro-NATO Joint Jet Pilot Training Program.

The Talon first flew in 1959. More than 1,100 were delivered to the Air Force between 1961 and 1972, when production ended. Approximately 800 remain in service throughout the Air Force.

Specifications

Primary function: advanced jet pilot trainer
Power plant/manufacturer: two General Electric J85-GE-5 turbojet engines with afterburners
Prime contractor: Northrop Corp.
Thrust: 3,850 lb with afterburning
Speed: 812 mph
Dimensions: wingspan 25 ft 3 in, length 46 ft 4 1/2 in, height 12 ft 10 1/2 in
Ceiling: above 55,000 ft
Range: beyond 1,000 miles
Crew: two (student and instructor)
Status: operational

Supersedes USAF Fact Sheet 82-54
Local Reproduction Authorized

July 1986

Fact Sheet

United States Air Force

Secretary of the Air Force, Office of Public Affairs, Washington, D.C. 20330

86-7

F-4 Phantom II

The F-4 Phantom II is a twin-engine, all-weather, tactical fighter-bomber. All F-4 models have folding wings for easy aircraft storage and ground handling. The aircraft can perform three tactical air roles -- air superiority, interdiction and close-air support -- as it did in Southeast Asia during the Vietnam conflict.

The F-4 can operate at speeds of more than 1,600 miles per hour and can be flown to altitudes close to 60,000 feet. Flight speeds from 150 to 165 miles per hour, necessary for short landing field operations, are made possible by the use of high-lift flaps and boundary layer control techniques.

Currently more than 1,000 F-4s are in the Air Force inventory. They are assigned to the Tactical Air Command, United States Air Forces in Europe, Pacific Air Forces, Air National Guard and Air Force Reserve.

The Air Force flew its first F-4 model -- the F-4C -- in May 1963. It is the Navy's F-4B model modified to meet Air Force requirements. These modifications include wider-tread, low-pressure tires; larger wheels and brakes; cartridge starters; dual controls; boom in-flight refueling; and an inertial navigation system. This model has a pod-mounted 20mm multibarrel gun and outer mountings for a large weapon load. The Air

National Guard began flying the F-4C in January 1972. The Air Force Reserve received its first Phantom II in June 1978.

The F-4D model has major changes that increase accuracy in weapons delivery. The Air Force received its first F-4D in March 1966; the Air National Guard received its first in 1977; and the Air Force Reserve received its first in 1980.

The first F-4E was delivered in October 1967. This model has an additional fuselage fuel tank, leading-edge slats for increased maneuverability, an improved engine and an internally mounted 20mm multibarrel gun with improved fire-control system. In 1985 the Air National Guard received its first F-4E.

Starting in 1973, F-4E's were fitted with target-identification systems for long-range visual identification of airborne or ground targets. Each system is essentially a television camera with a zoom lens to aid positive identification. Current updating modifications being made on this model include the Pave Tack system that provides a day/night all-weather capability to acquire, track and designate ground targets for laser, infrared and electro-optically guided weapons. Another change is a digital intercept computer that includes launch computations for all AIM-9 Sidewinder and AIM-7 Sparrow air-to-air missiles.

The F-4G Wild Weasel models increase the survivability of tactical strike forces by seeking out and suppressing or destroying enemy radar-directed anti-aircraft artillery batteries and surface-to-air missile sites. They are E models modified with sophisticated electronic warfare equipment in place of the internally mounted 20mm gun of the F-4E. The F-4G also can carry more weapons than previous Wild Weasel aircraft. It can carry a greater variety of missiles as well as conventional bombs. Primary weapons include Rockeye cluster bombs and air-to-surface missiles such as Shrike, HARM (high-speed anti-radiation missile), Maverick and air-to-air missiles. The F-4G has replaced the F-105G and F-4C Wild Weasel aircraft in the active Air Force inventory. The first F-4G Wild Weasel was delivered to George Air Force Base, Calif., in 1978.

Specifications

Primary function: all-weather tactical fighter-bomber
Prime contractor: McDonnell Aircraft Co., McDonnell Douglas Corp.
Power plant/manufacturer: two General Electric turbojet engines with afterburners, F-4C/D -- J79-GE-15, F-4E/G -- J79-GE-17
Thrust: each engine with afterburner, F-4C/D -- 17,000 lb; F-4E/G -- 17,900 lb
Dimensions: wingspan 38 ft 11 in; length F-4C/D -- 58 ft 3 in, F-4E/G -- 62 ft 11 in; height 16 ft 5 in
Speed: more than Mach 2 at 40,000 ft
Ceiling: above 60,000 ft
Range: beyond 1,300 miles with typical tactical load
Crew: two -- pilot and weapon systems operator
Maximum takeoff weight: 58,000 lb
Armament: F-4C/D -- four AIM-7E Sparrow and four AIM-9 Sidewinder missiles, provisions for 20mm gun pods at fuselage centerline station or outboard pylons, and one fuselage centerline bomb rack and four pylon bomb racks capable of carrying up to 12,500 pounds of general purpose bombs; nuclear weapon capability; F-4E -- one 20mm M61A-1 multibarrel gun, four AIM-7 Sparrow and four AIM-9 Sidewinder missiles, and one fuselage centerline bomb rack and four pylon bomb racks capable of carrying 12,500 pounds of general purpose bombs; F-4G -- same as F-4E except gun removed and Shrike, and HARM capability added
Status: operational

Supersedes USAF Fact Sheet 82-48
Local Reproduction Authorized

January 1986

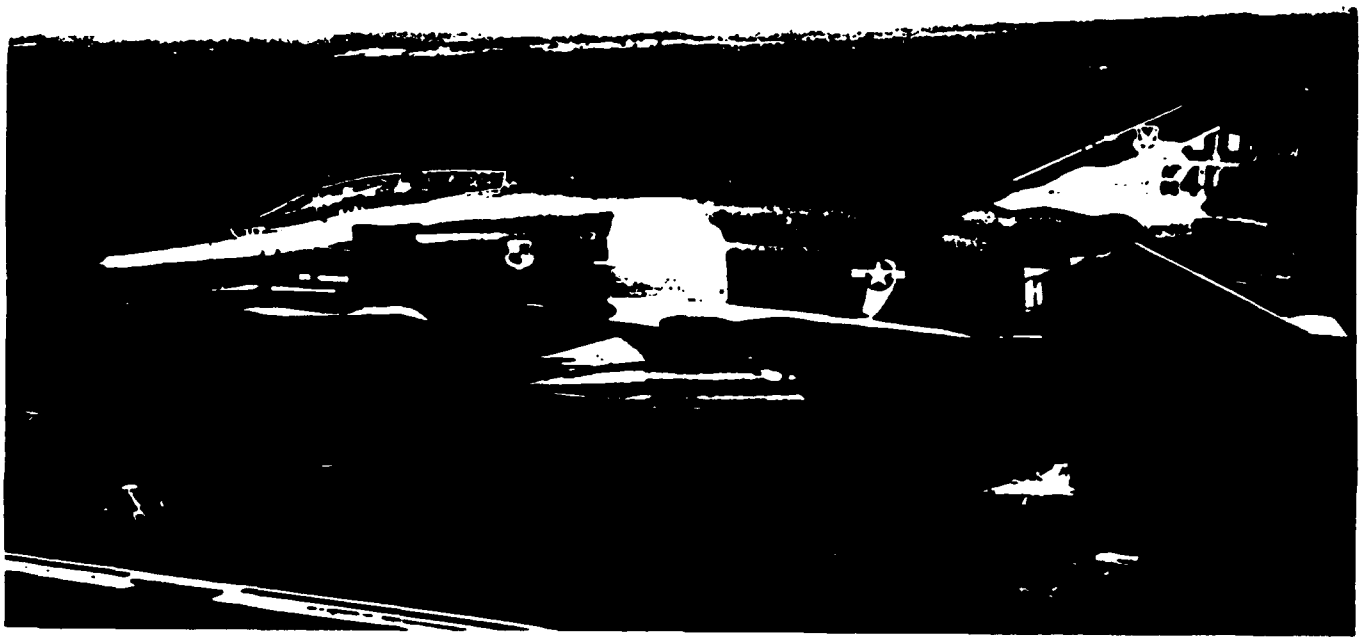
*U S GOVERNMENT PRINTING OFFICE 1986-659-073/40008

Fact Sheet

United States Air Force

Secretary of the Air Force, Office of Public Affairs, Washington, D.C. 20330-1000

88-14



RF-4C Phantom II

The RF-4C Phantom II is a long-range multisensor aircraft capable of all-weather day and night reconnaissance in a high- or low-threat environment. The RF-4C specifications and design are similar to the F-4 Phantom II. Two crew members sit in tandem on ejection seats under individual rear-hinged canopies. The plane's cantilever wings are swept back 45 degrees. Its tricycle landing gear hydraulically retracts into the wings and fuselage.

Normal combat missions in the RF-4C are flown at altitudes ranging from 100 feet to 45,000 feet at speeds often exceeding 600 miles per hour. For extended missions, one external fuel tank under the fuselage and two under the wings can be added. The RF-4C can also be refueled in flight. Equipment for boom refueling with retractable receptacle is installed in the top side of the fuselage, behind the rear canopy.

Optical, infrared, and tactical electronic reconnaissance systems make the RF-4C one of the most versatile reconnaissance aircraft in the world. All of these reconnaissance systems are operated primarily from the rear seat.

The optical cameras are used generally for day, low-altitude photography but also produce high-quality imagery at higher altitudes. These cameras can generate forward-looking and side-looking oblique photography, vertical and mapping photography, and horizon-to-horizon panoramic photography. Special long-range optical photographic systems with focal lengths from 36 inches to 66 inches provide detailed prints from extended stand-off ranges.

The infrared sensor locates targets under cover or at night by detecting heat sources and heat differentials and is especially suited for night reconnaissance tasks

in high-threat areas. Unlike optical cameras, which need a source of light, the infrared system forms an image from infrared (heat) energy radiated by objects within the sensor's field of view. The result is a continuous map of the area beneath the flight path of the aircraft.

Tactical electronic reconnaissance is also a day, night, all-weather system that records on tape the identity and location of electronic emitters. The system has data-link equipment which gives it the capability to provide near-real-time information to ground sites.

Associated reconnaissance capabilities include film data annotation; HF and UHF communications sets; and vertical stabilized camera mounts. Special films such as camouflage detecting and color also are used.

Several RF-4C's were modified with the ARN-101 digital modular avionics system, which includes an inertial measurement unit.

The first production model of the RF-4C flew in 1963 and became operational in 1964. When production ended in 1973, 509 had been built. Most of these are operated by Tactical Air Command, Pacific Air Forces and United States Air Forces in Europe. In 1972 Air National Guard reconnaissance squadrons began flying the RF-4C in training missions and now provide 50 percent of the combat-ready tactical reconnaissance squadrons.

Specifications

Prime function: reconnaissance
Prime contractor: McDonnell Douglas Corp.
Power plant/manufacturer: two General Electric J79-GE-15 turbojet engines with afterburners or J79-GE-15E low smoke engines
Thrust: 17,000 lb. each engine
Dimensions: wingspan 38 ft. 5 in., length 63 ft., height 16 ft. 5 in.
Speed: 1,600 mph
Ceiling: 50,000 ft.
Range: beyond 1,400 miles
Maximum takeoff weight: 58,000 lb.
Special equipment: KA-56 low-altitude panoramic camera (horizon-to-horizon scan); KA-91 high-altitude panoramic camera (60 to 90 degree scan); KS-87 optical camera (3-, 6-, 12- or 18-inch focal length); T-11 high-altitude mapping camera; AAD-5 infrared line sensor; AN/ALQ-125 tactical electronic reconnaissance system
Crew: two (pilot and weapon systems officer) in tandem
Status: operational

Supersedes USAF Fact Sheet 84-25
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APPENDIX E

FACILITY REQUIREMENTS

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TABLE E-1. FACILITIES REQUIRED AT HOLLOMAN AFB

37th TFW

PROJECT	*SCOPE*	*EXISTING FACILITY*
FISCAL YEAR 1991:		
West Side		
Maintenance Docks/Hangars (40)	296,000 SF	
Apron	25,000 SY	
Fuel Distribution		
Squadron Operations	26,400 SF	
Alter Intel/Academics	14,700 SF	Bldg 898
Intel Domes, Storage	4,800 SF	
Alter Parts Store	30,000 SF	Bldg 824
Utilities		
Electrical		
Natural Gas		
Water		
Communications		
Main Base		
Simulator Addition	2,000 SF	Bldg 316
Data Processing Addition	1,300 SF	
FISCAL YEAR 1992:		
West Side		
Alter Fuel Cell Docks	30,000 SF	Bldg 868
Alter Corrosion Control	8,600 SF	Bldg 830
Alter Central Security Control		
Precision Measurement		
Equipment Laboratory Addition	200 SF	Bldg 839
Alter Component Repair Squadron	23,600 SF	Bldg 823
Alter Maintenance Docks (ventilation)		Bldg 877, 898
Alter Engine Shop	29,100 SF	Bldg 800, 806
Alter Dining Hall	500 PN	Bldg 802

HOLLOMAN AFB

37th TFW

PROJECT	*SCOPE*	*EXISTING FACILITY*
Utilities		
Airfield Lighting Repair		
Perimeter Fence		
Munitions Storage Area		
Munitions Storage	28,000 SF	
Munitions Pads, Roads	14,000 SY	
Bomb Assembly Facility	6,000 SF	
Conventional Munitions Unit	10,000 SF	
Combat Support Unit	10,000 SF	
Munitions Storage Area Loading Dock	1	
Satellite Child Care Center	10,500 SF	

LEGEND

PN	persons
SF	square feet
SY	square yards

TABLE E-2. FACILITIES REQUIRED AT HOLLOMAN AIR FORCE BASE

F-4 UNITS

PROJECT	*SCOPE*	*EXISTING FACILITY*
Fiscal Year 1991:		
Alter/Relocate Aircraft Maintenance Shops	Internal	Bldgs. 301, 500
Alter Squadron Operations and Administration Bldg.	Internal	Bldg. 318
Improve fire protection	Internal	Hangar 500
Improve fire protection	Internal	Hangar 291
Improve ventilation	Internal	Hangar 315
Alter Radar Calibration	Internal	Hangar 281
Expand Parts Store	10,000 SF	Bldg. 280
Expand End of Runway Pavement	1,200 SY	
Construct Fuel Tank Storage Area	4,000 SY	
Alter Engine Run-Up Pad	Internal	
Alter Offices for EMS/DCM Staff	Intermal	Bldg. 302
Construct Weapons & Release Shop	7,000 SF	
Construct Flight Simulator Facility	1,000 SF	
Construct A/C Maintenance Unit	8,000 SF	
Alter Photo Processing Trailer Pad	100 SY	
Alter Flight Simulator Facility	Internal	Bldg. 316
Add Apron	8,000 SY	
Construct Structural Shop	14,000 SF	
Construct Avionics Shop	27,000 SF	
Add Shop Service Center	8,000 SF	
Add to Engine Shop	9,000 SF	Bldg. 300

TABLE E-3. FACILITIES REQUIRED AT NELLIS AFB

37th TFW

PROJECT	*SCOPE*	*EXISTING FACILITY*
FISCAL YEAR 1991:		
Maintenance Docks/Hangars (40)	296,000 SF	
Apron	200,000 SY	
Squadron Operations	26,400 SF	
Fuel Cell Docks	2 Bays	
Intel (w/SCIF)	8,000 SF	
Intel Domes, Storage	4,800 SF	
Corrosion Control	1 Bay	
Simulator	15,000 SF	
Aircraft Loading Revetments	24	
Utilities		
Electrical		
Natural Gas		
Water		
Communications		
Sewage		
Petroleum/Oil/Lubricants (including hydrants)		
FISCAL YEAR 1992:		
Large Maintenance Hangar	14 Bays	
Taxiway (1,000 Linear Feet)	8,300 SY	
Parts Store/POL Operations (with storage yard)	47,000 SF	
Central Security Control		
Component Repair Squadron	27,000 SF	
Truck Fill Stands	4	
Training/Test Operations	10,000 SF	
Aircraft Maintenance Unit	8,000 SF	
Maintenance Training	6,000 SF	
Equipment Maintenance Squadron	27,000 SF	
Operating Fuel Storage	200,000 Gal	
Refueler Parking	6,000 SY	
Wing Headquarters	50,000 SF	
Fire Station	8,000 SF	
Liquid Oxygen Storage	4,000 Gal	

NELLIS AFB

37th TFW

PROJECT	*SCOPE*	*EXISTING FACILITY*
Aerospace Ground Equipment		
Maintenance/Storage	30,000 SF	
Flightline Kitchen	2,500 SF	
Precision Measurement		
Equipment Laboratory Addition	200 SF	Bldg 425
Data Processing Addition	1,300 SF	Bldg 589
Munitions Storage Area		
Munitions Storage	12,800 SF	
Munitions Pad, Roads	4,500 SF	
Bomb Assembly Facility	7,800 SF	
Conventional Munitions Unit	10,000 SF	
Inert Storage	12,000 SF	
Munitions Trailer Maintenance	1,600 SF	Bldg 10108
Utilities		
Airfield Lighting		
Security Fence & Lighting		

LEGEND

Gal	gallons
SF	square feet
SY	square yards

TABLE E-4. Threat Emitter Characteristics

Unit	Equipment	Land Rqmts.	Cost*	Road	Mobility
AN-MPS-T1	3 pedestals control van maintenance van	3 concrete pads 20X30' spaced 150' apart Vans are size of semi-trailer truck	$8-$9 Million	Asphalt or well-prepared dirt	Mobile, but not easily transportable
AN-MPS-T10	Semi-trailer van Maintenance van	Concrete pad for large tractor-trailer	$2.23 Million	Semi-prepared dirt	Transportable
AN-MSQ-T13	Same as T-10	100'X200' area	$2.69 Million	Semi-prepared dirt	Reasonably transportable
AN-MSQ-T32	Radar disk on flat-bed with control van and maintenance van	100'X200' area	$350,000	Semi-prepared dirt	Transportable but not easily mobile
AN-VPQ-1	3/4 ton pick-up + towed generator	None	$750,000	Suitable for pick-up	Very mobile
AN-MPQ-T3	Semi-trailer rig plus maintenance van	100'X200' area	$800,000	Semi-prepared dirt	Transportable, fairly mobile

* Assumes availability from existing inventory

APPENDIX F

AIR QUALITY METHODOLOGY

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METHOD OF ANALYSIS FOR AIR QUALITY IMPACTS

Emissions associated with aircraft operations were calculated for each base, and the special-use airspace that would be used for 37th TFW training operations under each alternative. To derive cumulative impacts, emission reductions were also calculated for 49th TFW operations. Table F-1 provides aircraft emission rates for F-117A aircraft. All other aircraft emission rates were taken from Seitchek (1985). Baseline 49th TFW and projected 37th TFW sorties were divided into a series of activities, and durations and power setting were estimated for each activity to derive estimated hourly emissions per sortie.

To estimate site-specific impacts on ambient pollutant levels, a closed-box modeling technique was used for all special use airspace and MTR's and the Air Quality Assessment Model (AQAM) (Seitchek, 1985) for air quality impacts near bases. The closed-box model technique assumes that aircraft emissions (measured in ug/m^3) are homogeneously dispersed and contained within a given volume of air in which an aircraft operates. As a result, the pollutant concentration calculated within the box is assumed equal to the maximum ground-level impact. The closed box technique is expected to estimate higher ground-level impacts than an analysis utilizing a computerized dispersion model, due to the conservative assumptions used in this approach. For example, the aircraft emissions are assumed to remain confined within the limited airspace of the closed box instead of being allowed to disperse downwind throughout a much larger volume of air, as would occur naturally.

The AQAM was used to evaluate maximum impacts resulting from flight operations at the base (Seitchek 1985). The AQAM is a gaussian dispersion model that estimates ground-level pollutant impacts from aircraft landing and take-off (full cycle) and approach/departure pattern activities.

Modeled one-hour impacts were compared to NAAQS with averaging periods longer than one hour by converting the one-hour impacts to longer averaging periods with the use of power laws. This technique is consistent with that recommended by the Environmental Protection Agency (EPA)(EPA 1977). The factors used to convert one-hour impacts to longer averaging periods are as follows: 0.90 for three-hour impacts, 0.70 for eight-hour impacts, 0.40 for 24-hour impacts, and 0.10 for annual impacts.

A rigorous photochemical analysis to determine the effects on ambient ozone was not considered necessary. The conservative impact analysis presented for the proposed aircraft activities determined that the one-hour ground-level concentrations of ozone precursors (NO_x and photochemically reactive hydrocarbons, which, for aircraft, is approximately 95 percent of the THC) will increase only marginally. Under favorable conditions, a few hours are required to convert ozone precursors to ozone in the atmosphere. Given that the emissions of ozone precursors generated by the proposed action are intermittent and that an extended residence time in the atmosphere is required to convert these emissions to ozone, ground-level increases in ambient ozone from the proposed action will be small, if not unmeasurable.

Table F-1 Aircraft Emission Rates for F-117A

	CO	THC	NOx	SO2	PM(a)
Aircraft Emissions (lbs/hr)					
Idle	216.0	84.0	2.4	1.2	0.1
Approach	246.3	1105.4	18.8	9.4	2.5
Intermediate	66.7	33.4	200.2	11.1	5.2
Military	40.8	3.3	407.5	16.3	5.5
Engine Emissions (lbs/1000 lbs fuel)					
Idle	180	70	2	1.0	0.12
Approach (Scaled from F-15 data)	26.2	117.6	2	1.0	0.27
Intermediate	6	3	18	1.0	0.47
Military	2.5	0.2	25	1.0	0.34

(a) - PM based on F-15 emission factor

Mode	Setting	Time (Hr)	Emissions (lbs/hr) CO	THC	NOx	SO2	PM(a)
Startup	Idle	0.105	22.7	8.8	0.3	0.1	0.0
Taxi Out	Idle	0.092	19.8	7.7	0.2	0.1	0.0
Eng Chk	Mili	0.018	0.7	0.1	7.5	0.3	0.1
Roll	Mili	0.007	0.3	0.0	2.7	0.1	0.0
Climb I	Mili	0.007	0.3	0.0	2.7	0.1	0.0
Climb II	Mili	0.005	0.2	0.0	2.0	0.1	0.0
App I	Idle	0.032	6.8	2.7	0.1	0.0	0.0
App II	Idle	0.012	2.5	1.0	0.0	0.0	0.0
Landg	Idle	0.018	4.0	1.5	0.0	0.0	0.0
In Taxi	Idle	0.092	19.8	7.7	0.2	0.1	0.0
Shut dwn	Idle	0.013	2.9	1.1	0.0	0.0	0.0
Total		0.401	80.0	30.6	15.7	0.9	0.1
MTons/ Full Cycle			1.5E-02	5.6E-03	2.9E-03	1.9E-04	4.6E-05
MTons/ Touch & Go		0.080	5.1E-04	1.9E-04	2.8E-04	1.4E-05	4.0E-06

APPENDIX G

ISSUES IDENTIFIED AT SCOPING

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LIST AND TALLY OF ISSUES RAISED DURING SCOPING PROCESS

Issue	----- AFFECTED AREA ----- Tonopah	Las Vegas	Alamogordo	Total
1. Impact on employment	33	3	16	52
2. Impact on housing	15	1	12	28
3. Impact on schools (negative)	11	–	3	14
4. Impact on schools (positive)	–	–	1	1
5. Impact on utilities (water)	2	–	3	5
6. Impact on regional landfill	–	–	1	1
7. Impact on medical services	4	–	–	4
8. Need better interaction between Tonopah TTR and town	1	–	–	1
9. Loss of secondary income to community	2	–	–	2
10. Impact on pride of community	7	–	–	7
11. Impact on quality of life (negative)	10	–	4	14
12. Impact on quality of life (positive)	2	–	1	3
13. Impact on local economy (Tonopah)	28	–	1	29
14. Impact on local economy (Nellis AFB)	–	3	1	4
15. Impact of 479th inactivation on local economy (Alamogordo; negative)	–	–	8	8
16. Impact on local economy (Alamogordo; positive)	–	–	10	10
17. Impact on county tax base	1	–	4	5
18. Impact on state tax base	–	1	5	6
19. Use of federal funds	51	3	1	55
20. Impact on national security	17	–	–	17
21. Use of Social Security funds	1	1	–	2
22. Impact on social services	–	–	1	1
23. Impact on environment	–	–	3	3
24. Impact on noise levels	2	–	5	7
25. Impact on air quality	–	–	2	2
26. Impact on recreation areas	1	–	3	4
27. Concern about amount of people, planes, dollars affected	–	–	2	2
28. Impact of time lag between missions	–	–	8	8
29. Federal subsidizing bewteen missions	2	–	1	3
30. Continuance of maintenence contract	1	–	5	6
31. Providing cross-training for civilian work-force	–	–	10	10
32. Future of Tonopah (other closures, missions)	14	–	–	14
33. Future of the 479th	–	1	11	12
34. Impact at Holloman AFB if 479th and 37th both based there	–	–	1	1
35. Impact at Holloman AFB if 479th and 37th both based elsewhere	–	1	2	3
36. Costs associated with moving the 37th	–	1	7	8
37. Costs associated with moving the 49th	–	–	2	2
38. Costs associated with moving the 479th	–	–	5	5
39. Costs associated with moving the 37th to Nellis AFB	1	4	2	7
40. Costs associated with moving the 37th to Indian Springs	2	–	–	2
41. Costs associated with moving the 37th to Holloman AFB	–	1	1	2
42. Potential for cost reductions via REECO, unions, private contractors	6	–	–	6
43. Potential for cost reductions via number of flights for aircrew from Nellis AFB	8	1	–	9
44. Potential for cost reductions via construction of homes in Tonopah	12	1	–	13
45. Potential for cost reductions via discontinuing maid service	2	–	–	2
46. Retribution due to refusing nuclear waste repository	14	3	–	17
47. Return Nevada to mining interests	1	–	–	1

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APPENDIX H

COMMENTS RECEIVED ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

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APPENDIX H

COMMENTS RECEIVED ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

The Draft Environmental Impact Statement (DEIS) for the Proposed Relocation of the 37th Tactical Fighter Wing and other Tactical Force Structure Actions was released to the public on 15 February 1991. Public Hearings on the DEIS were conducted between 12 March 1991 and 14 March 1991, in the communities of Tonopah, Nevada; Las Vegas, Nevada: and Alamogordo, New Mexico, respectively. The public comment period for the actions considered ended 1 April 1991. Transcripts for the three public hearings are provided in Appendix H.1. Additional written comments received during the public comment period are presented in Appendix H.2.

Issues identified at the hearing, and in the written comments, have been grouped by issue area and assigned an issue number. Annotations in the margins of the transcripts identify the issue number for all issues raised during the hearings. Issue areas are as follows:

1. U.S. Air Force (USAF) Policy
2. Environmental Impact Analysis Process
3. Land Use
4. Atmospheric Resources
5. Noise
6. Airspace Management
7. Socioeconomics
8. Biological Resources
9. Water Resources
10. Archaeological, Cultural, and Historical Resources
11. Hazardous Materials and Wastes
12. General Comments

Appendix H.3 provides categorical responses to comments received at Public Hearings, and during the Public Comment Period. Where appropriate, the text of the Final Environmental Impact Statement (EIS) has been modified to reflect these comments. Some comments received were postmarked after the 1 April close of the public comment period. Copies of these comment documents are provided in Appendix H.4, along with brief responses to these comments. Other comments are provided in Appendix H.5.

H.1 PUBLIC HEARINGS

The transcripts of the Public Hearings on the DEIS are provided in the following pages. Table H.1-1 contains a list of speakers at the Public Hearing in Tonopah, Nevada, on 12 March 1991. Table H.1-2 provides a complete copy of the transcript of that Hearing. Tables and H.1-3 to H.1-6 provide similar information for the subsequent Public Hearings at Las Vegas, Nevada, and Alamogordo, New Mexico.

Table H.1-1 List of Speakers at Public Hearing in Tonopah, Nevada, 12 March 1991

	Page
Col Wade Morrison, HQ USAF/JAJT-3	1,2,3,4,5,7,8,9,10,11,13,14, 15,16,18,19,20,21,22
Lt Col Bud Temples, HQ TAC/XPPB	4,5,11,12
Capt David Clark, HQ TAC/DEVE	6,7
Mr. Bob Wright	8
Mr. Mike Pieper	8,9
Mr. Joe Maslach	9,10
Mr. Bob Sorensen	10,11
Mr. Robert Ragar	11,12,13
Ms. Mitzi Sears	13
Mr. Keith McRoberts	13
Mr. Gene Browder	14
Ms. Sandra Dulgar	14,15
Mr. Bob Stine	15,16
Mr. Paul Dimartini	16,17,18,19
Mr. Ken Eason	19
Mr. L.J. Lister	19,20
Mr. Anthony Roman	20,21
Ms. Trish Rippie	21
Mr. Tom Baker	22

Table H.1-2 Transcript of Public Hearing in Tonopah, Nevada, 12 March 1991

PUBLIC HEARING AT TONOPAH HIGH SCHOOL, TONOPAH NEVADA

(The meeting began at 1900 hours, 12 March 1991.)

Colonel Morrison: Good evening ladies and gentlemen. It is gratifying to see the turn out by people who are interested in the proposed action that may affect the citizens in this area. On March 6, 1990, a scoping meeting was held here to identify important environmental issues that might be involved in the proposed relocation of the 37th Tactical Fighter Wing at Tonopah Test Range. Subsequent to that, various studies were conducted of the concerns relating to the proposed relocation and a draft environmental impact statement was prepared. The Air Force has distributed its draft environmental impact statement which addresses proposals to relocate the 37th Tactical Wing beginning in 1992. The potential impacts identified in the environmental impact statement for the Tonopah area will be addressed in more detail this evening by Captain Clark. If you wish to review the draft environmental impact statement, copies are available at the Tonopah public library. If you want your own copy and have not received a copy of the draft environmental impact statement, you should make a specific request by writing the address shown on the written comment form. Now, why we are here this evening, the purpose of this public hearing is to solicit the input from the public agencies, private organizations, and the public at large on the draft environmental impact statement. This meeting is being held in accordance with the requirements of the National Environment Policy Act and the Implemented Federal Regulation which requires all federal agencies to carefully analyze potential environmental impacts of certain proposed actions and to use those analyses in arriving at their decisions and recommendations as to whether to proceed and how to proceed in a particular action.

I've been designated as the presiding offi er for tonight's public hearing. I'm Colonel Wade Morrison, I'm an attorney and I serve as a full time military Circuit Court Judge, stationed at Randolph Air Force Base, San Antonio, Texas. I'm not assigned to Tonopah Test Range or Nellis Air Force Base or any of the bases or commands under consideration for relocation. I'm not here as an expert on the draft environmental impact statement nor have I had any connection with this development. And, I'm not here to act as a legal advisor for the Air Force Representatives who are to address this proposal. My purpose is simply to ensure that we have a fair orderly hearing and all of you who wish to be heard tonight have a fair chance to speak this evening. Other members of the Air Force here tonight are Lt Colonel Bud Temples, Headquarters Tactical Air Command, Langley Air Force Base, Virginia, and he will discuss the Air Force proposal

and next, will be Captain Dave Clark, from the Environmental Analysis Division, Headquarters Tactical Air Command, Langley Air Force Base, Virginia. Captain Clark will describe the environment impact analysis process and the conclusions of the report in the draft environmental impact statement.

We have a court reporter this evening, Ms Elaine Scott, who will be taking down verbatim everything that's being said tonight and this will become part of the final environmental impact statement, that in turn will become a part of the Air Force record of decision. Now, she can only do her job properly if she can hear and understand what you are saying, so those of you who will be making public comments this evening, please, keep that in mind.

Let me say what this hearing is not. This isn't going to be a debate of any sort or a referendum of vote on the proposed action itself, and such things don't add anything to the written hearing record and simply waste your valuable time and this opportunity for personal input into this decision making process. The focus of the hearing is on the environmental impact associated with the proposals and studies by the Air Force and comments on non-environmental issues should not be raised to this concern. What this hearing is intended to provide is a public forum for two way communication about a draft environmental impact statement with a view towards improving the overall decision making process. You noticed that I said a two way communication, first part of this hearing process lets the Air Force's most knowledgeable people brief you on the proposals, its details, and its anticipated environmental impacts. The second part of this hearing--the second part of the process is to give you an opportunity to provide the Air Force information and to make statements for the record. Your input ensures that the decision makers have the benefit from your knowledge of the local area, any adverse environmental impact facts that you think might result on the proposed action.

As you came into the auditorium this evening you were provided a comment form, hopefully each of you were provided a comment form, and asked to communicate on it if you had any comments for tonight's hearing. When the briefers are finished, I will recognize members of the public in making comments. For those of you who have not yet filled out a comment form and request to speak tonight, please raise your hands and someone will distribute some more comment forms. So, if you haven't filled out one of our forms and will be requesting to speak, and you would like to speak, just raise your hand and we will give you a comment form.

Our order of proceeding will be in three parts. First, we're going to have a briefing from Lt Colonel Temples on proposed location actions, then you will receive a briefing from Captain Clark on the environmental impact analysis process, the conclusions recorded and the draft environmental impact statement, and following these presentations, we will then proceed into the public input portion of the hearing. Elected officials will be given an opportunity to speak first, followed by the public at large, whose names will be called randomly from the forms handed in this evening. Now, if you don't feel like standing up here tonight and making a statement orally, you have until April the 1st this year to submit written comments. Written comment forms are provided at the entrance of the auditorium and may be used for providing your comments. In fact, even if you make comments tonight, you have until the 1st of April to submit additional comments in writing to the address provided. Whether a statement is made verbally tonight or in writing, you have until the 1st of April. Each statement will be given the same weight and consideration. You don't have to feel like you have to speak tonight, even to submit brief comments. Now, I do want to ensure that all of you who wish to speak tonight, an equal opportunity to be heard, so, please help me enforce the forum tonight. First of all, speak only after I've recognized you and please address your remarks from the podium that is set up here. If you speak into the microphone, the court reporter will be able to take down for the record, everything that you have to say, since you will be using the microphone, all the audience will have an opportunity to hear you. Use the microphone, start out with your name, your address, and the capacity in which you appear. For example, the public affairs designated representative or private citizen, so the reporter can do her job properly. If you have any questions, ask one question at a time and I'll allow a reasonable number of questions. Because you have limited time, you should prioritize your remarks to make sure the most important are addressed first. Each person will be recognized for a maximum of five minutes, that includes public officials, designated spokes-persons, and private persons. We have an individual seated near the speakers podium who will assist as the time keeper. At the four and a half minute mark, he will raise a yellow card to indicate that you should begin to sum up your remarks and the red card will be raised at the five minute mark to indicate that your time is up. Please honor any request. You need to stop speaking when your time is up, otherwise, we might not have enough time to hear from everybody who wants to be heard. Please be courteous and do not speak while someone else is speaking. Only one person will be recognized at a time, and finally our host has asked that you kindly refrain from smoking in this auditorium, so I would appreciate your cooperation in adhering to these rules.

Now, I'll monitor the times and do everything within my power to make sure that everyone here who wants to be heard will be heard with respect to questions, it's possible that there will be questions that the Air Force Representatives here are unable to answer. That may appear to occur for one or two reasons, first, even though a good deal of expertise is assembled here, the panelist will not attempt to answer questions unless they are confident that they can do so accurately. And second, there may be questions that have national security implications and must be reviewed further before answers are provided. If this should occur and if the questions are relevant they will be addressed in the final document that you may request a copy of.

Now, one thing I would like to stress again, you may have information about the environmental factors unknown to us. We are very interested in having and analyzing all potential environmental impacts of the proposed actions. You have the experience that comes from living in the area over a long period o time, and so this lateral part of tonight's communication, the part that flows from you to us is important, so don't hesitate to give us a part of these procedures.

I would like to thank everyone who turned out tonight, your presence is commendable, and it reflects great interest in your community, and the things that are important to you. Let me assure you that your interest is the primary purpose for us being here tonight. Now, it is my pleasure to introduce, Lt Colonel Bud Temples who will brief the Air Force proposal.

Lt Colonel Bud Temples: Good evening ladies and gentlemen. I believe you can hear me, if not please say so. Last March, we came here and hosted a scoping meeting for the proposed relocation of the 37th Tactical Fighter Wing at Tonopah to Holloman Air Force Base, New Mexico. Using the information we briefed in March and your input at the scoping meeting at that time, we have prepared a draft environmental impact statement. Many of you received the statement in the mail. Tonight we have come to host a public hearing on this draft EIS. For the benefit of all, I would like to give a brief review of the action involved with the proposed relocation of the 37th Tactical Fight Wing and other tactical force structure actions. After this, Captain Clark will specifically address the draft EIS.

The draft EIS looks for alternatives with respect to the 37th Tactical Fighter Wing. First two alternatives, discuss the environmental impact and relocating the 37th Wing to Holloman Air Force Base. The third alternative entitled the Holloman/Nellis

alternative, discuss the impacts of relocating the 37th to Nellis Air Force Base. The fourth alternative is the no action alternative which will keep all operations at their current locations. A proposed relocation of the 37th wing at Tonopah to Holloman is one of several recommendations of the Defense Management Review Program and that includes the overall operations. Cost savings associated with the relocation of the 37th wing from Tonopah to either Holloman or Nellis are estimated between 80 and 125 million dollars per year. The 37th wing construction cost at Holloman are approximately 73 million dollars less than at Nellis Air Force Base due to existing available facilities associated with the reduction of the 479th Tactical Fighter Training Wing and the inactivation of the 49th Tactical Fighter Wing at Holloman. In addition, the Holloman's facility can be available one year earlier than those at Nellis. The relocation expenses of the 37th wing to Nellis are less than those to Holloman, but these reduced expenses only partially offset the greater cost of relocating to Nellis. These advantages make Holloman Air Force Base the preferred location for the 37th Tactical Fighter Wing. The inactivation of the 49th at Holloman is part of the overall reduction of tactical force structures throughout the Air Force. By inactivating the 49th wing, approximately 9.6 million dollars in relocation construction fund can be eliminated. The German Air Force has stated their need to continue training beyond the proposed closure of George Air Force Base in California. A new home is therefore needed and Holloman Air Force Base presents most of the facilities to support their missions. Approximately 1.2 million dollars in German Air Force construction funds will be supplied to provide the balance of the support facilities requirements. The training mission of this unit makes contract maintenance of their aircraft feasible since there is no mobility requirement. In addition to the German Air Force, notional F-4 aircraft have been included to access the feasibility of bedding down an air to ground mission at Holloman to assist in the future force structure decisions. Air to ground missions will require special use air space and military training areas that terminate into existing bombing ranges. This alternative looks at modifying two existing training groups to satisfy each mission of such, I should say.

The last alternative is the no action alternative which would leave the previously discussed units at their current locations and definitely would result in a loss of substantial savings.

Colonel Morrison: Now, I would like to present Capt Dave Clark from Headquarters Tactical Air Command, Langley Air Force Base, Virginia. Captain Clark will present an overview of the environmental impact of the Nellis process and well as the relationship between the

economic study and the environmental impact on Nellis's process and present the results of the draft environmental impact statement.

Captain Clark: Thank you Colonel Morrison. Good evening ladies and gentlemen. I'm pleased to be with you tonight to discuss your role in the National Environmental Policy Act, NEPA, and review the impact associated with this Air Force Draft EIS, entitled, Proposed Relocation of the 37th Tactical Fighter Wing and Other Force Structure Actions. We prepared this environmental impact statement under the National Environment Policy Act in our Air Force Regulations. We have encouraged involvement of the public and the government officials throughout the environmental impact analysis process. For public participation programs the environment analysis program includes the following actions to solicit the public involvement. First, a notice of intent to prepare the environmental impact statement was published in the Federal Register on 9 February 1990. At the same time various press releases were issued and announcement letters were sent to all federal, state, and local government officials around Tonopah Test Range, Nellis and Holloman Air Force Bases. In March of 1990, we hosted public scoping meetings in the areas to determine significant environmental issues. The issues raised were analyzed in a draft environmental impact statement. The draft environmental impact statement was filed with the Environmental Protection Agency on the 8 of February 1991 and published in the Federal Register on 15 February. Various press releases and announcement letters were again sent out. We are currently in the 45 day public comment period. Public hearings like this one tonight will collect verbal comments and any written comments you wish to submit. The Unites States Air Force will then consider all relevant issues raised and provide responses in the final environmental impact statement. I would like to point out, the transcript for tonight's hearing, alone with any written statements submitted prior to the first of April, the 1991 cut off date, be published in the final environment impact statement. Any documents or inordinances claims should be submitted. Pertinent information from that document will be summarized and finalized in the impact statement. Submitted documents will be kept on file for record.

Our plan is to accomplish the final environmental impact statement in May of 1991. The final environmental impact statement will be filed with the Environmental Protection Agency and once again, news releases will be made and notifications letters will be sent out. At this time I will address the findings pertained in the draft environment impact statement for the Tonopah community.

You may recall that Colonel Temples described several actions. These actions are grouped into four alternatives in the draft of the environmental statement. The impact to Tonopah are the same under the first three alternatives. The 37th Tactical Fighter Wing will leave Tonopah. And, the fourth alternative, the no action alternative, the 37th will remain at Tonopah with no change in operation. Under the first three alternatives, there will be slightly beneficial impact on biophysical environment in the percentages of Tonopah Test Range, meaning there will be no negative impact to resources, land, air quality, noise, air space management, biological resources, water resources, archaeological and cultural resources, historical resources, and hazards materials and waste. Significant adverse impact to land use will result under the first three alternatives due to reduction of contract employees. The change in workforce will reduce residential landings which inturn would effect commercial landings. Significant social economics impacts are expected at the town of Tonopah arising primary from the reduction of employment opportunities at Tonopah Test Range. Under the worst case condition direct and indirect impact can amount to a 20 percent reduction in claims to Tonopah and may result in out right migration as much as 31 percent of the Tonopah population. Major impacts to both the schools and local housing could result. In addition, a loss of revenue and expenditures in Tonopah will result with the association of increase tax revenues. Individual tax burdens are projected to decrease, pardon, to increase, due to out migration.

The last alternative, the no action alternative. There will be no change to the current environment of the Tonopah community. That completes my prepared comments. Now, I'll turn it over to Colonel Morrison. Thank you.

Colonel Morrison: Now, in a moment, what we're going to do, we are gonna move into the main portion of the meeting which is the public input period. I would like to remind you of a couple of points. First, please limit your comments to five minutes so that everyone can be heard and also please make sure you state your name for the record before you make your statement. If you have brought a prepared statement you may turn it in, you may read it out loud, or you may do both. Just place any written statement on the court reporter's table and she will make sure that it becomes part of the hearing record. Written comments and questions will also become part of the hearing record and equal considerstion will be given to comments, whether you speak tonight or provide written comments either now or later. If you turn in written comments for questions, please write your name and complete address on them. Again, the purpose of this hearing is to solicit input from the public

agencies, private organizations, and the public at large on this draft environmental impact statement. The Air Force Representatives that are gathered here before you tonight are not the decision makers on this proposed action, they have provided information on the process and they are prepared to respond to questions you may have on the project, although we can not enter into or debate on the pro and cons of the proposed actions. You also remember that the purpose of the meeting is intended to solicit input on the draft environmental impact statement, so please limit your comments to the environmental issues associated with the proposal. To avoid repetition and to ensure that everyone has an opportunity to be heard this evening, I would like to ask that repetitive statements be avoided. If you agree with the statements of an earlier speaker, I would recommend that you simply indicate that. What we are going to do now, is to move into the comment period and the first speaker will be a Mr Bob Wright and he will be followed by Mr Mike Pieper. Mr Bob Wright, if you would come to the podium.

Bob Wright: My name is Bob Wright and I represent Senator Reid in his Washington office and I just like to have a minute or two. I don't want to take the whole five minutes basically, so the rest of the folks here can have their say. Let's say the senator is very concern with this process. He's also concern with the comments the citizen here are gonna present here tonight. In fact, we intend to use those comments in our own written response which we will be submitting before the April 1st deadline. But to us, some of the most important issues that we will be submitting will be the information that these people here tonight present. So, again, the senator is very concern of this process although, I would like to convey from the senator that he appreciates the opportunity the Air Force has provided for this and as most of the people here would agree, I think we are also very proud of the Air Force for what you've done for us over in the middle east. And, on that I think I'll, in fact, if I could, give my time to someone else. Thank you.

(12.1)

Colonel Morrison: Thank you very much Mr Wright. Our next speaker will be Mr Mike Pieper and he will be followed by Joe Maslach. I hope I don't mispronounce anyone's name to bad. Mr Pieper would you state your address and who you represent?

Mike Pieper: My name is Mike Pieper with Congresswoman Barbara Vucanovich from Washington D.C. Ms Vucanovich would just like everyone here to know that she is also concerned about this situation and plans to monitor it closely and unfortunately, she couldn't be here this evening but will be submitting written

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testimony in order to convey her concerns about what is happening. That is really all I have to say. I just want to sit back and listen to what everybody else has to say. Thank you.

Colonel Morrison: Thank you Mr Pieper. I know I have butchered this name, Mr Maslach, who will be followed by Mr Bob Sorensen.

Joe Maslach: Good evening, I'm Joe Maslach. I'm the vice-chairman of the Nye County Board of County Commissioners and I would like to welcome you here tonight. The proposed relocation of the 37th Fighter Wing is an issue of great importance to the future of this county and to this community. Therefore, those of us here tonight appreciate the opportunity to provide you with the preliminary comments on the draft EIS.

For the past ten years or so, Nye county and the town of Tonopah have been proud to host the 37th Tactical Fighter Wing. Since the relocation proposal, was announced 14 months ago, in January of 1990, Nye county has made special efforts to make its concerns heard to the departmental establishment. Sixty percent of all comments in the scoping procedures came from the Tonopah area. The much larger communities, Las Vegas and Alamogordo, only contributed about forty percent. The Nye County Commission sent letters to Donald Rice, Secretary of the Air Force, on May 2nd, 1990 and Robert Rauner, Director of the Department of Defense Office of Economic Adjustment, on August 6th, 1990. Nye County has provided research material and other input to SAIC for their use in preparing the environmental impact statement. In all cases, Nye County has sought actively to participate in the analysis of the impact proposal of the relocation and to engage the Air Force and the Department of Defense as well as the Nevada State Agencies in the consideration of measures to mitigate effects on the proposed action on the county and this small community.

The draft shows that its proposed relocation will have significant economic and social impact on this community. The community which has recently been suffered two major setbacks in mining operations. Thus, the relocation proposal would occur in an already weakened local economy. You will hear tonight from the broad cross-section of Tonopah community and county residents. Some people question the cost saving in which the Air Force anticipates from relocation to Holloman or Nellis and wishes that the ESI, EIS, I'm sorry, had given more serious consideration to the alternative of the establishing the base of the 37th wing at the test site. Therefore, it is likely that most of the comments you hear tonight will not be focused on whether or not a relocation should or should not occur but the two topics would be the impact of the relocation which it

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would have on Nye county and the town of Tonopah. And, the second, is what measures might be taken to help mitigate the effects of the proposal for relocation on the community of this sides. Nye County accept many of these steps and assumptions in this draft but there are some steps and assumptions that we questioned and we feel they warrant attention in the preparation of the final environmental impact statement. For example, the assumption that there is no population effect associated with indirect economic impacts is probably inappropriate in current Nye County circumstances. We have already prepared a preliminary review and we will submit formally before the April 1st deadline. It seems clear that the draft does not address mitigation of the adjustments of the impacts associated with the relocation and that it is up to the communities to identify and advocate appropriate actions. We want you to know that Nye County is coordinating with the Tonopah town council, local business leaders, and others, is working to develop a proposal that the discussion today will raise some other topics under consideration. We expect to compile a plan of the final ESI issue, and we hope it will receive serious consideration by the Air Force and the Department of Defense as well as the state agencies. In closing I want to again, thank you for coming here and giving us the opportunity to express our concerns.

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Colonel Morrison: Thank you very much. Our next speaker will be Mr Bob Sorensen and he will be followed by Mr Robert Ragar.

Bob Sorensen: My name is Bob Sorensen. I'm from the Tonopah town manager and I would like to take this opportunity to thank you for allowing us to giving you our input. As, Mr Maslach stated, and I'm sure everyone is aware of the financial and social impact that your move can have on this area. I have some questions that I would like to have answered.

I would like to know if this move occurs, would the Air Force provide financial assistance to businesses and governmental agencies that have made expenditures and investments in bond indemnities to accommodate the work force of the TTR at this time?

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Colonel Morrison: I don't know if we have anybody here that can answer that. Basically we have people that are prepared to talk about the draft environment impact statement and the environmental effect but what you are asking goes a little bit beyond the expertise that we have here tonight. However, your question will go on the record and will be considered along with everything else.

Bob Sorensen: I'm sure you realize that businesses and agencies, such as schools, have anticipated continued growth with the activity

that existed out at TTR and your leaving will certainly impose a financial hardship. If the military is in such a matter continues to propose changes like this, why don't you inform the local and state agencies that anticipate project longevity when a project is created or established?

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Colonel Morrison: I don't if anybody knew when the project was started, what the eventual outcome would be. Again, I don't know if we can address that here as far as with what the planners expected when they initiated the program.

Bob Sorensen: Can you say when a decision will be made on this move?

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Major Temples: The decision has been publicly announced and once a decision to make a move has been publicly announced that is generally carried forth. Now, it is not to say that anything isn't reversible, obviously that is not true, but that has been publicly announced through the Department of Defense. And the Secretary of the Air Force has made a statement that this will close along with other actions centered around Holloman Air Force Base. And, it is a planning purposes right now, our panel we are continuing to provide this from and like I said almost anything can be in reverse. That's our plan at this time.

Bob Sorensen: Well now, if the decision is made to remove this wing are there any future plans that can be revealed to sustain this area or for future use at TTR?

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Major Temples: We know of no future plans such as another project coming in here to replace--no, we don't know about such a thing at all. There is a lot of discussion about the future use of the base but nothing, absolutely nothing has been finalized and we have no known use of the test range at this time. We have no final plans for it. Now, it is certainly under discussion but nothing has been finalized.

Bob Sorensen: Okay, thank you.

Colonel Morrison: Thank you Mr Sorensen. Our next speaker will be Mr Robert Ragar, and he will be followed by Mitzi Sears.

Robert Ragar: I'm Bob Ragar, the superintendant of the Nye County School District, P.O. Box 113, Tonopah, Nevada.

Our school district has made an extensive evaluation of the draft environmental impact statement of the proposed relocation of the

37th Tactical Fighter Wing of the Tonopah Test Range to Holloman Air Force Base. Should this relocation actually occur and should the Tonopah Test Range not receive any comparable replacement assignments, the following financial impact would affect our district operations. Estimated annual property tax loss of 79 thousand dollars, based on the EIS estimate with the loss of 358 students will result in a loss of 1,256,938 dollars of state basic school support. Expenditures of account reductions including loss of teachers and a decrease of supplies and books are estimated at 919 thousand dollars. The yearly net operating loss for the district is 426 thousand dollars. It is also expected that the debt service funds which pays all the debt of construction programs will suffer a yearly loss of 66 thousand dollars, therefore, it is our contention that the district can suffer a manual lost of approximately 492 thousand dollars through the year of 2001. This is a brief financial assessment of the proposed move of the stealth wing from the Nye County school district. At the end of my report a formal impact will be presented to you for your study and consideration. Not only the district but the general public is concerned about the stealth wing move and its far reaching impact on this community. A major concern is certainly the 30 million dollar bond issue that was recently passed to build these schools throughout our county. Although the 30 million dollars probably wouldn't purchase half of the stealth fighters, it is a great deal of money for this small county to repay. Approximately 6 million of the 30 million bond referendum money went to build a new high school for Tonopah. The facility is currently 90 percent complete and the long range plan for the new school was to accommodate local and test site students. As stated in an earlier period with the secrecy of the test site operation, our school district really didn't know how to plan because we didn't know how many people were coming. But we feel that we accommodated very well, the students of parents who worked at the test site. Teachers were hired, educational programs were developed and facilities were expanded to meet the needs of all the children. We would hope that if imposed stealth wing relocation becomes a reality, the department of defense would recognize our contributions and through their impact funding make a financial contribution to offset our current losses. And, in the event that a new program is established at the Tonopah Test Range, we sincerely hope that the Air Force or other government agencies would recognize that Tonopah has the school facilities to accommodate most any extended operation at the Tonopah Test Site, white or black.

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In closing I would like to say the Nye County tax payer has shown its willingness to provide educational opportunities for children whose parents work at the test site. We would welcome and encourage the stealth operation to continue at the test range and would like

new operations to be instituted as we feel that we have the facility to accommodate the new growth in our educational system. Thank you.

Colonel Morrison: Thank you very much Mr Rager. Our next speaker will be Ms Mitzi Sears followed by Keith McRoberts.

Mitzi Sears: My name is Mitzi Sears, I'm from Tonopah, Nevada. The cost savings that you quote are estimated to be between 80 and 125 million dollars. I feel that this draft statement is a fixed and you are determined to move to Holloman Air Force Base. These cost are all in comparison to cost that RECO and other contractors say they have and they are probably still not in the range of being accurate. I could not find even where one suggestion, and hundreds were sent in, were taken into consideration to lower the operating cost. Where Holloman would not have to spend money on security systems and there people would not have to have clearances, we still spend hundreds of thousands of dollars each year. The flight contract that was just awarded was brought down from 65 million to 35 million dollars. You admitted 750 thousands dollars that RECO pays each year for Nye County reassessing use tax in this state.

There are many other items that I could address but I don't really think that we should waste the time. With pre-site work going on at Holloman many people do not want to waste their time coming here tonight. We all feel that it's going anyway. The only alternative that we've heard for TTR is that it may be used as an alternative site for Red Flag. This would not mean even one civilian job. We're still hoping that another project may use TTR but when you submit a report like this one, it's gonna be a major deterrent. We are all aware that DOD have a much larger picture to look at than just TTR and if it's time to move the stealth, then move it, but don't insult us by saying that we're gonna save all that money. The stealth and part of the Air Force folks have become part of our lives. We are proud of the performance of the stealth in the middle east and we feel that its success is partially due to all of us who support it. We build to maintain the best for the best and nothing would ever change that. None of us are excited about the stealth leaving. It has become a part of our lives but we don't want you to let TTR sit there, think of the millions of dollars used to build this. It's paid for, we want you to use TTR to its full potential.

Colonel Morrison: Thank you very much Ms Sears. Our next speaker will be Mr Keith McRoberts followed by Gene Browder.

Keith McRoberts: My comments have already been made.

Colonel Morrison: Thank you Mr McRoberts. Gene Browder followed by Sandra Dulgar.

Gene Browder: My name is Gene Browder. I'm a resident of Tonopah, Nevada. The reported justification for the move to Holloman is based on cost savings. Some of the comments that I was gonna make have already been discussed. Holloman Air Force Base is a base that is almost fifty years old. The documents state that 61 million dollars of construction cost alone can be realized to get this structure in shape and support this aircraft and personnel. I have four questions. I don't expect answers tonight but I would like to see them in the final draft.

What cost at TTR we are talking about for reconstruction that can save money? One of them mentioned already was the reduction of the flight contract with the civilian contractor. Some of the other incidental things are daily maid service in the dormitories. The fact that the military puts their people up here for four days at a time and then flies them back with no consideration for spending their time up here. The security required to service facilities here is a lot of money. Was the security aspect looked at in the reduction and security requirements for this facility should the aircraft stay? Logistically you are moving the plane approximately 650 miles further from this depot. I'm not sure how this would be cost effective. There are two statements in the document. One earlier in the document mentions that the arm operation program will build 152 rooms per year from 1990 to 1993 and alter 143 family units at an estimated cost of 8.9 million dollars. Further on in the document, there is a statement that says no additional dorms are scheduled for construction within the next five years. Are we to assume that the construction is going on now with money that was allocated before this move was to take effect? There is a statement that says the reduction of the 479th Tactical Fighter Wing, although independently of this proposed action in this EIS is relative to this analysis because the reduction of aircraft and personnel at Holloman Air Force Base must be considered in the cumulative impact. I'm not sure I understand why. Does this means that the impact is greater on Holloman then on Tonopah? It appears to me that when considering the renovation required for this facility that is fifty years old, as opposed to a state of the art facilities that we have here, maybe the option should be to close Holloman. Thank you.

Colonel Morrison: Thank you very much Mr Browder. the next speaker will be Ms Dulgar and followed by Mr Bob Stine.

Sandra Dulgar: My name is Sandra Dulgar and I'm the employment training counsel with Nevada Business Services here at Tonopah. I'm

here representing Nevada Business Services, the grant recipient and administrative entity for the employment of twenty programs under the Job Training Partnership Act of southern Nevada.

We are the entity responsible for the dislocated worker program for the southern portion of Nevada, e compassing Clark, Nye, Esmeralda and Lincoln counties. These four counties will all be negatively impacted by the relocation of the Stealth in several ways. I wish to draw your attention to one of the impacts as seen by my agency. We are charged with providing assistance to workers who are out of work through no fault of their own through such events as a plant closure or massive layoff, etc. It is our responsibility to provide relocation assistance and or job retraining for these workers. We are given an annual budget to accomplish this charge. In the past three to six months we have seen this budget wiped out as the result of large layoffs in the resort industry and the mining industry in our area.

According to your draft environmental impact statement, some 440 local people will be without jobs as a result of the relocation of the stealth. This does not take into account those employees from the other three counties who will also be laid-off and therefore will also be entitled to assistance through our program. And, as well, those out-of-work employees of other industries who will not receive dislocation assistance because our funds simply won't stretch that far.

It is therefore our request that increased funding for the dislocated worker program be provided to the Nevada Business Services in an amount sufficient to cover all additional costs to the program brought about as a result of this relocation of the 37th Tactical Fighter Wing.

It is our further request that funding be provided to assist in economic development efforts to bring in businesses and industry to replace those jobs lost from all four countries in southern Nevada. Thank you for your time and attention.

Colonel Morrison: Thank you very much Ms Dulgar. Our next speaker will be Mr Bob Stine followed by Mr Paul Dimartini.

Bob Stine: My name is Bob Stine. I'm a local business man. My comments tonight will be followed up by a letter to the Air Force. My business, High Desert Dry Cleaning will be directly impacted by the move of the 37th Tactical Fighter Wing. We would also like to point out, we have a major discrepancy in your figures in Section B-9, Table B2-2 of the EIS draft. My company now has contracts

which we provide laundry and dry cleaning services to Tonopah Test Range. We stand to lose our largest customer thus impacting:

a. Economic development in Tonopah. We are a new business in town and the move would stifle our chances to grow and diversify. Also, the dollars we pay may no longer be available.

b. Sixteen jobs will be lost all of which to Tonopah residents. These jobs will not be a source in the community because they didn't exist before we were awarded the contract. These people will join the others in an already depressed job market.

c. Our financial concerns are a business that's financed by a government backed SBA loan. The proposed move of the 37th wing will place a hardship on the owners to meet their obligations in this respect. As we all can see there is no conflict interest, there is no balance that meets the end. As American citizens we are in favor of the strong and are willing to make the sacrifices necessary to achieve these goals. It is common knowledge that the people of Tonopah have to feel this endeavors. This bring us to what are the answers to the problem. We would like to see the 37th Wing stay right where it is, but if not, give us something in return like a new project. We would also suggest that the government make low interest loans available to help us through this time of transition or make low interest loans available to new businesses to start at a new location in Tonopah area. We also would like to see monies available for parks and recreations, for things such as a golf course, so that we can plug into the tourist dollars that pass through our city daily. We trust that the Air Force will be as fair to businesses and the people at Tonopah as they have been to them. Thank you.

Colonel Morrison: Thank you very much Mr Stine. Our next speaker will be a Mr Paul Dimartini and he will be followed by Mr Ken Mason.

Paul Dimartini: Before I start, I would like to respectfully request that a waiver of the five minute time limit or a portion of some of these other people that didn't use the five minutes. It want be much longer than that.

Good evening. My name is Paul Dimartini. I'm a Tonopah resident and a local businessman. All four of the businesses that I'm involved in will be impacted by the relocation of the 37th Tactical Fighter wing. Several of them can suffer severely. I appreciate the opportunity to make a few comments about this proposed action. First, let me be perfectly clear in relating that I'm not opposed to the 37th moving providing its truly is a national budget cutting measure. As far as the realignment in improving the overall operation efficiency of the Air Force, one would have a hard time convincing me that there is a lot of strategic differences between

the middle of the New Mexico desert and the middle of the Nevada desert. Of course, that's the military and national defense argument that we can win, so, I leave it at that.

Hopefully, what we can do something about is dealing with the aftermath of the move on those of us that have chosen to make Tonopah our home. The resident of Tonopah like the resident of all Nevadans have already shown what appears to be an inordinate amount of support for our armed forces. It is with proud and dignity that Nevadans have always answered the cause to do our duty for the good of the Nation at large. That time has come again, we will not shy away from our responsibilities. We will shoulder the load for the good of all America. As one of the proud Americans, we now must ask that the federal government not leave us high and dry when they pull the 37th out of Tonopah. Rather, let me state that those of us who have made substantial investments both socially and financially in Tonopah want to be assured that we will have some help in refocusing our businesses toward some vital alternatives. The draft version of the EIS raises many points, pro and con. One point that is not in question, however, is that the Tonopah area will suffer significant adverse social and economical impacts when the 37th leave. I respectfully bring up the fact that the original EIS or EA concerning the bringing of the stealth program to TTR was not a public document and was in fact done after they had started the project. I think it would be very interesting to see and compare what the Air Force's predictions were ten years ago in relation to what is actually taking place. There are many factors that affect us currently in our area that I believe to be inaccurate. Some of which we can and will produce documentation and proof of. I'm also very concerned about Section 1.33 of the EIS titled Alternatives Considered but not Evaluated in Detail. The EIS states and I quote, "other alternatives were examined but were considered infeasible and did not warrant detailed evaluation." I and everyone who live in Tonopah should take Section 2.5 one of a personal insult. After our years of silent support of the 37th, I would say that we warrant a little more than one paragraph stating that the expansion of the infrastructure at TTR to support the 37th is not a vital alternative. I as a businessman would really like to see exactly what would be needed to make TTR an adequate base. The recorded 159 million dollars needed for construction when they move and the caviar in that as I understand the figures to mean, to Nellis and a lower figure to Holloman but I give you that, but when they move to be stretched an awful long way. If one way to look at it is an equity investment portion of private enterprise, not the total dollar spent by the government. Even as tight as things are these days, I think that a twenty-five to fifty percent equity coupled with government contracts could be a pretty favorable loan package

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that might possibly allow a private sector to meet all the requirements in expanding TTR at a cost saving to the government.

But we will never know if that is possible because no one has investigated it. Is it possible that this alternative was not looked at simply because it did not fit into the plans of the Air Force and the particular plans of some particular politicians who has more strokes than our Nevada congressional delegation? I might go so far as to suggest the blatant oversight of this alternative could possibly violate the intent of the needs for laws which encourage public input and comment which we gave and which appears to us to have been ignored. But, enough of my suppositions. It's quite evident that the Air Force wants to move from TTR to Holloman, so be, and I've only got a couple of minutes left, I think I'm gonna continue.
That's okay, Colonel?

(1.2)

Colonel Morrison: No response.

Paul Dimartini: Let them go with our blessing. Now, let's get down to the bottom line. What would Tonopah do to offset the loss of such as much as 31 percent of its total population and 20 percent of its jobs as stated in Section 2.6 of the EIS? What can Tonopah do? We must focus our efforts into three areas. Increase tourism in a broader numbered base, improve quality of life, and expand industrial complexes that will enable us to better support any future activities of the TTR. In order to expand in these areas, we will need financial assistance. If the Department of Defense really thinks it can save an estimated 82 hundred and 25 million dollars by moving the 37th from TTR then we, the citizen of Tonopah, who have been proud and silent in supporting the Air Force during the stealth process are entitled to some help in stabilizing our economic situation.

I respectfully request that if the proposed action to move the 37th from TTR is approved that it will only be done with following our like kind stipulation.

1. The establishment of a multimillion dollar pool of government backed low interest loans ear marked specifically for economic development expansion of the Tonopah area and a provision that these loans can only be administered by our two Tonopah banks.

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2. A direct payment subsidy by the DOD Office of Economic Adjustment for some portion of the Nye County School fund and the Sports Complex fund. The need for those facilities was directly related to the build up of the stealth project and thus, the

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repayment of the percentage of that debt should be offset by the DOD.

3. Either the construction of a direct grant for a municipal golf course and an upgrade of our town water supply system and to build a treated waste plant at Tonopah. These measures give immediate relief to jobs and upon completion of these projects Tonopah will be able to retract and hole move tourist trade and conventions, while improving the overall quality of life for its residents.

(2.1)

4. Funding either by grant or loan or a combination of the two to develop and build a community college at Tonopah. Such facility would not only benefit Tonopah but would be an asset. The Department of Defense could utilize in conjunction with future TTR projects.

(2.1)

You might think that I'm asking for a lot here, but if you truly analyze it, I'm not. The Air Force says it would save between 80 and 125 million dollars a year after moving the 37th to Holloman. How many years is the air plane time in the Air Force? I don't know, but I do know the B-52 flew in World War II and is still being used today. That's over 40 years. If you multiply 40 times 100 million, taking an average off your figure, I think Tonopah is entitled to a small piece of the pie. Let me emphasize here that the fact that any additional dollars spent to help Tonopah will pay back big dividends to the Department of Defense. I can't believe that the Department of Defense after spending in access of 370 million dollars, construction alone, at TTR can and will walk away from the most sophisticated high tech training and testing facility in the world. Every dollar the Office Economic Adjustment puts back into Tonopah will make us as a community that much better and capable of supporting you in the future. Thank you.

Colonel Morrison: Thank you Mr Dimartini. Our next speaker is Mr Ken Eason followed by L.J. Lister.

Ken Eason: I will forfeit my time here and submit a written statement.

Colonel Morrison: Our next speaker will be L.J. Lister followed by Anthony Roman.

L.V. Lister: I'm L.J. Lister. I'm a Tonopah resident and a local businessman. According to your statement, the percentage of the local public impact is going to be really great to reduce the long term impact to the community and the county. It will only be fair

that help should be given to our local chambers of commerce to striving businesses, and to help local businesses to get into government procurement import. Another thing that could be done if and when something else happens to the site to benefit our community and should be part of the deal going in, no none military personnel should be allowed to stay in the man camp, because people staying in the man camp don't live here and don't benefit our community and take their jobs from people that live here and can use the percentage of the jobs reserved at a local and small contractors and businesses. Because as it stands now, generally they are the contractors, keep a few people out there doing the little small jobs and the larger jobs are subcontracted out to businesses and the larger contractors are out of our limits. Here in the community we are real proud to take part in what's going on here because we consider in the past it's part of being a citizen and you haven't looked out for our best interest as well as your own. You seem like you kind of sucked up dry and left us in here hanging and generally, I don't think that the community as a whole appreciates it, even though we are real proud of what's been done here. Even though it's been done mostly at our expense. Thank you.

(1.5)

Colonel Morrison: Thank you Mr Lister. Our next speaker will be Anthony Roman.

Anthony Roman: My name is Anthony Roman. I represent Valley bank. I would like to address the issues that Paul Dimartini left out and also, the comments he left off on the bond issue that was done by the hospital at 400 thousand dollars about two to two and a half years ago. DIP reports overall supports the previous concerns regarding the economic impact on our community, however, I feel that there are two items that were not discussed at these studies. The first item is the one that I'm concerned about right now is the immediate impact on the businesses in this community that are caused by the recent publication of the EIS report and the negative press that has been seen in the newspapers. This has caused somewhat of a tightening of credit by the financial institutions that would affect all the individuals and businesses in this area. Because of this eventuality with businesses for the businesses to develop effective business land in regards to the future, opportunity staffing, capital expenditures, etcetera, etcetera, and also the difficulty of acquiring capital needed to locate the new business here in our community.

(7.5)

The other item that I feel was left out in both Paul Dimartini and Bob Stine's presentations, and both kind of touched on, is the federal guarantee laws, the EPA laws. My estimation says approximately 600 thousand dollars in SBA loans right now that are

somewhat related to the test range. These would be affected by the relocation and the inability to repay the loan as it reads due to the reduction or the elimination associated and the hardship to the individual, meaning that Tonopah business people who have assured me that they will continue to try to reach their debts by other sources, solicited their debts. It will also affect the SBA loans in the future with the SBA starting to tighten the credit in this community which will again make it difficult for a new business to come to this community and help diversify our economy. I am requesting that assistance be provided to our community by number 1. Federal, state, and local assistance be provided for a alternative resources and assistance in the economic diversity location. And, number 2, that the immediate development of the national plan by the federal government in regards to modifying SBA loans now, in respect to the two economic trends caused by the relocation. In other words, let's not wait until the businesses die, let's consult the problem before it happens. Thank you.

Colonel Morrison: Thank you very much. Is there anyone else?

Trish Rippie: My name is Trish Rippie. I live at in Tonopah and I'm a local business woman. I hadn't intended to say anything because I put my comments in writing, but one thing that I did hear addressed that is of big concern is the caretaker workforce. In this report it says that there will be 160 to 220 people required to be caretakers for the base out here and that it isn't determined whether they would be based out of Las Vegas or Tonopah. I can't understand any reason they wouldn't be based out of Tonopah. As Bob Rager said, we have the schools and I can tell you we've got the housing. Our apartment buildings are standing at 40 to 50 percent occupancy rate and we have single family homes available. We can house these people and it would definitely mitigate the impact of the closing of the stealth facility if those people were based here.

The only reason that I've heard in the past that TTR couldn't be a white base and people can't be based up here is because we don't have the facilities. We certainly have more than adequate facilities for 220 people and the workforces out here have proven their loyalty, they can keep secrets, and they do their jobs. I don't see any reason why these people couldn't be retained in the caretakers status and why we would be even remotely consider that anyone else should do the job? Thank you.

Colonel Morrison: Thank you very much Ms Rippie. Anyone else who desires to speak tonight?

Tom Baker: My name is Tom Baker. I'm with the office of the United States Senator Bryan and the reason that I'm here alone with the representative of Senator Reid and Congresswoman Vucanovich is that the senate is very concern about what is going on today and I might point out to the Air Force that it is very important that I know from your perspective to get all the comments down from everyone here and I know it's very important to these people back here to understand what their friends and neighbors are saying in a public meeting like this and I think the acoustics are terrible here tonight and I think in the future that something needs to be done about that. Thank you.

Colonel Morrison: We chose this because we thought it might accommodate easily a large crowd. Anytime you get an auditorium this size it's a little difficult to hear. Anyone else who desires to speak tonight?

(Negative response from the audience.)

Again, the comment period for submitting any kind of written comments or suggestions, whether you use the comment form or not, until 1 April 1991, and you do this by mailing your comments to the address shown on the slide there. HQ TAC/DEVE, Attention Capt Clark, Langley Air Force Base, Virginia, 23665-5542. So, even if you haven't made any comments tonight you still have a chance to do so until the first of April.

I want to thank all of you for taking the time from your busy schedules to attend this hearing tonight. It's been a learning experience for me as it has perhaps for some of you as well. I'll assure you of a verbatim record transcript, everything said here this evening or submitted by the first of April 1991 will be prepared and will be considered by the decision makers in a formal part of the final environmental impact statement. Thank you all for coming this evening and good night.

(The meeting ended at 2025 hours, 12 March 1991.)

Table H.1-3 List of Speakers at Public Hearing in Las Vegas, Nevada, 13 March 1991

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Table H.1-4 Transcript of Public Hearing in Las Vegas, Nevada, 13 March 1991

PUBLIC HEARING AT CLARK COUNTY COMMUNITY COLLEGE, LAS VEGAS NEVADA

(The meeting began at 1900 hours, 13 March 1991.)

Colonel Morrison: Good evening ladies and gentlemen. I guess we will go ahead and get started with the hearing tonight. On March 7, 1990, a scoping meeting was held here to identify important environmental issues that might be involved in the proposed relocation of the 37th Tactical Fighter Wing at Tonopah Test Range to Nellis Air Force Base. Subsequent to that, various studies were conducted to address the concerns relating to the proposed relocation and a draft environmental impact statement was prepared. The Air Force is now distributing its draft environmental impact statement which addresses proposals to relocate the 37th Tactical Wing beginning in 1992. The potential impacts identified in the environmental impact statement for the Las Vegas area will be addressed in more detail this evening by Captain Clark. If you wish to review the draft environmental impact statement, copies are available at the public library. If you want your own copy and have not received a copy of the draft environmental impact statement, you should make a specific request by writing to the address shown on the slide that we will put up later. Now, why we are here this evening, the purpose of this public hearing is to solicit input from public agencies, private organizations, and the public at large on the draft environmental impact statement. This meeting is being held in accordance with the requirements of the National Environment Policy Act and the Implemented Federal Regulation which requires all federal agencies to carefully analyze all potential environmental impacts of certain proposed actions and to use those analyses in arriving at decisions and recommendations as to whether to proceed and how to proceed in a particular action.

I have been designated as the presiding officer for tonight's public hearing. I'm Colonel Wade Morrison, I'm an attorney and I serve as a full time military Circuit Court Judge, stationed at Randolph Air Force Base, San Antonio, Texas. I'm not assigned to Nellis Air Force Base or any of the bases or commands under consideration for relocation. I'm not here as an expert on the draft environmental impact statement nor have I had any connection with this development. And, I'm not here to act as a legal advisor for the Air Force Representatives who are to address this proposal. My purpose is simply to ensure that we have a fair orderly hearing and all of you who wish to be heard tonight have a fair chance to speak this evening. Other members of the Air Force here tonight are Lt Colonel Bud Temples, Headquarters Tactical Air Command, Langley Air Force Base, Virginia, and he will discuss the Air Force proposal and next, will be Captain Dave Clark, from the Environmental

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Analysis Division, Headquarters Tactical Air Command, Langley Air Force Base, Virginia. Captain Clark will describe the environment impact analysis process and the conclusions reported in the draft environmental impact statement.

We have a court reporter this evening, Ms Elaine Scott, who will be taking down verbatim everything that's been said tonight and this will become part of the final environmental impact statement, which in turn, will become part of the Air Force's record of decision. Now, she can only do her job properly if she can hear and understand what you are saying, so those of you who will be making public comments this evening, please, keep that in mind.

Let me say what this hearing is not. This isn't going to be a debate of any sort or a referendum of vote on the proposed action itself, and such things don't add anything to the written hearing record and simply waste your valuable time and this opportunity for a personal input into this decision making process. The focus of the hearing is on the environmental impact associated with the proposals and studies by the Air Force and comments on non-environmental issues are not relevant to this particular hearing. What this hearing is intended to provide, is a public forum for two way communication about the draft environmental impact statement, with a view towards improving the overall decision making process. You noticed that I said, a two way communication, the first part of this hearing process lets the Air Force's most knowledgeable people brief you on the proposals, its details, and its anticipated environmental impacts. The second part of this hearing process is to give you an opportunity to provide the Air Force information and to make statements for the record. Your input ensures that the decision makers have the benefit from your knowledge of the local area, any adverse environmental impact facts that you think might result in the proposed action.

As you came into the auditorium this evening, you were provided a comment form and asked to indicate if you had any comments for tonight's hearing. When the briefers are finished, I will recognize members of the public for the purpose of making public comments. For those of you who have not yet filled out a comment form and request to speak tonight, please raise your hands and someone will distribute comment forms to you. Is there anyone in the audience who would like to speak tonight for the record and you haven't filled out a comment form indicating your desires to speak?

(Negative response from the audience.)

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Our order of proceeding will be in three parts. First, we're going to have a briefing by Lt Colonel Temples on proposed location actions, then you will receive a briefing from Captain Clark on the environmental impact analysis process, the conclusions reported and the draft environmental impact statement, and following these presentations, we will then proceed into the public input portion of the hearing. Elected officials would be given an opportunity to speak first, followed by the public at large, whose names will be called randomly from the forms handed in this evening. Now if you don't feel like standing up here tonight and making a public statement, you have until April the 1st this year to submit written comments. Written comment forms are provided at the entrance of the auditorium and may be used for providing your comments. In fact, even if you make comments tonight, you have until the 1st of April to submit additional comments in writing to the address provided. Whether a statement is made verbally tonight or in writing, you have until the 1st of April. Each statement will be given the same weight and consideration. So, don't feel that you have to speak tonight or make written comments. Now, I do want to ensure that all of you who wish to speak tonight have an equal opportunity to be heard, so, please help me enforce the forum tonight. First of all, speak only after I've recognized you and please address your remarks from the podium that is set up here. If you speak into the microphone, the court reporter will be able to take down for the record, everything that you have to say. Since you will be using the microphone, all the audience will have an opportunity to hear you. Use the microphone, start out with your name, your address, and the capacity in which you appear. For example, the public affairs designated representative or private citizen, so the reporter can do her job properly. If you have any questions, ask one question at a time and I'll allow a reasonable number of questions because you have limited time, you should prioritize your remarks to make sure the most important are addressed first. Each person will be recognized for a maximum of five minutes, that includes public official, designated spokesperson, and private persons. We have an individual seated here by the screen who will assist as the time keeper. At the four and a half minute mark, he will raise a yellow card to indicate that you should begin to sum up your remarks and the red card will be raised at the five minute mark to indicate that your time is up. Since we have relatively few people here tonight, I don't think time will be a problem. If you need to go beyond the five minute period, I will probably allow you to do that within reason. Please be courteous to the speakers who will speak tonight and please do not speak while someone else is speaking. Only one person will be recognized at a time, and finally

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our host has asked that you kindly refrain from smoking in this auditorium, so I would appreciate your cooperation in adhering to following these rules.

Now, I'll monitor the times and do everything within my power to make sure that everyone here who wants to be heard will be heard and with regard to questions, it's possible that there will be questions that the Air Force Representatives here are unable to answer. That may occur for one or two reasons, first, even though a good deal of expertise is assembled here, the panelist will not attempt to answer questions unless they are confident that they can do so accurately. And second, there may be questions that have national security implications and must be reviewed further before answers are provided. If this should occur and if the questions are relevant they will be addressed in the final document that you may request a copy of.

Now, one thing I would like to stress again, you may have information about environmental factors unknown to us. We are very interested in having and analyzing all potential environmental impacts of the proposed actions. You have the experience that comes from living in the area over a long period of time, and so this lateral part of tonight's communication, obviously is the part that flows from you to us, is important, so don't hesitate to give us a part of these procedures.

I would like to thank everyone who turned out tonight, your presence is commendable, and it reflects great interest in your community, and the things that are important to you. Let me assure you that your interest is the primary purpose for us being here tonight. Now, it is my pleasure to introduce, Lt Colonel Bud Temples who will brief the Air Force proposal.

Lt Colonel Bud Temples: Thank you Colonel Morrison. Good evening ladies and gentlemen. Last March, we came here and hosted a scoping meeting for the proposed relocation of the 37th Tactical Fighter Wing from Tonopah Test Range to Holloman Air Force Base, New Mexico. Using the information we briefed in March and your input at the scoping meeting at that time, we have prepared a draft environmental impact statement. Many of you received the statement in the mail. Tonight we have come to host a public hearing on this draft EIS. For the benefit of all, I would like to give a brief review of the actions involved with the proposed relocation of the 37th Tactical Fighter Wing and other tactical force structure actions. After this, Captain Clark will specifically address the draft EIS. The draft EIS looks at four alternatives with the respect of moving the 37th Tactical Fighter Wing. The first two alternatives, discuss the

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environmental impact of relocating the 37th Wing to Holloman Air Force Base, New Mexico. The third alternative entitled, the Holloman/Nellis alternative, discusses the impacts of relocating the 37th to Nellis Air Force Base here in town. The fourth alternative is the no action alternative which is, keep all operations at there current locations. The proposed relocation of the 37th wing from Tonopah Test Range to Holloman is one of several recommendations of the Defense Management Review Program named at improving overall operations efficiency. Cost savings associated with the relocation of the 37th wing from Tonopah to either Holloman or Nellis are estimated between 80 and 125 million dollars per year. The 37th wing construction costs at Holloman are approximately 73 million dollars less than at Nellis Air Force Base due to existing available facilities associated with the reduction of the 479th Tactical Fighter Training Wing and the inactivation of the 49th Tactical Fighter Wing at Holloman. In addition, the Holloman's facility can be available one year earlier than those at Nellis. The relocation expenses of the 37th wing to Nellis are less than those to Holloman, but these reduced expenses only partially offset the greater cost of relocating to Nellis. These advantages make Holloman Air Force Base the preferred location for the 37th Tactical Fighter Wing. The inactivation of the 49th wing at Holloman is part of the overall reduction in tactical force structures throughout the Air Force. By inactivating the 49th wing approximately 9.6 million dollars in relocation construction funds can be eliminated. The German Air Force has stated their need to continue training beyond the proposed closure of George Air Force Base in California. A new home is therefore needed and Holloman Air Force Base possesses most of the facilities to support their missions. Approximately 1.2 million dollars in German Air Force construction funds will be supplied to provide the balance of this support facilities requirements. The training mission of this unit makes contract maintenance of their aircraft feasible since there is no mobility requirement. In addition to the German Air Force, notional F-4 aircraft have been included to access the feasibility of bedding down an air to ground mission at Holloman to assist in the future force structure decisions. Air to ground missions will require special use air space and military training area groups that terminate into existing bombing ranges. This alternative looks at modifying two existing training groups to satisfy such a mission. The last alternative, the no action alternative, would leave the previously discussed units at their current locations and definitely would result in a loss of substantial savings.

Colonel Morrison: Now, I would like to present Capt Dave Clark from Headquarters Tactical Air Command, Langley Air Force Base, Virginia. Captain Clark will present an overview of the environmental impact

analysis process, discuss the relationship between the economic study and the environmental impact on Nellis's process, and present the results of the draft environmental impact statement.

Captain Clark: Thank you Colonel Morrison. Good evening ladies and gentlemen. I'm please to be with you tonight to discuss your role in the National Environmental Policy Act or NEPA, and review the impacts associated with the Air Force draft of the environmental impact statement, entitled, Proposed Relocation and use of the 37th Tactical Fighter Wing Nellis Air Force Structure Action. We prepared this environmental impact statement under the National Environment Policy Act in our Air Force Regulations. We have encouraged involvement of the public and the government officials throughout the environmental impact analysis process. Our public participation programs for the environment analysis program include the following actions to solicit the public involvement. First, a notice of intent to prepare the environmental impact statement was published in the Federal Register on 9 February 1990. At the same time various press releases were issued and announcement letters were sent to all federal, state, and local government officials around Tonopah Test Range, Nellis and Holloman Air Force Bases. In March of 1990, we hosted public scoping meetings in the areas to determine the significant environmental issues. The issues raised were analyzed in a draft environmental impact statement. The draft environmental impact statement was filed with the Environmental Protection Agency on 8th February 1991 and published in the Federal Register on 15 February. Various press releases and announcement letters were again sent out. We are currently in the 45 day public comment period. Public hearings like this one tonight will collect verbal comments and any written comments you wish to submit. The Unites States Air Force will then consider all relevant issues raised and provide responses in the final environmental impact statement. I would like to point out, the transcript for tonight's hearing, along with any written statements submitted prior to the 1st of April, the 1991 cut off date, will be published in the final environment impact statement. Any documents or inordinances claims should be submitted. Pertinent information from that document will be summarized in the final environmental impact statement. Submitted documents will be kept on file for record.

Our plan is to publish the final environmental impact statement in May of 1991. The final environmental impact statement will be filed with the Environmental Protection Agency and once again, news releases will be made and notifications letters will be sent. At this time I will address the findings pertained in the draft environment impact statement for the Las Vegas Nellis community.

As you may recall, Colonel Temples described several actions. These actions are grouped into four alternatives in the draft of the draft environmental impact statement. The impacts on the first two alternatives of the 37th, 49th, alternative and the Holloman alternative, are the same to Las Vegas and Nellis Air Force Base, because the 37th Tactical Fighter Wing would be relocated to Holloman Air Force Base, New Mexico. The third alternative, the Rolloman/ Nellis alternative would bring the 37th Tactical Fighter Wing to Nellis Air Force Base. And, the fourth alternative, the no action alternative, the 37th Tactical Fight Wing will continue to operate at Tonopah and personnel would commute from Las Vegas to the base. Under the first two alternatives, the 37th, 49th, and the Holloman alternatives, there will be a slight beneficial impact on the biophysical environment, meaning there would be a small improvement or no impact change for the following resource areas: land use, atmosphere, meaning air quality, noise, air space management, biological resources, water resources, archaeological, cultural resources, historical resources, and hazard materials and waste. Social economic impact due to reduction of manpower authorizations would also have a negligible impact on the Las Vegas community due to its size and rapid growth in recent years. Under the third alternative, Holloman/Nellis alternative, we would have negligible impact on the biophysical environment to the following resource areas: land use, air space management, biological resources, archaeological, cultural, historical, resources, hasard materials and waste. The Las Vegas Valley currently is a non-attainment of the National ani-air quality standards for carbon monoxide particulate matters. Small increase of carbon monoxide particulate matters from aircraft operation would result near Nellis. But these increases are not expected to significantly contribute to or degrade the problem that already exist in the valley, which led to the conclusion of no significant impact. There would be a small increase in aircraft noise, a less than ten percent increase of 65 decimal acreage associated with the increase night time operation of the 37th Tactical Fighter Wing. Night time noise disturbance would theoretically increase the number of highly annoyed persons by an estimated number of 145, a two percent of increase. This small increase is considered insignificant. Increase in water demand of water would result in an adverse impact on the base water supply system during the summer season, but would not significantly impact the off base water use. Social economic impacts would be less than under the first two alternatives which were also found to be negligible. The last alternative is the no action alternative. Under this alternative there would be no change to current environments. That completes my prepared remarks. I give it back to Colonel Morrison.

Colonel Morrison: Now, we are gonna move into the main portion of the meeting which is the public input period. I would like to remind you of a couple of points. First, please limit your comments to five minutes so that everyone can be heard and also please make sure you state your name for the record before you make your statement. If you have brought a prepared statement you may turn it in, you may read it out loud, or you may do both. Just place any written statement on the court reporter's table and she will make sure that it becomes part of the hearing record. Written comments and questions will also become part of the hearing record and equal consideration will be given to comments, whether you speak tonight or provide written comments either now or later. If you turn in written comments for questions, please write your name and complete address on them. Again, the purpose of this hearing is to solicit input from the public agencies, private organizations, and the public at large on this draft environmental impact statement. The Air Force Representatives that are gathered here before you tonight are not the decision makers on this proposed action, they have provided information on the process and they are prepared to respond to questions you may have on the project, although we can not enter into or debate on the pro and cons of the proposed actions. Also remember that the purpose of the meeting is intended to solicit input on the draft environmental impact statement, so please limit your comments to the environmental issues associated with the proposal. To avoid repetition and to ensure that everyone has an opportunity to be heard this evening, I would like to ask that repetitive statements be avoided. If you agree with the comments of an earlier speaker, I would recommend that you simply indicate that. What we are going to do now, is to move into the comment period and the first speaker will be a Ms Joan Dunitt, if you would come to the podium, please.

Joan Dunitt: My name is Joan Dunitt, I'm a regional representative for Congresswoman Barbara Vucanovich, 2nd District, Nevada.

Congresswoman Vucanovich could not be here this evening and she asked that I attend as her representative in the capacity of an observer. I'm here to hear your comments and relay your inputs back to the congresswoman in Washington. She will be submitting her written statement to the Defense Management Review board, after the hearing phase of this proposed relocation is completed. I'm here strictly as an observer and I'll be happy to relate any of this to Congresswoman Vucanovich. If anyone has anything they would like to say to me after the meeting also, I will be glad to relay your concerns. Thank you. (12.1)

Colonel Morrison: Thank you very much Ms Dmaitt. Does anyone have any public comments that they wish to make?

Anthony Hodges: My name is Anthony Hodges and I live in Tonopah. The town has nothing to do with the situation. The plane is a part of the community of the whole state of Nevada. They said Tonopah would be hurt the most, which is true, but a lot of the people are tied to the plane along with Nellis that live in Las Vegas and other parts. So, what I'm saying is that the reason that the plane is leaving in the first place, they said it wasn't political, but it's true. In 1986, I know you remember that because you were in the Air Force, in 1986, people should really know that president Reagan was still the president. We had two republican U.S. senators for the state of Nevada. I hope a lot of you remember that. Well, one of them resigned, you know, didn't run anymore. The other guy got beat by Governor Bryan, so we got two democratic senators and the state (12.1) of Nevada don't have enough people like California so, they can't hurt them at the electoral voting time, so out of spite, Reagan got mad they didn't win, and so, they had the secretary say hey, let's take the planes out, we'll show them to replace our republicans, so we'll just move the stealth out or anything else they so desire, so this is what I'm trying to say, the planes leaving here are strictly political now, and I know this Air Force man can't do a lot about it. This is the truth and we all know it and we all need to acknowledge that. The planes were political. Further more, if we had two republican senators in this state, ain't no way the planes would have ever left. That's all I have to say. Thank you.

Colonel Morrison: Thank you Mr Hodges. Is there anyone else that wishes to make a statement for the record?

Patricia Estill: My name is Patricia Estill and I represent Nevada Business Services. We are a Job Training and Reemployment Agency who administer to the dislocated programs of southern of Nevada. My (12.2) question is, what kind of time wise you think you're looking at in moving the stealth? We are concerned in terms of the economic impact. We do serve the Tonopah area as well as the Las Vegas area and even though we are the best at employing, as far as a community, in the nation, we are well above the number of workers we project to service here. We understand that there are some plans as far as transferring funds from DOD to the Department of Labor in terms of (2.1) work and development being developed to help alleviate some of the training that is gonna be necessary, I'm just interested in what kind of time we are looking at in implementing your plan.

Colonel Morrison: I think it's 1992 it begins.

Captain Clark: April of 92 is when we begin if the decision is made to relocate.

Patricia Estill: Do you anticipate how long it will take to accomplish this move before the entire shut down?

Captain Clark: Six months is the estimate, right now.

Patricia Estill: And, I have one more question. Do you know, are there any plans for reusing the base at Tonopah at this time?

Colonel Morrison: I don't think there are any proposals under study right now.

Lt Colonel Temples: There are several proposals, none of which are (1.5) definite. I will confirm that there is no definite reuse planned at this time.

Patricia Estill: Thank you very much.

Colonel Morrison: Yes sir, if you would take the podium. The reason I ask you to do that is because the court reporter has to get this down.

Bob Belauric: My name is Bob Belauric out at Tonopah and I just happened to be here for a class and I didn't know you were going to be here. I have actually a two part question. You guys went through the breakdown on cost, I want to know number one, did you (1.1) take into consideration Key Airlines, I guess you know the contract was reduced into half from 64 to 32? My second part of the question is on this proposed Holloman move. Number one, has there been a new (12.2) contract assigned on the move? Is it gonna be civil service? Is there gonna be privileges given to those who were associated or affiliated with the program before? Is there gonna be any caretaker (1.5) status, if so, are there gonna be a number of people involved?

Colonel Morrison: Capt Clark can you answer any portion of those?

Capt Clark: Let me try to rephrase, the first question was about the cost savings. The cost savings did include Lockey Airlines cost at the time of the proposal. The GAO performed an exhausted study, reported to the Nevada delegation the worst subetantial cost savings whatever, the numbers may have differed a little bit. But they acknowledged that there were considerable savings in the same order of magnitude in which the Air Force has set. The second part, I think was a reduce of Tonopah, was it not? Whether these people at Tonopah were to get preferential treatment?

Bob Belauric: No, I was referring to the move to Holloman, had you assign the rumors of closing rumors, is there any information on (12.2) whether or not there is going to be a new contract assigned to people supporting the stealth program, you know, in or at least the squadron itself of is it going to be civil service like most bases are?

Capt Clark: It will remain civil service like most bases are.

Bob Belauric: And, if they are going to have an adequate crew in (12.3) order to support the squadron, are we gonna be given any of the people affiliated any information on that at all?

Capt Clark: I have no knowledge of that.

Colonel Morrison: The difficulty in answering this second question is it really isn't a part of the draft environmental impact statement so, we really don't have anybody with expertise here to really address that specific part of your question. Anybody else wants to make any statements before we adjourn the meeting?

Robert Jenson: I'm a private citizen and my name is Robert Jenson. I'm a resident of Las Vegas since 1939. I would like to ask one question. They moved the stealth in, nobody knew about it but now after they, the stealth come out in the opening, ah, why all of a sudden, we know that the gentleman, he said politics is the whole deal, we all know that, ah, the program was good enough here and the state was good enough while it was in secrecy but the minute it comes out from under the curtain then they want to move it. That's (12.2) the question, I would like to know why they waited so long?

Captain Clark: The reason the program was looked at to be moved was because it was--there had been enough information about the 417th being relieved and they no longer saw the need to keep it as a black program. The change in it from a black to a white program didn't make financial sense to incur all the added cost of leaving Tonopah to split the normal operation. We had lower operational cost and Holloman had available facilities to support the requirement of this program. It made economical sense to propose it to Holloman.

Robert Jenson: One other point, on the--before it come out, none of these agencies, officials, or politicians they weren't worried about the cost, all of a sudden they get cost conscious and we know the federal government waste billions. I work for the government, I know. They waste billions and all of a sudden, now what they're doing, they're just going to slaughter a little town whose trying to

survive. I don't live there, I go through there but I think it's terrible that politics and money--somebody is going to get rich on this move. That's what I want to know, why all of a sudden that is (1.7) good enough for the stealth, it's okay when it was secret but now it isn't good enough. That's all I have to say.

Colonel Morrison: Okay. Thank you Mr Jenson.

Anthony Hodges: May I say something one more time please? I'm a little fast, I'm not slowing down. Anthony O. Hodges, sir, I live in Tonopah, I like the little town.

As I've stated we are going to hurt real bad. As a matter of fact, it's gonna hurt the state, it's gonna affect the whole nation. During the second world war Tonopah held the B-24s, do you believe that, you know the little B-24, the model planes. That town had 20 some thousand people, B-24 bombing planes, can you believe that. Tonopah is a tough little town. It's been on its knees a lot but it has never been out, in fact Tonopah had the largest gold fields in (12.1) Nevada years ago. Gold fields help rebuild San Fransico's earth quake. These things I'm talking about is history, these things are soon to be forgotten and that's sad. The government don't have to move those planes, it's strictly political and I'll keep saying that forever, it's a known fact. Those planes are going political. Like the man said they were secret they stayed here, now they are out in the open and they are gone. Those planes need to stay here and I wish somebody would write President Bush and ask him to tell the secretary to take that place off the list because the planes should stay there. They deserve it. Thank you.

Colonel Morrison: Thank you Mr Hodges. Anyone else who would like to make an oral statement for the record?

Kimberly Kirwan: My name is Kimberly Kirwan and I'm representing (12.1) myself. I know you probably can't answer this. When are the tax payers gonna to stop having to pay out of our pockets because the government refuses to be fiscally responsible and stop wasting (1.8) money? If Holloman is good now why wasn't it there originally? You know, I understand secrecy, I also work for the government. But, we spend a lot of money constantly with military and with Dessert Storm we realize it was a worthy cause, but with moves like this, a lot of people are gonna be without jobs and they can't support their families and they are not even being considered to take up the (12.1) support problems. When is the government going to stop wasting money? Thank you.

Colonel Morrison: Anyone else wish to make a public statement?

(Negative response from the audience.)

Okay, again, the comment period for submitting any type of written comments or suggestions, whether you use the comment form you got tonight or just another sheet of paper, whatever you want to use. The deadline for submitting comments is 1 April 1991 and you do this by mailing this to the address shown on the slide. The Headquarters Tactical Fighter Air Command/DEVE, Attn: Captain Clark, Langley Air Force Base, Virginia. So, even if you haven't made any comments tonight, you still have a chance to do so, until the 1st of April. I thank all of you for taking the time from your busy schedules to attend this hearing tonight. I assure you that a verbatim record of everything said here this evening plus submitted by the 1st of April will be prepared and considered by the decision makers and will be in the form a part of the final environment impact statement. Thank you very much for coming this evening. Good night.

(The public hearing adjourned at 1945 hours, 13 March 1991.)

Table H.1-5 List of Speakers at Public Hearing in Alamogordo, New Mexico, 14 March 1991

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Table H.1-6 Transcript of Public Hearing in Alamogordo, New Mexico, 14 March 1991

IN RE: PUBLIC HEARING ON
PROPOSED RELOCATION OF THE 37th
TACTICAL FIGHTER WING and other
TACTICAL FORCE STRUCTURE ACTIONS
DEIS

TRANSCRIPT OF PROCEEDINGS

MARCH 14, 1991

BE IT REMEMBERED that the above matter came on to be heard at the Civic Center, 800 First Street, Alamogordo, March 14, 1991, commencing at 7:00 o'clock P.M. before COLONEL WADE MORRISON, HEARING OFFICER.

DAMA WIMBERLY
Court Reporter
[redacted] 434-1877

HEARING OFFICER: Good evening, Ladies and Gentlemen. It's gratifying to see a turnout by people who are interested in the proposed actions that may affect the citizens of this area.

On March 8, 1990, a scoping meeting was held here to identify important environmental issues that might be involved in the proposed relocation of the 37th Tactical Fighter Wing at Tonopah Test Range, to Holloman Air Force Base.

Subsequent to that, various studies were conducted regarding concerns relating to the proposed relocation, and Draft Environmental Impact Statement was prepared. The Air Force has now distributed this Draft Environmental Impact Statement, which addresses proposals to relocate the 37th Tactical Fighter Wing beginning in 1992.

The potential impacts identified in the Environmental Impact Statement for the Alamogordo area will be addressed in more detail tonight by Colonel Hester.

Should you wish to review the Draft environmental Impact Statement, copies are available at the public library. If you want your own copy, and you have not already received a copy of the Draft Environmental Impact statement, you may

make a specific request by writing to the address shown on the written comment form that you got when you entered the auditorium this evening.

Now, just why are we here this evening? The purpose of this public hearing is to solicit input from public agencies, private organizations, and the public at large on the Draft Environmental Impact Statement.

This hearing is being held in accordance with the requirements of the National Environmental Policy Act and the implementing federal regulations which require all Federal Agencies to carefully analyze potential environmental impacts of certain proposed actions, and to use those analyses in arriving at decisions or recommendations as to whether to proceed and how to proceed with a particular action.

I've been designated as the presiding officer for tonight's public hearing. My name is Colonel Wade Morrison; I'm an attorney and I serve as a full-time Military Circuit Court Judge, stationed at Randolph Air Force Base, in San Antonio, Texas.

I'm not assigned here to Holloman Air Force Base or any of the bases or commands under consideration for the relocation. I'm not here

as an expert on the Draft Environmental Impact Statement, nor have I had any connection with its preparation or development. I'm not here to act as a legal advisor to the Air Force Representatives who will address the proposal.

My purpose during this hearing is simply to ensure that we have a fair and orderly hearing and that all of you who wish to be heard tonight have a fair chance to speak.

Other members of the Air Force here tonight are Colonel Ira Hester, who is the Base Commander at Holloman Air Force Base, and he will discuss the Air Force proposal and will describe the environmental impact analysis process and the conclusions reported in the Draft Environmental Impact Statement.

To his left is Captain Dave Clark from the Environmental Analysis Division at Headquarters Tactical Air Command, Langley Air Force Base, Virginia. And Mr. Joe Yadouga who is the Chief of the Space Management Office of the 12th Air Force at Bergstrom Air Force Base, Texas.

We also have a court reporter this evening, Mrs. Wimberly, who will be taking down verbatim everything that's said tonight, and this will

become part of the final environmental impact statement, which in turn becomes a part of the Air Force Record of Decision. Now, she can only do her job properly if she can hear and understand all that you are saying, so those of you who will be making public comments tonight, if you will, please keep that in mind.

Now, let me say what this hearing is not. This isn't going to be a debate or a referendum or vote on the proposed action itself. Such things don't add anything to the written hearing record and simply waste your valuable time during this opportunity for personal input into the decision making process.

The focus of the hearing is on the environmental impacts associated with the proposals being studied by the Air Force, and comments on non-environmental issues should not be raised at this hearing.

What the hearing is intended to provide is a public forum for two-way communication about the Draft Environmental Impact Statement with a view towards improving the over-all decision making process. You will notice I said two-way communication. The first part of the hearing lets

the Air Force's most knowledgable people review the proposal and its details and the anticipated environmental impacts.

And the second part of the process is to give you an opportunity to provide the Air Force information and to make statements for the record. Your input ensures that the decision makers have the benefit of your knowledge of the local area, and any adverse environmental effects that you think might result from the proposed action.

Now, as you came into the auditorium this evening, you were provided with a comment form, and you were asked to indicate if you had any comments for tonight's hearing. When the briefing is finished, I will recognize members of the public for the purpose of making oral comments for the record.

If there's anybody in the audience who has not indicated on one of the comment forms that they would like to speak tonight, if you would raise your hand, I will give you a comment form.

For those of you who have not yet filled out a comment form, if you decide to speak during the public hearing, if you would fill out one of those and indicate that you want to speak, we'll call on you.

Our order of proceeding this evening, Colonel

Hester will give you a briefing on the proposed relocation action and on the environmental impact analysis process and the conclusions reported in the Draft Environmental Impact Statement.

Following his presentation, we will then proceed to the public input portion of the hearing. Elected officials will be given an opportunity to speak first, and they will be followed by the public at large whose names will be called randomly from the forms handed in.

Now, if you don't feel like standing up this evening and making a statement orally, you have until the 1st of April of this year to submit written comments and the written comment forms are provided at the entrance of the auditorium, to use in providing your comments.

The comment form has some space on it; if you need additional space you can write on the back or you can attach other pieces of paper to it. In fact, even if you make comments tonight, you have until the last of April to submit additional comments in writing to the address provided on the comment form.

Whether a statement is made verbally tonight or in writing prior to the 1st of April, each

statement will be given equal weight and consideration, so don't feel that you have to speak tonight if you would prefer to submit written comments.

I do want to make sure that all of you who wish to speak tonight have an equal opportunity to be heard, so if you would help me enforce some ground rules here, it will ensure that everybody who wants to talk, can.

First, speak only after you have been recognized and please address your remarks from the podium at the front center of the auditorium.

Please use the microphone. The court reporter is taking down everything you say, and if you use the microphone, everybody else in the auditorium will be able to hear everything you say. Start out with your name, for the record, and the capacity in which you appear.

For example, public official, designated representative of a group, or a private citizen, so our court reporter can do her job properly.

If you have questions, I would appreciate it if you would ask one question at a time, and we will allow a reasonable number of questions. Because we have a time limit tonight for each speaker, I would ask you to please prioritize your remarks,

so that the most important remarks are addressed first. Each person will be recognized for a maximum of five minutes; that includes public officials, designated spokespersons and private persons.

We have an individual seated here at the speaker's podium and he will act as our timekeeper this evening. At the four and a half minute mark, he will raise a yellow card which is an indication that you need to begin to sum up your remarks. And after five minutes, he will raise a red card, which indicates that your time is up.

Now, I would appreciate it if you would limit your remarks to five minutes so that everyone who wants to be heard this evening will have a chance to be heard.

Please be courteous and do not speak while someone else is speaking. Only one person will be recognized at a time.

And finally our host tonight has asked if you would kindly refrain from smoking in the auditorium. So I would appreciate your cooperation in adhering to all of these rules.

We'll call one name at a time and I'll do everything within my power to make sure that everyone who wants to be heard will be heard.

With regard to questions, it is possible that there will be questions that the Air Force Representatives are unable to answer and that might happen for two reasons. First, even though we do have a good deal of expertise assembled here tonight on the panel, the panelists will not attempt to answer questions unless they are confident that they can do so accurately. And second, there may be questions that you have that have National Security implications, and these must be reviewed further before answers are provided.

If this should occur and if the question is relevant, it will be addressed in the final document, which you may request a copy of.

One thing I would like to stress again, you may have information about environmental factors unknown to us. We are very interested in having and analyzing all potential environmental impacts from the proposed action.

You have the experience that comes from living in an area over a long period of time, so this second part of tonight's communication, the part that flows from you to us is an important part of the process. So don't hesitate to be a part of tonight's proceedings.

I would like to thank everyone who turned out tonight. Your presence here is commendable and your presence here reflects that you are interested about things in your community and your interest is the primary purpose for us being here this evening.

Now, it's my pleasure to introduce Colonel Hester who will brief you on the Air Force Proposal and the Draft Environmental Impact Statement. Colonel Hester.

COLONEL HESTER: Good evening, Ladies and Gentlemen:

My name is Colonel Ira Hester. I am the 833d Combat Support Group Commander at Holloman Air Force Base. Can everyone hear me all right? (No response.) I work directly for Brig Gen Travis Harrell, the Holloman Air Force Base Installation Commander. I am pleased to be with you tonight to discuss future actions affecting Holloman Air Force Base and the surrounding community.

For those of you who attended the public scoping meeting last March, you may remember that my predecessor, Col Bill Koelm, presided over that meeting. Since I have stepped into the middle of this Environmental Impact Statement Process, which we will call the "EIS" process tonight, I am not prepared to answer all of your

questions. However, there are several people here tonight who have been with this project from the start; and hopefully, with the combination of all of us, we can answer most of your questions. I am sure there are questions we cannot answer tonight, but if your questions are significant to the proposed action, they will be answered in the Final EIS.

Last March, we came here and hosted scoping meetings for the proposed relocation of the 37th Tactical Fighter Wing from Tonopah Test Range in Nevada to Holloman Air Force Base. Using the information we briefed then, and your input at that scoping meeting, we have prepared a Draft EIS. Many of you received a copy of that Draft in the mail. Tonight we have come to host a public hearing of that Draft. For the benefit of all, I would like to give you a brief review of the actions involved with the Proposed Relocation of the 37th Tactical Fighter Wing and other Tactical Support Structure Actions. After this, I will specifically address the Draft EIS we have prepared.

The Draft EIS looks at four alternatives with respect to the 37th. The first two alternatives discuss the environmental impacts of relocating the 37th to Holloman Air Force Base. The third alternative, entitled the Holloman-Nellis alternative, discusses the impacts of relocating the 37th to Nellis Air Force Base, Nevada. The fourth alternative is the no action alternative which would keep all operations

at their current locations.

The proposed relocation of the 37th from Tonopah Test Range to Holloman is one of several recommendations of the Defense Management Review Program aimed at improving overall operating efficiency. Cost savings associated with the relocation of the 37th from Tonopah to either Holloman or Nellis are estimated to be between $80 and $125 million dollars per year.

The 37th construction costs at Holloman are approximately $73 million less than at Nellis, due to existing facility availability associated with the reduction of the 479th Tactical Training Wing and the inactivation of the 49th Tactical Fighter Wing at Holloman. In addition,the Holloman facilities can be available one year earlier than at Nellis. The relocation expenses only partially offset the greater costs of relocating to Nellis. These advantages make Holloman Air Force Base the preferred location for the 37th Tactical Fighter Wing.

The inactivation of the 49th at Holloman is part of the overall reduction in tactical force structure throughout the Air Force. By inactivating the 49th, approximately 9.6 million dollars in relocation construction funds can be eliminated.

The German Air Force has stated their need to continue training beyond the proposed closing of George

Air Force Base, California. A new home is needed and Holloman Air Force Base possesses most of the facilities to support their mission. Approximately 1.2 million dollars in German Air Force construction funds will be supplied to provide the balance of the support facility requirements. The training mission of this unit makes contract maintenance of their aircraft feasible, since there is no mobility requirement.

In addition to the German Air Force, the notional, and I say notional means that the location has not been defined, F-4E aircraft have been included to assess the feasibility of bedding down an air-to-ground mission at Holloman to assist in future force structure decisions. An air-to-ground mission will require special-use air space and military training routes that terminate into existing bombing ranges. This alternative looks at modifying two existing military training routes to satisfy such a mission. The last alternative, the no action alternative, would leave the previously discussed units at their current locations, indefinitely, with a resultant loss of associated savings.

Under the National Environmental Policy Act and our Air Force regulations, we are preparing an EIS on the "Proposed Relocation of the 37th Tactical Fighter Wing and Other Tactical Force Structure Actions." We encourage involvement with the public and Government officials

throughout the environmental impact analysis process. Our public participation program for the EIS includes the following actions to solicit public involvement:

First, a Notice of Intent to prepare an EIS was published in the Federal Register on 9 February 1990. At the same time, various press releases were issued, and announcement letters were sent to all Federal, State and Local Government officials around Tonopah Test Range, Nellis and Holloman Air Force Base.

In March 90, we posted public scoping meetings in the area to determine the significant environmental issues. The issues raised were analyzed in the Draft EIS. The Draft EIS was filed with the United States Environmental Protection Agency on 8 February 91 and published in the Federal Register on 15 February 91.

Various press releases and announcement letters were again sent out. We are currently in the 45-day public comment period. The public hearings, like this one here tonight, will collect verbal comments and any written comments you wish to submit. The United States Air Force will then consider all relevant issues raised and provide responses in the Final EIS. I would like to point out that the transcript from tonight's hearing, along with any written statements submitted prior to 1 April 91, the cut off date, will be published in the Final EIS.

Should any document of an inordinate length be submitted, pertinent information from that document will be summarized in the Final EIS and the submitted document kept on file for reference. Our plan is to publish the Final EIS in May 91. The Final EIS will be filed with the Environmental Protection Agency, and once again news releases will be made and notification letters will be sent out.

At this time, I would like to address the findings contained in the Draft EIS as they pertain to Holloman Air Force Base and our surrounding community. The proposed actions are grouped into four alternatives in the Draft EIS and are as follows:

1. The 37th Tactical Fighter Wing/49th Tactical Fighter Wing Alternative.
2. The Holloman Alternative.
3. The Holloman-Nellis Alternative, and
4. The No Action alternative.

I will describe each of these.

Under the 37th/49th Alternative, the 37th would be relocated to Holloman and the 49th would be inactivated. The net effect of this alternative would be a decrease of 1,617 personnel at Holloman Air Force Base. This alternative is not expected to have significant impact on biophysical, cultural or socioeconomic resources in the vicinity of Holloman or on the ranges and underlying special-use air

space affected by this alternative. Significant beneficial noise impact is expected from the reduction of the amount of land contained within the 65 decibel contour in the approach area near Holloman.

Next, the Holloman Alternative is basically the same as the 37th and 49th Alternative, plus various F-4 units, to include the notional Tactical Reconnaissance Squadron, the Notional Suppression of Enemy Air Defense Unit, and the German Air Force F-4 unit that would be relocated to Holloman Air Force Base.

The net effect of this alternative would be an increase of 1,484 personnel at Holloman. With this alternative, no significant impact on air quality, and water resources in the vicinity of Holloman is anticipated. Even though there would be an increase in the occurrence of nighttime operations, in general there would be no substantial increase in the noise exposures to the surrounding communities.

The Holloman alternative would result in an increase in aircraft operations at Holloman, but no significant impacts are predicted on special-use air space. This alternative is projected to result in an 11 percent cumulative population increase in the Alamogordo area following the reduction in force of the 479th. Neither the housing market nor community services are expected to be adversely affected in the long term. The potential does exist for

adverse vibrational impact to the historical adobe buildings at White Sands National Monument headquarters. However, such impacts would be avoided with appropriate implementation of operational procedures. Impacts to the archaeological resources on the Red Rio and McGregor bombing ranges are possible but not likely, due to operational procedures. Other ranges are not expected to experience significant impacts to these resources, either because of negligible changes in air-to-ground mission activity or because of the absence of significant resources in the area.

Under the Holloman-Nellis alternative, the 49th would be inactivated at Holloman and the F-4 units would be relocated to Holloman. The 37th would be relocated to Nellis Air Force Base, near Las Vegas, Nevada. The specific actions at Holloman would be limited to those associated with the inactivation of the 49th and the relocation of the F-4 units to the base. The changes at Holloman under this alternative would result in a net decrease of 563 personnel. This alternative has no significant biophysical or socio-economic impacts at Holloman or in the associated special-use air space. Significant noise levels in areas underlying the affected military training routes could occur, however.

Under the No action alternative, all units would remain in their place at their present positions and relocate under previously approved proposals. This

alternative represents a continuation of existing conditions with no change to the biophysical and socioeconomic environments.

I have presented a brief summary of the alternatives evaluated in the Draft EIS. I would not like to turn the meeting back over to Colonel Wade Morrison. Thank you.

HEARING OFFICER: In a moment, we're going to move into the main purpose of the meeting, which is the public input period. I'd like to remind you of a couple of points, if you would please limit your comments to five minutes, so that everybody can be heard tonight. Also, please state your name clearly for the record before you make a statement.

If you have brought a prepared statement, you may turn it in, you may read it out loud, or you may do both. Just place any written statements on the court reporter's table here up front and she will make sure that any written comments or statements are included in the record of hearing.

As I pointed out before, equal consideration will be given to comments whether you speak tonight or provide written comments. If you turn in written comments or questions, I would ask that you please, also, write your name and your

complete address on it.

Again, the purpose of this hearing is to solicit input from public agencies, private organizations and the public at large on the Draft Environmental Impact Statement. The Air Force personnel gathered here tonight are not the decision makers on this published action. They have provided you information on the process and are prepared to respond to questions you may have on the project. However, we cannot enter into a debate on the pros and cons of the proposed action.

Also, remember that the purpose of this meeting is to solicit input on the Draft Environmental Impact Statement, so please limit your comments to the environmental issues associated with the proposals under consideration.

And to avoid repetition and to make sure that everybody has an opportunity to speak tonight, I would ask that we avoid repetitive statements. If you agree with the speaker that has preceded you, if you would simply indicate that for the record, that will speed things on.

The first speaker we have tonight is Mister, and I apologize if I butcher your name as I read

it, Mr. Don Manzanares. And he will be followed by Dorothy Conway.

MR. MANZANARES: Thank you. My name is Don Manzanares, I'm the field representative for Senator Pete Domenici's office in Las Cruces. I would like to read this prepared statement and to become part of the official record.

Good evening, Ladies and Gentlemen. I want to welcome all of you here tonight on this occasion that the Air Force has come to accept public comment in preparation for the completion of the Environmental Impact Statement on the proposed relocation of the 37th Tactical Fighter Wing and other tactical forces to Holloman Air Force Base.

I could not be here with you this evening because I am in Washington where we are working very hard to pass both the Department of Defense Authorization and Appropriations Supplemental bills to provide military personnel benefits for members of the Armed Forces performing services in Connection with Operation Desert Storm. While I could not be with you in person, I want the record to show (12.1) my continued unyielding support for the transfer of the F-117 to Holloman Air Force Base.

Perhaps there is no one in this room gathered here tonight who knows better of the long and often bumpy road we have traveled to get where we are today, than

the Air Force personnel who are accepting our comments tonight. This road began back on February 8, 1991 when the Air Force filed its Notice of Intent to prepare this EIS.

It was then we officially found out that the Air Force had planned to transfer the 37th Tactical Fighter Wing from Tonopah Air Force Base, Nevada, to Holloman Air Force Base, in New Mexico. Interestingly, this action was not associated with any base closure or realignment action at all.

Tonopah was never intended to be the permanent home for the fighter. Tonopah Air Force Base is for top secret programs only, and the F-117 stealth fighter program had been classified until recently. As a result of the program's declassification, the Air Force decided to plan a search for a permanent home for the 37th Tactical Fighter Wing.

The Air Force chose both Holloman Air Force Base in New Mexico, and Nellis Air Force Base in Nevada as potential homes for the 37th. They conducted an in-depth study on the merits of moving the wing to either of the two facilities, based on economic and operational criteria. Based on these criteria, the Air Force found that it was both economically and operationally more beneficial to move the wing to Holloman.

Several questions were raised about the

validity of the Air Force numbers, estimates and conclusions. The GAO was commissioned to do a study on the Air Force conclusions. On September 27th, we received a preliminary briefing from the GAO on its conclusions. While the Air Force and GAO figures differed slightly, the GAO was in agreement that there were substantial savings to be gained by the transfer of the F-117 to Holloman. The GAO found that 130 million dollar savings could be achieved by the transfer of the 37th Tactical Fighter Wing to Holloman.

As a result of these findings, and a great deal of effort that was put forth by myself and others to ensure that this process was not unnecessarily delayed, we were able to increase funding for the construction of the facilities necessary to beddown the 37th Tactical Fighter Wing at Holloman Air Force Base in New Mexico, by 25 million dollars.

This additional appropriation was intended to enable the Air Force to remain on schedule with the transfer of the F-117 stealth fighter from Tonopah to Holloman and also to ensure a significant amount of savings were achieved during the course of the move. It is my understanding that schedule remains on track.

Then on February 4, 1991, the Air Force informed us that they intended to deactivate the 49th Tactical Fighter Wing at Holloman, while at the same time,

move the German Air Force F-4 training function and its 18 F-4E aircraft to the base. Also, they amended the previously announced transfer of 111 AT-38 aircraft to now only transfer 81 of these aircraft.

While there was some concern raised about the effect this might have on the base, I was first to tell New Mexicans that the Air Force might be considering some other possible movement of aircraft and personnel in the near future.

On February 12, 1991, the Air Force confirmed what I had been telling New Mexicans when they released their Draft EIS which informed us that in addition to the force changes previously mentioned, the Air Force is considering moving a Notional Tactical Reconnaissance Squadron, and a Notional Suppression of Enemy Air Defense Squadron to Holloman.

This has become known to many of us as the Holloman Option. I want to make known my wholehearted support for the implementation of this option. In my view (13.1) this is the option that makes the most sense and will provide the Air Force with the best utilization of its resources.

I am encouraged by the preliminary findings of the Air Force in the Draft EIS and it is my sincere hope that when the Air Force finds that no significant environmental impact will occur at Holloman, and I believe that this is what

they will find, that they move to implement fully the Holloman Option.

Holloman has a unique and special relationship with the Air Force. The love affair between Air Force pilots and our open skies is one that will certainly continue for many years to come. I want to encourage all of you here tonight to express your thoughts and concerns to the Air Force officials who have gathered. I look forward to continuing to work with them here in Washington, to see that this transfer occurs as scheduled.

Once again, I want to thank you all for coming. I will continue to follow the development of this issue very closely as we work together to make this great opportunity a reality.

Thank you.

HEARING OFFICER: Thank you, Mr. Manzanares. Our next speaker will be Ms. Dorothy Conway, followed by Mr. Dan King.

MRS. CONWAY: I am Dorothy Conway, I am the District Representative of Congressman Joe Skeen. I have a statement from him that came today from Washington:

"Gentlemen:

I regret that I cannot be with you tonight as you discuss the relocation of the 37th Tactical Fighter

Wing at Holloman Air Force Base. I join in your pride for the unbelievable accomplishments of this stealth fighter in the Middle East. If not for the F-117's, our losses in planes and airmen would have been much higher and the war may have taken a completely different course. Alamogordo welcomes the 37th Tactical Fighter Wing to the Land of Enchantment.

As we celebrate the relocation of the stealth fighter to Holloman, we also regret the deactivation of the F-15 49th Tactical Fighter Wing. I have spoken with the Air Force to negotiate the coordination of the transfer and the deactivation so that the impact on Alamogordo is minimized.

In this vein, while serving as a member of the Military Construction Appropriations Committee, I was able to include language in the Supplemental Appropriations Bill mandating the end of the Military Construction moratorium on April 16. This will allow for a more timely transfer of the stealth fighter to compensate for the loss of the F-15's. With the support of the Alamogordo community, we will be able to continue our dialogue with the Air Force to mitigate any hardship.

Once again, know that I am certainly with you in spirit tonight, and I will continue to work with the Pentagon and other authorities to protect the economy of Alamogordo. My sincere welcome to the 37th.

(12.1)

With warmest personal regards, I am, Joe Skeen, Member of Congress."

HEARING OFFICER: Thank you, Mrs. Conway. Our next speaker will be Mr. Dan King, followed by Mr. Robert Ortiz.

MR. KING: I'm Dan King, Mayor of the City of Alamogordo. On behalf of the City, we are pleased that the Air Force has decided to locate the 37th Tac Fighter Wing at Holloman Air Force Base. However, we also deeply regret the loss of the men and women of the 49th, and the loss of the majority of the men and women of the 479th and their associated maintenance contractor, Dyncorp.

We welcome all those that will come to Holloman because we know that to us, the Air Force is not airplanes, the Air Force is not equipment, it's people, the men, women and children that become a vital part of our community. We know that those that move to Alamogordo will find Alamogordo a nice place to live and we certainly look forward to having them. We strongly encourage the Air Force to adopt the Holloman Alternative and bring not only the 37th Tac Fighter Wing, but the notational 72 F-4 to Holloman Air Force Base. Thank you.

(12.1)

HEARING OFFICER: Thank you, Mr. King. Our next speaker will be Mr. Robert Ortiz, followed by Mr. Charles Stockton.

MR. ORTIZ: Thank you. I'm Robert Ortiz, Chairman of the Otero County Commission. On behalf of Holloman Air Force Base and Otero County, I would like to express our full support for the relocation of the 37th Tactical Fighter Wing to Holloman. Historically, our relationship with the Air Force has been so closely intertwined that we directly affect each other and always in full support of Holloman's missions and goals.

Holloman's recent contribution to the Persian Gulf conflict was followed closely by all Otero Countians and we're extremely proud of their efforts, especially with a former Holloman Commander, Lieutenant General Charles Horner playing such a vital role.

We in Otero County are quite proud of the facilities and flying air space that are available at Holloman and designed specifically for military purposes. We welcome the 37th Stealth Tactical Fighter Wing and other new residents at Holloman, to Otero County, and are looking forward to many years of successful continued service with the Air Force and for our County.

(12.1)

Thank you.

HEARING OFFICER: Thank you, Mr. Ortiz. Our next speaker will be Mr. Charles Stockton, followed by Mr. Alan Austin.

MR. STOCKTON: My name is Charles Stockton,

Superintendent of Schools of the Alamogordo Public Schools. I would like to speak to you tonight regarding the impact that the statement has had on the movement of the different personnel at Holloman in regards to public schools.

Just recently, we have completed an addition to our high school. As a result of that, we feel that we can handle an influx of students up to a maximum of 1500 to 2,000 additional students to the community. We will have the facility open at the beginning of next year. Where we have housed our mid-high students, we can handle approximately 1,000 students. Our high school which we have just completed the addition to, we will have about 2,000 students there next year. That has been planned to house a maximum of 2500 students. (12.1)

At the present time, we have a base school that is closed, we can handle about 300 students out there.

So any of the options that are being considered in your EIS statement, can be handled by the Alamogordo Public Schools. This, I think, should give great comfort to those personnel in the Air Force that would be planning to move to Alamogordo, because it would not result in any overcrowded classrooms. We could handle those people as they come in without any additional problems.

The only negative impact that could possibly reach us is the fact of the timing of the movement of these

people to Alamogordo. Public schools in New Mexico are funded on a 40-day count. Our 40 days generally fall somewhere in the middle of October. If we receive a large number of students after the October 15th date, that means we would not receive state funding for those students. (7.7)

That would necessitate a need for some assistance from the Federal Government, or that would have a tremendously large negative impact on us, as far as funding for our public schools. (2.4)

For that reason, I would encourage the Air Force as they consider the move to Holloman, which we'd all support, to get the information to us as quickly as possible as far as the numbers of children involved in that move, and if possible to do some timing on that, to where that move occurs prior to October 15th of any year. Thank you. (12.1)

HEARING OFFICER: Thank you, Mr. Stockton. Our next speaker will be Alan Austin, followed by Mr. Jack Brown.

MR. AUSTIN: Thank you. Ladies and Gentlemen, my name is Alan Austin, I am the President of United New Mexico Bank in Otero and Lincoln Counties, and Chairman of the Alamogordo Committee of 50. I represent the Committee this evening.

First, I'd like to thank you for the opportunity to speak with you this evening, thank you for the

opportunity for input into your Final EIS.

The Committee of 50 and the Community of Alamogordo, as you have already heard, are very supportive of Air Force efforts. We regret very much the loss of the 479th and the 49th. The people in those facilities have been good friends to Alamogordo and Otero County and we will miss them in the years to come.

We also support very strongly the Holloman Alternative as stated in the EIS which would include the movement of the 37th Tactical Fighter Wing to Holloman Air Force Base, and the movement of the German F-4 Training Unit to Holloman Air Force Base and the additional notional F-4's to Holloman Air Force Base. (12.1)

We would heartily welcome them, and continue to support their efforts as we have the efforts of all units at Holloman in the past. We recognize the efforts that the Air Force has made to compress the time frame concerning the departure of the 479th and the 49th, against the arrival of the units that will be coming in.

We encourage, because Alamogordo and Otero County have already suffered some economic setback as a result of departures, that that time frame be compressed as much as possibly can be done. (12.1)

Again, we recognize the efforts that have already been put into that, and we stand ready to help in any

way possible to complete that process as quickly as possible.

We also encourage Secretary Chaney to lift the moratorium on construction so that there is ample time to prepare the physical plant for the incoming 37th Tactical Fighter Wing. Thank you. (12.1)

HEARING OFFICER: Thank you very much, Mr. Austin. Our next speaker will be Mr. Jack Brown, followed by Mr. Robert Vaughn.

MR. BROWN: Good evening. My name is Jack Brown, I was an INP mechanic for 18 years, but retired now to Alamogordo.

On the stealth fighter, I have a question. Unfortunately, I don't know too much about it mechanically, but from what I have read in the trade magazines and newspapers, it mostly flies at night. This is a large community of retired people, also. Is this a fact? I mean, will this thing fly at night, and if so, how much noise is it going to make? (12.3)

HEARING OFFICER: That's part of the Environmental Impact, and I'll turn that over to Colonel Hester.

COLONEL HESTER: Let us refer to the EIS specifically, you're absolutely right that there will be additional flying at night, but in the Environmental studies, we do not believe that there will be an increase in noise levels that

will affect the surrounding areas. The EIS states, in fact, and I agree, that we do not believe that there will be any increase in the noise levels here at Holloman because of the night flying.

MR. BROWN: We get practically no night flying as it is. How much more is it going to increase? (12.3)

COLONEL HESTER: That is something the EIS specifically addresses.

MR. BROWN: I have another question. We've lost a lot of civilian employment, with the fact of the closing of the 49th. Will many civilian employees be employed to work on the stealth? (12.3)

COLONEL HESTER: That's a DOD study; I cannot comment on that.

CAPTAIN CLARK: It's also addressed in the EIS, if you have a copy of it.

MR. BROWN: I don't have a copy of that, no.

CAPTAIN CLARK: We can provide you a copy.

HEARING OFFICER: One of the purposes of this public hearing is for you to voice your concerns, even if you don't get specific answers to your questions right away, it will be addressed in the final environmental impact statement, that you can

request a copy of.

Our next speaker will be Mr. Robert Vaughn.

MR. VAUGHN: Ladies and Gentlemen, Robert Vaughn, Owner and President and General Manager of KIMN FM and KZZX Radio, resident of Alamogordo since 1959. And I would like to say that I have seen Alamogordo without the Air Force at Holloman Air Force Base and with the Air Force at Holloman Air Force Base, and gentlemen, please, we'd rather have you here than anywhere else. Thank you very much. (12.1)

HEARING OFFICER: Thank you. That is the last form that I have that indicates somebody wanted to speak tonight. Does anybody else in the audience wish to make an oral statement for the record tonight? I guess not.

Again, the comment period for submitting any type of written comments or discussions, whether you use the comment form or not, is until 1 April 1991 and you do this by mailing your comments to the address listed on the comment form. So even if you haven't made any comments tonight, you still have a chance to do so, until the 1st of April.

I want to thank all of you tonight for taking part in this hearing, taking time from

your busy schedules to come down here tonight and attend this meeting. I assure you that a verbatim written transcript of everything said here this evening or submitted by the 1st of April, 1991, will be prepared and considered by the decision makers and will form a part of the final environmental impact statement.

Thank you again for coming down this evening. That's it.

(Whereupon, the meeting was adjourned at 8:00 o'clock P.M.)

STATE OF NEW MEXICO)
) ss
COUNTY OF OTERO)

I, DAMA WIMBERLY, hereby certify that I am a Certified Shorthand Reporter within and for the State of New Mexico; that the above and foregoing transcript is a transcript of the hearing taken at the Civic Center, Alamogordo, New Mexico, March 14, 1991 at 7:00 o'clock P.M., concerning the proposed relocation of the 37th Tactical Fighter Wing and other Tactical Force Structure Actions, DEIS, reported by me.

Dama Wimberly, Notary Public

My Commission Expires September 16, 1991

H.2 COMMENT DOCUMENTS

Comment documents received concerning the DEIS are provided on the following pages. Comment documents include those received from agencies as well as the general public. Documents have been given consecutive numbers, approximately in the order in which they were received. Table H.2-1 provides a list of respondents and identifies the number assigned to each respondents comment document. Issues identified in the comment documents have been assigned Issue Numbers in the same manner as issues identified in the transcript. Comment responses are provided in Appendix H.3.

Table H.2-1 List of Comment Document Respondents and Issue Numbers

Kathleen A. Hill	Document A
William J. Wells, NV	Document B
Trish Rippie, Trish Rippie Realty Inc.	Document C
Robert Ragar, Nye County School District	Document D
Robert Tamms, NV	Document E
Sandra Dulgar, Nevada Business Services	Document F
Frank S. Gentile, NV	Document G
A.R. Gomolak, State Archaeological Council, NV	Document H
Robert Ortiz, Otero County Commission, NM	Document I
Thomas Overstreet, S. Thomas Overstreet, P.C., NM	Document J
Sam Moseley, Regional Housing Commissioner, DHUD	Document K
Justin Ormsby, Rio Grande Council of Governments	Document L
Harry Reid, U.S. Senator, Nevada	Document M
Rita Gillum, NV	Document N
Warren Dastal, NV	Document O
Helen Barber, NM	Document P
Deanna M. Wieman, U.S.Environmental Protection Agency	Document Q
John B. Walker, Nevada State Clearinghouse	Document R
Kevin Von Finger, TX	Document S
Jim Fish, Public Lands Action Network, NM	Document T
Judith S. Bishop, NM	Document U
Barbara Raper, Nye County Commissioner	Document V
Robert Sorensen, Tonopah Town Manger	Document W

Table H.2-2 Comment Documents

DOCUMENT A

February 21, 1991

Captain David Clark
HQ TAC/DEEV
Langley Air Force Base, VA 23665-5542
Re: Relocation of the 37th Tactical Force
Captain David Clark,

My personal concerns about the proposed move of the Stealth Wing from the Tonopah Test Range are fears of an economical decline to our Town. We have depended on the Test Range for our stability for far too many years and have not developed any other sources for economic growth. This is, of course, our own error. We recently passed a $30 million school bond issue which will devastate our tax payers if the economy suffers any detrimental changes at all. (I voted no against the bond) I have recently purchased 30 acres from the BLM and could not manage the increase in property taxes if that were to happen.

I am sincerely aware of the importance of pursuing a strong Military and would not want to endanger our Defense structure by suggesting unreasonable demands to our Military. If you should decide to relocate the Stealth which I am certain you will, perhaps we could be advised by a member of your staff to help us create a more desirable industry atmosphere and climate for enticing businesses to relocate to our community. This would be of minimal cost to the government as we could provide rooms and meals. Thank you for your time and also a salute for the excellent defense of our beliefs and protection of our Country. The Stealth has really gained admiration from the public. We have been over-run with news media as you probably are aware of.

2.1

Sincerely,
Kathleen A. Hill

DOCUMENT B

Wm J. Wells, Owner
Twister Inn, Mobil Home Park
P. O. Box 2741
Stateline, Nv 89449

HQ TAC/DEVE
Attn: Captain Clark
Langley AFB, VA 23665-5542

March 11, 1991

Dear Captain Clark,

In response to an article in the Tonopah Times 3-7-91 asking for comments on the environmental impact of the relocation of the 37th Tactical Fighter Wing, I will relate the decimation of our Mobile Home and RV park.

We have catered to the employees supporting the test site. Since the announcement of the relocation our RV park has been empty as we no longer have contractors coming in on a monthly basis.

Five families, including our managers, have been laid off and moved from the area.

This has produced a decrease in income of approximately $2,000.00 each month, which is close to what we owe in debt service. Since our park is small, I would say your relocation impact is near a 50% loss annually.

7.8

Since the facility is a test site any news of new projects in the foreseeable future would probably lessen the bleakness felt in Tonopah.

Sincerely,
William J. Wells.
Owner

Trish Ripple Realty, Inc.

DOCUMENT C

March 12, 1991

Dr. Donald B. Rice
U.S. Secretary of the Air Force
The Pentagon, Room 4E871
Washington, D.C. 20334-1000

Dear Dr. Rice:

This is in response to the Environmental Impact Study which the Air Force recently released pertaining to moving the Stealth fighter from Tonopah. I think we all realize that there is no point in fighting the move. What we are concerned about is how we can mitigate the effects of such a move on our community.

2.1

Right now, our housing economy is as bad as I've ever seen. Our apartment projects are currently at 50% occupancy, and we have a lot of vacant single-family homes. The resale housing market is depressed now with homes selling for about 10% less than they were in 1990. And so far we've had no impact from the Stealth move.

Given our population size, if we lose another 500 families, the impact will be devastating. I can foresee mass foreclosures of apartment buildings, single family homes, mobile home parks and mobile homes.

Nearly all of our single-family homes are financed with government loans--either FHA or VA. In the event this scenario comes to pass, I would hope that those agencies would instruct lenders to accept deeds in lieu of foreclosure rather than foreclosing, and that deficiency judgements against the borrowers would not be pursued.

In reading the EIS report, I see that it has not been determined where the caretaker group will be based. The impact of a couple of hundred jobs in Las Vegas is not significant, however, in Tonopah it can mean the difference between survival and collapse of our economy. I strongly urge you to base them here. We have ample reasonably priced housing, so there is no need for them to be housed in "man camps" at taxpayer expense. By basing them here, you would also eliminate the high cost of transporting them up here from Las Vegas.

1.5

The people of Tonopah are proud to be associated with the Air Force and have tried to be good citizens. The Air Force has commended the people who work at TTR on keeping the Stealth secret. Now we ask that the Air Force try to help us out. If you can't tell us if there are any other projects slated for Tonopah, at least let us keep whatever we can from the Stealth.

Thank you for your consideration.

Sincerely,
Trish Ripple

P.O. Box 3360 • Tonopah, Nevada 89049-3360 • (702) 482-6062

DOCUMENT D

Nye County School District
Office of the County Superintendent
P.O. Box 113 · Phone 482-6236
Tonopah, Nevada 89049

March 12, 1991

Dr. Donald B. Rice
U.S. Secretary of Air Force
The Pentagon, Room 4E871
Washington, DC 20334-1000

ATTN: Office of Economic Adjustment
Office of the Secretary of Defense
ASD (Force Management and Personnel)

Dear Dr. Rice:

We have made an extensive evaluation of the Draft Environmental Impact Statement on the proposed relocation of the 37th Tactical Fighter Wing from the Tonopah Test Range to Holloman Air Force Base. Should this relocation actually occur and should the Tonopah Test Range not receive any comparable replacement assignments, our financial advisors have indicated the Nye County School District may expect the following financial impact on the district:

7.2

DISTRICT OPERATIONS

Property Tax

Loss in property tax revenues, assuming a drop in assessed value in the Tonopah area of 33%.

Assessed Value for 1991-92:	
Tonopah Area	$31,897,135.
	x .33
Estimated loss in value	$10,526,055.
Tax rate for District operations	x .0075
Estimated annual property tax loss	$ 78,945.
State Distribution Fund:	
Estimated loss of students	358
Basic support per pupil	$3,511.
Estimated loss in revenue	$1,256,938.

AN EQUAL OPPORTUNITY EMPLOYER

This employer does not knowingly discriminate on the basis of sex, age, race, creed, or national origin

Potential Expense Reduction Due to Loss of Students

Assuming a 15 to 1 student-ratio, 23 teaching positions would be lost (358 ÷ 15).

Assuming the average salary of $26,000 with benefits of 29% of wages, total compensation lost per teacher would be $33,540. The loss of 23 positions would be a cost reduction of $771,420.

A student-teacher ratio of 20 to 1 would result in teacher reductions of 18. The resulting reduction in expenses would be $603,720.

A projected ten support positions would also decrease at an average cost per position of $22,000. We are unable to provide any ratios or other data to support these ten positions. Information suggests up to 18 support personnel would no longer be required. Ten support personnel at $22,000 salary and 29% in benefits would result in a cost reduction of $283,800.

Instructional supplies and books would also be reduced. The current cost per pupil as budgeted by the District is $89. The resulting cost reduction would be $31,862 (358 x $89).

Without further study as to what grade levels and which school locations would be most affected by the reduction of students, building maintenance costs and other indirect costs cannot currently be determined.

SUMMARY OF EFFECTS TO OPERATING FUND

The following figures represent an assumed 20 to 1 student-teacher ratio.

Revenue Loss:

Property Tax	$ 78,945.
State Distribution Funds	1,256,938.
Impact Aid, P.L. 81-874	10,000.
	$1,345,883.

Expenditure Reductions:

Teacher compensation	$ 603,720.
Support	283,800.
Supplies/Books	31,862.
	$ 919,382.
Net Revenue Loss	$ 426,501.

BONDS/DEBT SERVICE

Property Taxes

The loss in property tax revenue that would be received to amortize outstanding school building bonds through the year 2010 would be determined as follows:

Decrease in assessed valuation in Tonopah	$10,526,054.
Tax rate for debt service fiscal year 1990-91	x .005335
	$ 56,157.

If the proposed sale of the April 1, 1991 bonds is completed, the required tax rate would increase to .6279. The annual loss of property tax revenue would be $66,093.09 ($10,526,054. x .006279).

These amounts would be required through the year 2011 to fully amortize the outstanding bonds.

There are no cost reductions related to the debt service of the bonds.

It is our contention that Nye County School District will suffer an annual loss to its revenues of approximately $492,594.09 through the year 2001.

(2.1) Therefore, we respectfully request compensation in the amount of $492,594., adjusted annually for inflation.

Sincerely,

Robert W. Ragar, Superintendent
Nye County School District

RWR/kp

Captain Clark
HQ TAC/DOVE
Langley A.F.B. Virginia
23665-5542

DOCUMENT E

Captain Clark

I saw the article about the proposed move of the 37th Tactical Fighter Wing from Morocco to New Mexico. I think this is wrong to do this. To ruin the people welfare in a small town that needs all of the help they can get. To uproot people and cause upheaval in their lives.

If you want to place a displacement of planes and people in New Mexico, why not make it a base for transport planes or Training fields since the F-110 "worthless" transport planes or Training fields since the F-110 "worthless"

I have seen before how many people have been miss-used because of moves like this. Towns waste away and the people from decay. Apartments, heating, apartments.

Do not take the outfit from it's home, rather do as suggested above. Add more people and planes to Tonopah and facilities for them, make the area a place that people and business can grow and thrive for years to come. Do not destroy lives. "Please"!

"over"

I am a retired air Force man from Nellis, the 3960th Comm Sq. as of 1966. Being single then and moving from one place to another was no thing. I expected it and in most cases welcomed it. Many married people however did not. Individuals moving from place to place is one thing, entire outfits are another.

(2.1) Please really the out come on areas and the people in them before you pull the plug on lines. Think about the "hard, real hard." How you would feel as a small business man depending for your livelyhood from the base or Comp near you, and having the rug pulled out from under you. Think about this. Please.

If you want to answer this letter, fine. If not, I hope you can and will understand it fully.

Respectfully
Mr. Robert C. Tamura
4344 Deckow Lane 1B
Las Vegas, Nevada 89109

DOCUMENT F

NEVADA BUSINESS SERVICES
A Human Resource and Job Training Service

DATE: March 12, 1991

TO: Dept. of the Air Force, Gary D. Vest. Deputy Assistant Secretary of the Air Force (Environment, Safety and Occupational Health)

FROM: Sandra Dulgar, Employment and Training Counselor Nevada Business Services - Tonopah Office

RE: DEIS for Proposed Relocation of the 37th Tactical Fighter Wing

I am here representing Nevada Business Services, the grant recipient and administrative entity for the employment and training programs under the Job Training Partnership Act (JTPA), in southern Nevada.

We are the entity responsible for the Dislocated Worker Program for the southern portion of Nevada, encompassing Clark, Nye, Esmeralda and Lincoln counties.

These four counties will all be negatively impacted by the re-location of the Stealth in several ways. I wish to draw your attention to one of the impacts as seen by my agency.

We are charged with providing assistance to workers who are out of work through no fault of their own; through such events as a plant closure or massive layoff, etc. It is our responsibility to provide re-location assistance and/or job retraining for these workers. We are given an annual budget to accomplish this charge. In the past three to six months we have seen this budget wiped out as the result of large layoffs in the resort industry and the mining industry in our area. (7.9)

According to your DEIS some 440 local people will be without jobs as a result of the relocation of the Stealth. This does not take into account those employees from the other three counties who will also be laid-off and therefore will also be entitled to

Nye/Esmeralda Counties Office: Southern Nevada Mail: P.O. Box 3280 • Tonopah, Nevada 89049 (702) 482-6888

DOCUMENT G

Appendix E
Proposed Relocation of the 37th TFW and
Other Tactical Force Structure Actions DEIS
Public Comment Form

Name: FRANK S. GENTILE Organization/Agency _____

Please check type of organization:

Federal Agency___; State Agency___; Local group___; Individual X

Mailing Address: 1301 Desert Eve Drive, Alamogordo, New Mexico 88310

Telephone: (505) 437-5140

Check here if you wish to speak today: ___

Check here if you would like a copy of the Final Environmental Impact Statement: ___ X (A complete address is required.)

If you prefer to provide a written comment than speak, please use the space below to provide a written comment. You may turn your comment in at the close of the meeting or send it to the address at the bottom of this sheet (post marked no latter than the last day of the comment period. Written comments may also be submitted in a letter or other format.

In light of the phase-down or inactivation of the 49th Tactical Fighter Wing, my concern lies in the hospital staffing as well as other peripheral support organizations during the interim of the 37th Tactical Fighter Wing being positioned at Holloman. When the 479th Tactical Training Wing was civilianized, an approximate 83 positions were lost at USAF Hospital. This ultimately had an impact on the retiree population in the area. I would appreciate knowing if a similar reduction will, in fact, occur during the inactivation of the 49th Tactical Fighter Wing. (1.8)

Mail to: HQ TAC/DEVE
Attn: Capt David Clark
Langley AFB VA 23665-5542

Frank S. Gentile
CMSgt, retired

DOCUMENT F (continued)

S. Dulgar, Nevada Business Service
Comment on the DEIS re: Relocation of the Stealth
Tonopah, Nevada March 12, 1991

assistance through our program and, as well, those out-of-work employees of other industries who will not receive dislocation assistance because our funds simply won't stretch that far.

It is therefore our request that increased funding for the Dislocated Worker Program be provided to Nevada Business Services in an amount sufficient to cover all additional costs to the program brought about as a result of this relocation of the 37th Tactical Fighter Wing. (2.1)

It is our further request that funding be provided to assist in economic development efforts to bring in businesses and industry to replace those jobs lost to all four counties in southern Nevada. (2.1)

I thank you for your time and attention.

Sandra L. Dulgar, Employment and Training Counselor
NEVADA BUSINESS SERVICES
Tonopah Office

DOCUMENT H

Appendix E
Proposed Relocation of the 37th TFW and
Other Tactical Force Structure Actions DEIS
Public Comment Form

Name: A.R. Gonzalez Organization/Agency New Mexico Archeological Council

Please check type of organization: State Professional Association

Federal Agency___; State Agency___; Local group___; Individual___

Mailing Address: PO Box 630, La Luz, NM 88337-0630

Telephone: _____

Check here if you wish to speak today: ___

Check here if you would like a copy of the Final Environmental Impact Statement: X (A complete address is required.)

If you prefer to provide a written comment than speak, please use the space below to provide a written comment. You may turn your comment in at the close of the meeting or send it to the address at the bottom of this sheet (post marked no latter than the last day of the comment period. Written comments may also be submitted in a letter or other format.

Because Holloman Air Force Base does not have an Historic Preservation Plan in place (as required by a 1984 DoD directive) the EIS must address inventory, potential significance, and nomination of potentially eligible cultural resources on an individual project basis. This should include consideration of mutilation of potentially eligible existing structures; preservation of eligible structures; and complete survey for and mitigation of effects to, prehistoric and historic remains in areas of new proposed land modification and construction. (10.1)

Mail to: HQ TAC/DEVE
Attn: Capt David Clark
Langley AFB VA 23665-5542

3/122

DOCUMENT I

State of New Mexico
County of Otero
Alamogordo, New Mexico 88311-1782

March 14, 1991

Captain David Clark
HQ TAC/DEVE
Langley Air Force Base, Virginia 23665

Dear Sir:

(12.1) On behalf of Holloman AFB and Otero County, New Mexico I would like to express our full support for the relocation of the 37 TFW to Holloman. Historically, our relationship with the Air Force has been so closely intertwined that we directly affect each other and always in full support of Holloman's missions and goals.

Holloman's recent contribution to the Persian Gulf conflict was closely followed by all Otero Countians and we're extremely proud of their efforts, especially with a former Holloman Commander, Lieutenant General Charles Horner playing such a vital role.

We in Otero County are quite proud of the facilities and flying airspace that are available at Holloman and designed specifically for military purposes. We welcome the 37th Stealth Tactical Fighter Wing and other new residents at Holloman to Otero County and are looking forward to many years of successful continued service with the Air Force and for our county.

Respectfully submitted,

Robert M. Ortiz
Chairman, Otero County Commission

RMO/vf

DOCUMENT J

S. Thomas Overstreet, P.C.
Law Corporation

(505) 437-6000

1011 New York Ave.
Alamogordo, N.M. 88310

March 18, 1991

Captain David Clark
HQ TAC/DEVE
Langley AFB, VA 23665-5562

Re: EIS/Holloman AFB, New Mexico Public Meeting

Dear Captain Clark:

(12.1) I was unable to attend the public hearing recently held in Alamogordo at the Alamogordo Civic Center on March 14, 1991 regarding the proposed transfer of the 37th TFW from Tonopah, Nevada to Holloman AFB. I do support that move and do not feel there would be any adverse effect upon this community. This community has been very supportive of Holloman and the Department of the Air Force and I would anticipate no problem on this transfer.

Sincerely,

S. Thomas Overstreet

STO:aa

DOCUMENT K

U. S. Department of Housing and Urban Development
Fort Worth Office, Region VI
1600 Throckmorton
P.O. Box 2905
Fort Worth, Texas 76113-2905

MAR 18 1991

Captain David Clark
Headquarters Tactical Air Command
Directorate Environmental Planning
Langley AFB, Virginia 22365-5542

Dear Captain Clark:

SUBJECT: Draft Environmental Impact Statement (DEIS)
Proposed Relocation of the 37th Tactical Fighter Wing and Other Tactical Force Structure Actions

The Draft EIS for the Proposed Relocation of the 37th/Tactical Fighter Wing and Other Tactical Force Structure Actions has been reviewed in the Regional Environmental Office of the Department of Housing and Urban Development (DHUD).

(12.1) It has been determined that the DHUD will not have comments on the Draft EIS, as the undertaking and its impacts do not fall within our particular areas of environmental concerns and/or programs.

We appreciate the opportunity to review the Draft EIS. If we can be of assistance relative to the above, please call Mr. Xavier Tinajero, Regional Environmental Specialist, at 817/885-5853.

Sincerely,

for Ian R. Moseley
Regional Administrator--
Regional Housing Commissioner

DOCUMENT L

RIO GRANDE COUNCIL OF GOVERNMENTS

March 19, 1991

Captain David Clark
Headquarters Tactical Air Command
Directorate Environmental Planning
Langley AFB, Virginia 22365-5542

RE: SAI.: TX-02-15-0003-08
Air Force 37th Tactical Fighter Wing (TFW)

Dear Captain Clark:

In accordance with Executive Order 12372, and the Texas Review and Comment System (TRACS), the above captioned project was reviewed by the Government Applications Review and Comment (GARC) Committee on Thursday, March 7, 1991, and the Board of Directors of the Rio Grande Council of Governments (RIOCOG) on Friday, March 15, 1991.

(12.1) After thorough consideration, favorable comment was given to the Environmental Impact Statement for the following reasons: (1) the project will relocate the 37th TFW from Nellis Air Force Base, Nevada, to Holloman Air Force Base, Alamogordo, NM; (2) the project will relocate the German Air Force F-4 Training program, transferring approximately 18 F-43 Phantom II Aircraft; (3) the project will provide a beneficial socioeconomic impact for Alamogordo, New Mexico, and (4) the project is consistent with local, regional, and state plans; and (5) the project does not duplicate existing services in the community.

If you have any questions, please do not hesitate to contact me.

Sincerely,

Justin R. Ormsby
Executive Director

JRO/PBG:sbc

cc: File
Daniel R. King, Chief Air Space Management

1014 North Stanton • Suite 100 • El Paso, Texas 79902 • (915) 533-0998 • FAX 915-533-0998

DOCUMENT M

HARRY REID
NEVADA

United States Senate

WASHINGTON, DC 20510-2803

March 20, 1991

Captain David Clark
HQ TAC/DEVE
Langley AFB, VA 23665-5542

Dear Captain Clark:

This letter constitutes MY formal comments on the draft Environmental Impact Statement (EIS) for the proposed relocation of the 37th Tactical Fighter Wing, dated February 5, 1991. My main objective is to address important issues raised by citizens at public hearings in Tonopah and Las Vegas on March 12 and 13.

The estimated cost savings resulting from relocating the 37th TFW to either Nellis or Holloman Air Force Bases (AFB) appear to be substantial. The draft EIS, however, does not fully account for certain impacts on the affected communities nor does it address possible mitigating actions for these impacts.

At the public hearings, numerous issues were voiced by concerned citizens but were not covered in the draft EIS. Some of these concerns were general while others were quite specific. The specific issues raised, especially those at Tonopah, all deal with relevant economic impacts which I believe should be addressed in the final EIS. These issues include:

2.1 1. The draft EIS discusses the $30 million school bond issue passed by Nye County but does not quantify the resulting financial impact on Tonopah and Nye County if the proposed relocation occurs. The Air Force should provide monetary assistance so the county can meet this significant obligation.

7.9 2. The draft EIS does not address the adequacy of job assistance and relocation resources for workers who would be displaced by the proposed relocation. These services are provided under the Job Training Partnership Act and are available to employees at the Tonopah Test Range as well as employees of local businesses.

7.5 3. The draft EIS does not provide specific detail on the proposed relocation's impact on local businesses. These impacts include substantial effects on small retail firms in Tonopah as a result of lost business and ability to amortize outstanding loan commitments, including SBA loans.

DOCUMENT M (continued)

Page 2

7.6 4. The draft EIS does not describe the potential effects of the proposed relocation on local financial institutions in Tonopah. The potential for loan defaults could have a serious impact on these banks.

The concerns discussed above are only a few of the issues raised at the public hearings. Many other concerns raised are now a matter of public record and must be treated appropriately in the final EIS. In addition, specific mitigating measures for 2.1 these impacts must be discussed and implemented if the proposed relocation is carried out. These include the provision of economic readjustment assistance to the maximum extent authorized, financial assistance to broaden Nye County's economic base, and consideration of potential future uses for the Tonopah Test Range facilities.

The last issue is of particular concern because of the taxpayers' $370 million investment in the Tonopah Test Range facilities. Until an alternate use is found for these facilities, 1.5 the proposed caretaker arrangements are vital. The staff retained for this purpose should be located in the Tonopah area to improve eificiency and mitigate adverse impacts on the community.

The issues I have raised above are crucial to the people of Nevada and to the country as a whole. Nevadans recognize the need for base consolidation actions which are essential to reduce our deficit. The military must, on the other hand, fully recognize the effects that such actions have on our state.

The issues raised above and in the two public hearings should be fully addressed in the final EIS. If you have any questions on these issues please contact my office directly.

Sincerely,

HARRY REID
United States Senator

HRR:raw

DOCUMENT N

P.O. Box 3
Goldfield, NV 89013
March 23, 1991

HQ TAC/DEVE
Langley AFB, VA

Dear Capt Clark.

Just read the article in the Tonopah paper. Moving the units to Holloman or anywhere would affect myself and my family tho. R.J. and I and all our 7 children moved to Nevada in 1956 and to Goldfield in 1981. R.J. had previously worked at the TTR for a few years, also son Dan, both as heavy duty repairmen. Neither is employed there now but I am. I am a head custodian working at the base camp for REECO for the past 22 months. 12.1

During the past 10 years here life has had its ups and downs. I personally am not very pleased with the easy availability of gambling everywhere but like a good wife followed the husband to make the best of the situation.

My oldest daughter moved to Sacramento, but the rest of my children live here in Nevada. 1 daughter goes to UNLV. Three remaining in Tonopah high school. Michelle will graduate at the top of the class in May 91. There has been negative remarks about THS but all my children have done well. So far all have graduated from there. Like anything else in life, school can be what you want it to be.

Having the stretch based on the TTR has been good for my family. I believe if you have a good strong family unit that Tonopah or Goldfield is a good place to live, but you must love the desert, part of Gods creations.

We don't have K'Mart, McDonalds or Taco Bell and this no place for the weak at heart. If one can survive at here you will never want to leave.

Thank you for taking the time to read my remarks

Sincerely,
Mrs. Rita Gillum

DOCUMENT N (continued)

Rita G. Illum
P.O. Box 3
Goldfield, NV 89013

HQ TAC/DEVE
Attn: Capt. Clark
Langley AFB, VA
23665-5542

DOCUMENT O

153 Emden Drive
Henderson, Nevada
March 25, 1991

Attn Capt. Clark
HQ TAC/DEVE
Langley AFB, VA 23665-5542

Dear Sir:

I protest the Stealth fighter wing being moved from Nevada to New Mexico.

I own a house in Tonopah. If the Air Force moves out, it will be impossible to rent out my house. That means I will not be able to make my mortgage payments & will lose the house, which my father left me in his will. I am not financially able to do this. I previously worked at the range, since I lost that job I unsuccessfully tried to sell my house. I also worked to rent it out. Now the Air Force is trying to make a third extortion move. It will wipe me out financially and destroy my credit.

(2.1) If the Air Force insists on moving out, I believe the homeowners should be compensated. It should be part of the cost of moving the wing. Otherwise, it will cause great economic hardship to me and many others.

(over)

DOCUMENT O (continued)

I don't believe the Air Force is in the business of erecting ghost towns and destroying individuals financially. Let's keep the Stealth wing in Tonopah.

Sincerely,
Warren Dostal

Warren Dostal
153 Emden Drive
Henderson NV 89015

PM
APR 1991
89

HQ TAC/DEVE
Langley AFB VA
23665-5542

ATTN: Capt Clark

DOCUMENT O

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, Ca. 94105

MAR 29 1991

Captain David Clark
Headquarters Tactical Air Command
Directorate Environmental Planning
U.S. Air Force
Langley Air Force Base, Virginia 22365-5542

Dear Captain Clark:

The U.S. Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement (DEIS) titled PROPOSED RELOCATION OF THE 37TH TACTICAL FIGHTER WING AND OTHER TACTICAL FORCE STRUCTURE ACTIONS, Nevada, New Mexico and California. Our comments are provided pursuant to the National Environmental Policy Act, Section 309 of the Clean Air Act, and the Council on Environmental Quality's Regulations for Implementing NEPA (40 CFR 1500-1508). Our detailed comments are enclosed.

The DEIS assesses the impacts of the proposed relocation of the 37th Tactical Fighter Wing (TFW) and F-4 units in conjunction with the inactivation of the 49th TFW. The DEIS assesses specific impacts to the Tonopah Test Range and Nellis Air Force Base (AFB) in Nevada and Holloman AFB in New Mexico. Proposed relocation actions include the transfer of U.S. F-117A Stealth Fighters and other aircraft as well as relocation of German Air Force F-4Fs from George AFB, California. New construction and/or modifications that will be needed in Fiscal Years 1991 and 1992 include fuel tank storage areas, aircraft maintenance docks and hangars, utilities (electrical, natural gas, communications, water), runways, aprons, munitions storage areas, weapons shops, bomb assembly facilities, and structural and avionics shops.

We have rated this DEIS as Category EC-2, Environmental Concerns - Insufficient Information (please see Enclosure 2, "Summary of Rating Definitions and Follow-up Actions"). We have environmental concerns because the total air emissions from the proposed project (which were not quantified in the DEIS) may have adverse impacts on Clark County's air quality and on efforts to comply with Federal air quality standards. It is unclear whether the project's total emissions may delay efforts to meet Federal air quality standards, which is especially important due to the nonattainment status of Clark County with the National Ambient Air Quality Standards (NAAQS) for carbon monoxide and particulates. We have rated the DEIS as a "2" because there is insufficient information to accurately assess the proposed

(4.1)

DOCUMENT P

28 March 1991

Telcon with Helen Barber of Las Cruces NM 88003.

Subject: Proposed Relocation of the 37 TFW and Other Tactical Force Structure Actions Draft EIS

(12.1) Avoid flyover of Endangered Species habitat affecting peregrine falcon, spotted owl and bighorn sheep.

Captain Cassidy for Captain Clark

MAR 29 1991

project's compliance with the Clean Air Act, including "conformity" under Section 176. The FEIS needs to more fully document the project's total air emissions, whether such emissions would aggravate existing air quality violations or cause new air quality violations, and discuss appropriate air quality mitigation to ensure conformity with the Clean Air Act. (4.1)

The FEIS should contain more detailed information on known or suspected sources of hazardous substances contamination at the facilities and how the proposed project may affect the Air Force's ongoing environmental restoration efforts. We also request that the FEIS contain more information on hazardous waste minimization, solid waste recycling, and drinking water quality. Finally, we request that the Air Force document coordination with the U.S. Fish and Wildlife Service regarding project impacts to threatened and endangered species. (11.1) (11.2) (11.3) (9.1) (8.1)

We appreciate the opportunity to comment on this DEIS. We will soon contact your office to discuss this letter and how the Air Force will respond to it. Please send us two copies of the Final Environmental Impact Statement (FEIS) when it is officially filed with the EPA's Washington, D.C. office. If you have any questions, please call me at 415-744-1566 or have your staff contact Mr. David Tomsovic at 415-744-1569.

Sincerely,

Jacqueline E. Gwynn for
Deanna M. Wieman, Director
Office of External Affairs

Enclosures: 5 (EIS comments; EIS rating sheet; drinking water information)

cc: Phil Lammi, AFRCE, San Francisco
Bill Cox, AFRCE, Dallas
John B. Walker, Nevada State Clearinghouse, Carson City
Gedi Cibas, New Mexico Environment Department, Santa Fe
Carl Townsend, EPA Region 6, Dallas

-2-

MAR 29 1991

The air quality impacts associated with the Holloman Alternative (a maximum +2,316 additional personnel) similarly warrant further examination in the FEIS to determine whether project-related emissions will cause or contribute to any new violation of any Federal air quality standard.

3. Mitigation. We did not find any discussion regarding mitigation to offset potential air quality impacts. In light of the CAA's goals and objectives, we recommend that the FEIS discuss possible mitigation to protect air quality from all projected actions, including aircraft operations, fueling operations, construction, and the vehicle miles traveled by personnel and their dependents. We encourage the Air Force to coordinate its planning efforts with State and local air pollution control agencies. As the Council on Environmental Quality noted,

> "All relevant, reasonable mitigation measures that could improve the project are to be identified, even if they are outside the jurisdiction of the lead agency or the cooperating agencies, and thus would not be committed as part of the RODs [Records of Decision] of those agencies...Because the EIS is the most comprehensive environmental document, it is an ideal vehicle in which to lay out not only the full range of environmental impacts but also the full spectrum of appropriate mitigation."

(Question #19b, Questions and Answers About the NEPA Regulations, Council on Environmental Quality, March 16, 1981).

Air quality mitigation which the Air Force might consider includes the following:

a) Reducing or eliminating adverse air quality impacts during construction (dust control measures),

b) Reducing emissions from aircraft and ground vehicles (regulating the use of aircraft engines on the ground, controlling emissions from fueling operations, vapor recovery, and using electric vehicles and clean fuels),

c) Encouraging trip reduction efforts by personnel and their dependents (a centralized car/van pooling effort, preferential parking for carpools/vanpools, and alternative/flexible work schedules for civilian employees). We recommend coordination with public transit agencies to reduce the need for private vehicle use.

4. Commitments. The FEIS and Record of Decision should contain a commitment that the Air Force will ensure the project's air quality conformity, including appropriate mitigation to protect air quality, and coordination with EPA and air pollution control agencies.

-2-

EPA Comments on Proposed Relocation of the 37th Tactical Fighter Wing and Other Tactical Force Structure Actions - Draft Environmental Impact Statement - U.S. Air Force.

MAR 29 1991

AIR QUALITY

1. Emissions. The DEIS (Table F-1) identifies emissions rates for the F-117A Stealth Fighter for carbon monoxide (CO), total hydrocarbons (THC), nitrogen oxide (NOx), sulfur dioxide (SO2) and particulate matter (PM). However, we did not see any discussion regarding the total projected emissions from planes or cumulative emissions from all project features (including construction emissions, emissions from aircraft and ground vehicles, emissions from fueling activities, and projected vehicle travel by personnel and their dependents).

For each alternative, the FEIS should identify the total projected emissions for carbon monoxide, particulates (PM10), and ozone precursors (oxides of nitrogen and hydrocarbons). The FEIS should discuss how project-related emissions may contribute to regional ozone levels. The FEIS should note that air pollution is a serious health problem and that the National Ambient Air Quality Standards (NAAQS) for particulates, carbon monoxide and ozone are designed to protect public health and the environment. Violations of air quality standards indicate a serious threat to public health and the environment.

2. Conformity. The FEIS should recognize that major amendments to the Federal Clean Air Act (CAA) were enacted into law in 1990. The amendments define "conformity" for Federal projects under Section 176: the Federal project must not (i) "cause or contribute to any new violation of any [Federal air quality] standard" or (ii) "increase the frequency or severity of any existing violation of any [Federal air quality] standard" or (iii) "delay timely attainment of any [Federal air quality] standard or any required interim emission reductions or other milestones." For each alternative, the FEIS must demonstrate that the proposed project is fully consistent with these stringent requirements. The FEIS should include documentation regarding Section 176 conformity from the appropriate regional planning organization (e.g., associations of governments).

The DEIS (pages 3-74 and 3-75) states that, "The air quality in the Las Vegas region has historically been in violation of NAAQS. The Las Vegas area is designated as nonattainment for CO and particulates...Nellis Air Force Base is located within this nonattainment area." The DEIS (page 4-75) further states, "The relocation of the 37th TFW to Nellis AFB would affect air quality in Clark County, Nevada." The relocation of the 37th TFW to Nellis Air Force Base (AFB) should be closely examined to determine the consistency of the proposed action with Section 176.

-1-

MAR 29 1991

HAZARDOUS SUBSTANCES CONTAMINATION

1. Contamination. The DEIS notes (pages 3-72 and 3-100) that Holloman AFB and Nellis AFB generate a variety of hazardous wastes and that these facilities manage their wastes under Department of Defense Directive 5100.50 and the base Installation Restoration Program.

We are concerned that the DEIS did not discuss in any detail the nature, location and extent of hazardous substances contamination at the facilities. As a public disclosure document, we believe that the FEIS should contain greater information on such contamination, the Air Force's efforts to identify and correct such problems, and whether the proposed project may affect environmental restoration efforts. All sites proposed for relocation actions must be evaluated to determine if hazardous substances are present. The FEIS should discuss how the Air Force plans to determine if additional investigation and/or environmental restoration is required prior to any irretrievable commitment of resources for the proposed project (e.g., new construction and/or modification of existing facilities). We recommend you consider including in the FEIS tables identifying the types of hazardous substances contamination, maps depicting the location of known or suspected contamination sites, and discussions of the base's efforts to remedy contamination.

For example, the main base at Nellis (as opposed to the small arms range and the Air Force Auxiliary Field) has several sites that appear to warrant further investigation and/or restoration work. According to the Installation Restoration Program Remedial Investigation Report, Volume I (Omaha District, Missouri River Division, U.S. Army Corps of Engineers, January 1989, prepared by James M. Montgomery Consulting Engineers, Inc.), several sites at Nellis were recommended for additional site characterization. They were Sites #1 (main base landfill), #17 (sewage treatment plant), #24 (sludge disposal area), #2 (landfill), #19 (abandoned fire training area), #27 (facility 1014 waste pol tank leak) and #28 (JP-4 jet fuel spill area). Sites 1, 17 and 24 are considered a single area because of their close proximity.

Hazardous substances contamination at Holloman AFB should be similarly discussed in the FEIS.

2. Commitments. The FEIS and Record of Decision should contain a commitment that future relocation actions would be fully consistent with Federal law, including the National Contingency Plan. The ROD should contain a commitment that the Air Force will work closely with the EPA, appropriate State agencies, and local health/environmental agencies to ensure that the project does not conflict with Federal/State environmental restoration requirements.

-1-

DOCUMENT O (continued)

MAR 2 5 1991

HAZARDOUS WASTE/SOLID WASTE

1. Hazardous Waste Minimization. The DEIS states that a variety of base activities generate hazardous waste, including the maintenance of aircraft and vehicles and work at electronic shops and weapons shops. Identified wastes (DEIS, page 3-73) include paint chips, waste paints, paint thinners, spent strippers, spent solvents, methyl ethyl ketone, safety Kleen, acetone, naptha, degreasers, emulsifying agents, synthetic oils and hydrochloric acid.

However, we did not see any discussion regarding the need to reduce the amount of hazardous waste requiring treatment, storage or disposal, as required by the 1984 amendments to the Federal Resource Conservation and Recovery Act ("waste minimization"). We strongly encourage the Air Force to make hazardous waste minimization an integral component of the proposed project. A variety of methods may be used to minimize hazardous waste, including the following:

a) Source separation (segregation) to keep hazardous waste from contaminating nonhazardous waste through management practices that prevent the wastes from coming into contact. This is often a cost-effective way to reduce the volume of hazardous waste.

b) Recycling (recovery and reuse) to remove a substance from a waste and return it to productive use. Solvents, acids and metals are commonly recycled by generators.

c) Manufacturing process changes such as the elimination of an inefficient or outdated process that produces a hazardous waste or modifying a process so it no longer produces hazardous waste.

d) Substitution of products to eliminate hazardous materials.

The FEIS and Record of Decision should contain a commitment to adopt hazardous waste minimization as a mitigation measure.

2. Recycling. We encourage the Air Force to vigorously pursue a program to recycle solid wastes, especially paper, glass, plastics and aluminum cans. This will help to maximize the useful life of landfills, reduce the need for raw materials and conserve natural resources.

SAFE DRINKING WATER ACT

The DEIS (pages 3-58 and 3-59) notes that the City of Alamogordo receives its water from four separate sources: the Alamo Canyon System, the La Luz-Fresnal System, the Bonito Lake System, and six wells. The DEIS notes that these wells are used in the summer when Alamogordo is unable to meet its water needs using the other three systems. The DEIS notes that these wells have "poor water quality."

-4-

Environmental Impact of the Action DOCUMENT O (continued)

LO—Lack of Objections
The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC—Environmental Concerns
The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

EO—Environmental Objections
The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU—Environmentally Unsatisfactory
The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of environmental quality, public health or welfare. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1—Adequate
EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2—Insufficient Information
The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3—Inadequate
EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, "Policy and Procedures for the Review of Federal Actions Impacting the Environment."

In effect since October 1984

DOCUMENT O (continued)

We recommend that the FEIS more fully discuss the quality of drinking water supplies for the alternatives under consideration. The FEIS should define what "poor quality" means: is it unhealthy or only tastes or smells bad or is cloudy. The FEIS should discuss whether the drinking water supplies meet all Federal standards. If the drinking water supplies do not meet Federal standards, appropriate mitigation should be implemented by the Air Force, such as providing on-site treatment to ensure compliance with drinking water standards. If the drinking water does not meet drinking water standards, the FEIS should discuss public health implications.

On January 30, 1991 EPA issued a final rule that promulgated maximum contaminant level goals and National Primary Drinking Water Regulations for 26 synthetic organic chemicals and seven inorganic chemicals. The regulations addressed 17 pesticides and 13 probable carcinogens and nearly doubled the number of pollutants subject to Federal drinking water standards. All sections of the final rule take effect on July 30, 1992.

For your reference, we have enclosed three EPA documents: a) the Final Rule on National Primary Drinking Water Regulations, 40 CFR Parts 141, 142, and 143, January 30, 1991; b) Fact Sheet on Drinking Water Regulations under the Safe Drinking Water Act, December 1990; and c) January 7, 1991 EPA press release, "EPA Regulates New Group of Drinking Water Contaminants." You indicated to Mr. Tomsovic of my staff that you would appreciate a copy of these.

THREATENED AND ENDANGERED SPECIES

We recommend that the FEIS contain the formal findings from the U.S. Fish and Wildlife Service on the proposed project's impacts to Federally-listed threatened and endangered species and their critical habitat. As the DEIS notes, a number of such species live in the project areas.

-5-

DOCUMENT R

GOB MILLER
Acting Governor

STATE OF NEVADA

JUDY GAETHGENS
Director

DEPARTMENT OF ADMINISTRATION
Capitol Complex
Carson City, Nevada 89710
(702) 885-4065

April 1, 1991

Captain David Clark
HQ TAC/DEVE
Langley AFB, VA 23665-5542

Re: State of Nevada's Comments on the Draft Environmental Impact Statement (EIS), for the Proposed Relocation of the 37th Tactical Fighter Wing (TFW) from the Tonopah Test Range (TTR) to Holloman AFB New Mexico

Dear Captain Clark:

Overall, we were pleased to find an analysis of alternatives in the Draft EIS for relocating the Stealth Fighter Wing, although we were puzzled to discover the Air Force has yet to select a preferred alternative. We would expect to see an analysis in the Final EIS of how the Air Force chose its alternative for moving the fighter wing.

We would like to commend the Air Force for analyzing in the Draft EIS the cumulative effects of recent cutbacks in mining operations at the Candaleria and the Cyprus mines. Unquestionably, the decline in mining has weakened Tonopah's local economy which in turn has complicated the question of moving the Stealth Fighter Wing.

(1.5) The state recognizes that no specific plans are divulged in the Draft EIS for the potential reuse of the Tonopah Test Range (TTR). We also acknowledge that the Record of Decision will not address the reuse issue. However, it's believed the Air Force will continue to use the TTR facility as an isolated training area for testing clandestine weapon systems.

The Nellis range complex has been touted as one of the most sophisticated DoD areas for providing secure training and testing activities. It is also known that the Pentagon maintains a "black budget" to support research and development activities for secret weapon systems and, in rural Nevada, it's common knowledge that the remote TTR facility is used as a testing area for secret weapons.

As mentioned in the Draft EIS and for the period 1981 through 1989, an estimated $370 million was invested by DOD in construction projects at the TTR facility. This is in addition to an estimated $15 million spent annually in Nye County from payrolls and procurement contracts generated at TTR.

(1.10) Accordingly, the state's critical concern is not the reuse of the TTR, but rather the potential time lag between the relocation of the Stealth Fighter Wing and the eventual establishment of a new defense program at the remote TTR facility. If the time lag is significant, then the worst case scenario, as described in the Draft EIS, would be a tragedy for the community of Tonopah. The worst case suggests a potential reduction in employment of 20 percent which could result in a 31 percent loss in population. We would argue such reductions would not be in the best (long-term) interest of Nye County, the State of Nevada nor, for that matter, the Air Force. After all, the people of Tonopah have maintained an integral community structure which has directly benefited operations at the TTR facility.

(2.1) On the issue of adequacy, we found the Draft EIS devoid of any discussion about mitigating the social and economic impacts on Tonopah due to moving the Stealth Fighter Wing. This oversight is clearly not in accord with the intent of the National Environmental Policy Act nor the Council of Environmental Quality's regulations stipulated under 40 CFR Parts 1502.14f, 1502.16b(1987), 1502.16h and 1508.20e. The understanding that an EIS includes a discussion of possible actions to mitigate adverse impacts resulting from a major federal action is an intrinsic part of NEPA, and this understanding was recently upheld in the U.S. Supreme Court decision of Robertson versus the Methow Valley Citizens Council. In the Court's decision, Justice Brennan said that "one important ingredient of an EIS is the discussion of steps that can be taken to mitigate adverse environmental consequences." Since mitigation was not discussed in the Draft EIS, we expect to see a full discussion of mitigation in either a supplemental draft EIS or in the Final EIS.

The discussion on mitigation must address the potential impacts on Tonopah from decreased activity at the TTR facility. Moreover, a mitigation plan should be developed that focuses on appraising existing education, health and safety functions to determine "minimal service levels" necessary to maintain the basic integrity of community services in Tonopah. Once these "levels" have been defined, then an ongoing monitoring program should be developed to determine if and when these minimum service levels are breached. Local officials would then be in a position to seek various funding alternatives to safeguard vital community services. We make these suggestions under the assumption that DoD will not leave the TTR facility in caretaker status for a significant period of time.

Please note that the State of Nevada, through its executive branch agencies, would welcome the opportunity to participate in mitigating the off-site effects on the community of Tonopah that might result from the relocation of the Stealth Fighter Wing.

Sincerely,

John B. Walker, Coordinator
State Clearinghouse

\jbw
Attachments

cc: Brian Harris, Governors Office
Nevada Congressional Delegation
Nye County, Steve Bradhurst
James Williams, PIC
Leo Penne, Nevada Washington Office
Sarah Mersereau, Economic Development
Gary Vest, DoD, Pentagon
OEA, Washington D.C

DOCUMENT S

March 28, 1991

4117 La Adelita

El Paso, Texas 79922

The following comments are submitted in response to the Draft Environmental Impact Statement, Proposed Relocation of the 37th Tactical Fighter Wing and Other Tactical Force Structure Actions. Thank you.

Kevin von Finger

Ecologist

(8.1) 1. Will airspace use (sortie number) increase within any Ft Bliss airspace for any of the alternatives? Will night flights increase for this airspace for any of the alternatives? If yes to either, request discussion of impacts to wildlife on Ft. Bliss.

(1.4) 2. Why is statement, Page 2-12, paragraph 2.2, "one or more F-4 units" - indeterminate? What is maximum number, and was maximum number units/aircraft used as basis for noise impacts and reflected in tables showing annual airspace events (such as 2.2-2)? Please clarify.

(8.1) 3. All references to noise and associated impacts are stated in terms of noise averaged over 24 hours. Impacts to wildlife were not assessed in the document as regards "single event" noise occurrences - those sudden, intense noise peaks associated with low level jet aircraft operations. What are the maximum expected decibel (non-average) levels at lowest above ground level (AGL)? Impacts of single event noise occurrences on wildlife should be assessed for this action, in particular to sensitive species such as desert bighorn sheep.

4. Impacts of current low level sub-sonic Airforce training activities over existing airspaces, military training routes (MTR's), and military operational areas (MOA's) apparently have not been addressed in a previous NEPA document. For this reason, statements to the effect that this

proposed action won't significantly change noise levels (e.g. page 4-35, second paragraph, last sentence) tell the reviewer little since he or she has no idea whether noise levels are currently causing significant impact to wildlife. Is the change in single event noise levels significant? On page 4-38, you give a noise level for an F-4 of 122-124 dB at 630 feet. What is the noise level of an F-4 at surface level? Averaging over a 24 hour period obscures the nature and the intensity (8.2) of noise impacts. Request you calculate single event noise levels at low altitudes and then do impact analysis, especially for federally listed endangered wildlife (peregrine falcon, spotted owl, bald eagle, etc.) desert bighorn sheep, and waterfowl.

(8.2) 5. Do you know of any noise impact studies of nesting peregrine falcon or other raptors conducted throughout the reproductive period to the point of fledging? This data would be helpful.

(8.3) 6. On page 4-57 and 4-58 you stated that studies of potential disturbance effects have proven inconclusive or negative. These should be discussed.

(12.1) 7. Given the uncertainties about noise impacts, recommend Airforce commit to fund monitoring of selected sensitive species or populations, such as desert bighorn sheep that exist on San Andres National Wildlife Refuge. Such a commitment would not delay implementation of the proposed action and would serve as a basis for future environmental decision making.

(8.2) 8. The terms "sorties" and "airspace events" (tables 2.2-2), need qualifying and defining. If the terms represent one take off and landing, then one sortie could result in multiple "single event" noise incidents; could wildlife or wilderness campers be exposed to 1, 5, 10, or 20 overflights per sortie? Also, in section 3.2.3 you refer to "passes" of aircraft (e.g. Page 3-34, McGregor paragraph); is a pass a sortie?

(8.2) 9. Page 2-12, section 2.2.2.1, second paragraph, states that most MTR sorties would be conducted between 300' and 1,000' AGL. What percentage would/could occur below 300' AGL? This estimate is necessary to identify and understand impacts.

DOCUMENT S (continued)

10. Page 2-12, section 2.2.2.1. What exactly are "special use" air spaces? This second paragraph is confusing - first you state most sorties will be conducted between 300'-1000' AGL in MTRs; then in the next sentence you say entire airspace will be used in special use airspace (implying ground up where permitted), and then you use term "special use airspace MTR's", combining the terms "special use airspace" and "MTR's". Request you clarify usage of these terms and state lowest AGL. (6.3)

11. How low (AGL) may flights operate over: wilderness and wilderness study areas; national wildlife refugees; federal and state endangered wildlife habitats; national parks and monuments; and Pecos River waterfowl areas? Request this data for each separate category - otherwise reviewer cannot understand impacts. Also request single event noise levels at lowest AGL and net change in each of these areas. This is extremely important information and is required for determination of impacts to wildlife and recreational activities. (6.2)

12. On page 2-28, second paragraph, line 12, you suggest that there will be an increase in special use airspace; however, according to table 2.2-2, page 2-14, overall activity in category "airspace" will decrease. Where does the increase come from? Do you mean night activity? If so note that night flights areas are a new action, not an increase. (6.3)

13. Last paragraph, page 2-4; what does prudently mean? Request you estimate White Sands Missile Range airspace use. Reviewer is left with impression that any use level could occur. (6.4)
What are the impacts to wildlife associated with this use? See comment number 4 above. (8.2)

14. No mention is made of impacts to endangered wildlife species under new MTRs. Have you performed endangered species surveys of these areas? What was the outcome of Section 7 Consultation (recommend providing copies of correspondence between Airforce and United States Fish and Wildlife Service in EIS)? (8.1)

15. On page 4-35, first paragraph, you stated that flights in VR-176 will increase 5 percent with the Holloman alternative, yet table 2.2-2, page 2-14 shows an annual decrease from 1448 to only 288 - what is correct? Similarly, on page 4-35 you stated that IR-133 act use would (6.5)

DOCUMENT S (continued)

increase from 2 or 3 sorties to 11 daily flights (4 to 5 times the current number), and IR-111 would increase from 2 to 13 sorties per day (6 + times current number), yet in table 2.2-2 the proposed combined total for IR-133/111, 2484 sorties, is only 1400 sorties more than current, or a 2.3 times increase, rather than the 4 to 6+ times you reference on page 4-35. Please clarify.

16. On page 4-58, section 4.2.2.6.3, Endangered and Threatened Species, next to last paragraph, you state no significant impact is expected from noise impact and note increased noise in MTR's 125, 133, and 134. Per table 2.2-2, these will receive an increase of from 1806 to 5436 sorties, but maximum noise levels are stated to be only 61dB - is this your 24 hour average, or a single event noise level? Were impacts to endangered wildlife species analyzed based upon single event levels at low AGL? If so, provide data and discussion; if not, this should be done. (6.1) (8.2)

17. I assume that environmental considerations planning went hand in hand with planning as required by NEPA. What alternatives were evaluated to siting new/modified MTRs that would avoid wilderness and wilderness study areas, federal and state endangered wildlife species etc.? (6.5)

18. On page 4-60 you stated that vibrational impact to Gran Quivera National Monument "could" be avoided by establishing a flight avoidance procedure. Either commit to establishment or don't - "could" means nothing as regards mitigation - state whether such will be or won't be done and if not, why? (12.1)

DOCUMENT T

P.O. Box 712
Placitas, NM 87043
30 March 1991

Captain David Clark
HQ TAC/DEVE
Langley AFB, VA 23665-5542

Dear Captain Clark:

Thank you for the opportunity to comment on the Draft Environmental Impact Statement (DEIS), Proposed Relocation of the 37th Tactical Fighter Wing and Other Tactical Force Structure Actions. As a resident of New Mexico and one who hunts, fishes, hikes, photographs, writes about and camps throughout southern New Mexico and Arizona, I am impacted by the proposed action. My formal comments are listed below.

1. Notice of the availability of the DEIS was not sent to any environmental or public land advocacy group. Due deligence to involve the public, as required by the National Environmental Policy Act, has not been satisfied. (12.1)

2. Impacts of low altitude flights, especially those at night, on wildlife is not adequately addressed in the DEIS. Injury of wildlife spooked by low altitude flights is a known phenomenon. Documentation also exists that low altitude flights can disrupt wildlife breeding and nesting of birds, especially raptors. Why were these and other related issues not addressed in the DEIS? (8.2)

3. An alternative precluding low altitude flights over wilderness and wilderness study areas and other special use areas should be included in the analysis. (6.5)

I look forward to receiving a copy of the final EIS in a timely manner.

Sincerely,

Jim Fish, Founder
Public Lands Action Network

Copy:

Senator Jeff Bingaman
Representative Bill Richardson
Various others

DOCUMENT U

3805 Calle Quieta
Santa Fe, NM 87505
March 30, 1991

Capt. David Clark
HQ TAC/DEVE
Langley AFB, VA 23665-5542

Dear Capt. Clark,

I would like to comment on the Draft Environmental Impact Statement (DEIS) on the Proposed Relocation of the 37th Tactical Fighter Wing and Other Tactical Force Structure Activities. Overall I thought the document to be lacking in substance and information necessary to make meaning evaluation of the proposed activity in order to provide relevant comments.

I was surprised not to see a preferred alternative identified in the listing of alternatives. I would like to have one alternative identified as preferred. (1.4)

As a private pilot I would like to know more about your proposed operations, especially in relation to the impact on civilian flying in the area. I have done aerial photography of wilderness study areas in the southern part of New Mexico and am wondering if this type of activity will be permitted or how severely it will be impacted by your proposed operations. (6.6)

I am also somewhat distressed to see all the proposed night low-level flights. May I ask if all these flights will be done in aircraft showing identifying lights or will the navigation lights and beacons will turned off during these flights? (6.7)

Also I can only assume that you have taken in account the effect these flights and the supersonic flights will have on the domestic livestock and wildlife in the southern part of the state. I would like to see these impacts addressed in greater detail in the document. (8.2)

I do not feel I can support your proposal, the DEIS, until such time as I have sufficient information to make an evaluation and express an opinion. Thank you for the opportunity to comment.

Sincerely yours,

Judith S. Bishop

BARBARA J. RAPER
NYE COUNTY COMMISSIO

March 25, 1991

Captain David Clark
HQ TAC/DEVE
Langley AFB, VA 23665-5542

Dear Captain Clark:

Enclosed is a report containing Nye County's comments on the draft EIS for the proposed relocation of the 37th TFW. The relocation of the 37th TFW is an issue of great importance to the Town of Tonopah and Nye County. As you know, Nye County and the Town of Tonopah have been proud to be host for the 37th TFW the past decade. Unfortunately, the relocation will have a significant adverse socio-economic and fiscal impact on the Town and the County.

The enclosed report reflects the input received by the County from concerned citizens at a March 6 meeting in Tonopah and at the Air Force March 12 hearing at the Silver Rim School in Tonopah. I hope the Air Force and the DOD Office of Economic Adjustment give this report careful consideration, including further analysis and evaluation of the proposed relocation impacts and the need to mitigate these impacts.

Sincerely,

Barbara J. Raper
Barbara J. Raper
Chair, Nye County Commission

BJR/gl

COUNTY OF NYE • P.O. BOX 153 • TONOPAH, NEVADA 89049 • (702) 482-8191

INTRODUCTION

This memorandum presents a review of the draft EIS for the Proposed Relocation of the 37th Tactical Fighter Wing, published February 5, 1991. It reflects a reading of the draft EIS document (received during the week of February 18), discussion of technical issues in the socioeconomic impact analysis with John Raines and Peter Laffite at SAIC, and March 6 discussions with the Nye County Commissioners and concerned citizens of the Town of Tonopah. In addition, we have investigated the legal guidelines regarding the role of mitigation in an EIS, contacted several state agencies with potential mitigation roles, and collected additional information on the direct effects of recent mining cutbacks on the Tonopah/Nye County community. Further, we have requested and received a transcript of input provided by Nye County Commissioners and concerned citizens at the hearing on the proposed relocation held in Tonopah March 12.

This review is addressed to the Air Force and the U.S. Department of Defense. It has two key sections.

1. The first section is a review of the draft EIS analysis of the socioeconomic impacts of the proposed relocation on Nye County and Tonopah. It identifies the key steps in the analysis, evaluates them, and recommends revisions for consideration in preparation of the final EIS, or for development in a supplemental draft EIS.

2. The second section outlines possible components of a mitigation plan. Though a recent Supreme Court decision concludes that an EIS should include a discussion of mitigation measures, it is apparent that it will be up to the affected communities to prepare and advocate a mitigation plan. The outline in Section 2.3 will be revised and developed over the coming weeks. It will be ready for presentation to the Air Force, DOD and state agencies when the final EIS is produced.

REVIEW OF DRAFT ENVIRONMENTAL IMPACT STATEMENT (FEBRUARY 5, 1991)

PROPOSED RELOCATION OF THE 37TH TACTICAL FIGHTER WING, U.S. AIR FORCE

NYE COUNTY REVIEW AND COMMENT

MARCH 29 1991

Prepared for the
NYE COUNTY BOARD OF COMMISSIONERS

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1.0 SOCIOECONOMIC IMPACT ANALYSIS: NYE COUNTY AND TONOPAH

The following reviews and comments on the basic steps in the EIS assessment of the socioeconomic effects of the proposed relocation of the 37th TTR on Nye County and the Tonopah community. The relevant numbers are presented in an accompanying table.

(12.1) 1. Direct Employment (pg. B-6, 2-3)

Based on internal sources, the EIS estimates that 551 contractor employees associated with the 37th TFW reside in Nye County and commute to TTR on a daily or weekly basis. Of these, 440 live in the Tonopah area and the remainder live in other communities.

The same sources indicate that all military and NAF/service employees associated with the 37th TFW live in Clark County. A substantial (but unspecified) portion of the military, NAF/service and contractor employees living in Clark County commute to TTR places of work. According to the EIS, all such commutes use the specially chartered Key Airlines, and all such commuters use lodging, food and other facilities provided at TTR.

Comment: Anecdotal evidence suggests certain exceptions to these assumptions, but Nye County does not challenge the specifics or their overall accuracy for use in socioeconomic assessment.

(12.1) 2. Gross Payrolls (pg. B-6)

Based on internal sources, the EIS estimates that $21.6 gross annual payroll is associated with the 511 contractor employees living in Nye County. The gross payroll per Nye County contractor employee ($42,221) is somewhat higher than for Clark County contractor employees ($40,113) and substantially higher than for military employees ($23,647) or NAF/service employees ($7,047).

Comment: The estimates appear to be reasonable and Nye County does not challenge the estimates.

(12.1) 3. Local Payroll Expenditure (pg. B-6)

The EIS assumes that 60% of the gross payroll of contract employees residing in Nye County is actually spent in Nye County. This assumption, which has implications for the indirect and induced effect of the Nye County contract employees, is based on the Nellis AFB Economic Resource Impact Statement (FY 1989) and is applied equally to contractor and other categories of employees living in Clark and Nye counties.

Comment: There is no firm basis adjusting this assumption up or down, therefore Nye County accepts this assumption.

(7.10) 4. Services/Procurement Expenditure* (pg. B-6)

Based on internal sources, the EIS assumes that the 37th TFW is directly responsible for $310,000 maintenance and supply expenditures annually in Nye County, and for $1,494,000 TDY ("temporary duty") expenditures annually. The maintenance and supply estimate reflects discussions by EIS researchers with Air Force and TTR contract officers. The TDY estimate reflects discussions with Tonopah hotel and business service managers. It estimates "in-town spending" by non-resident employees associated with the 37th TFW.

Comment: Tonopah business leaders believe that the $310,000 maintenance and supply expenditure estimate associated with TTR and the 37th TFW does not reflect current (1991) conditions, and that the actual figure may be double or triple the estimate in the draft EIS. Local business interests are assembling additional information for input to the final EIS.

Even with substantial adjustments, the EIS assumptions reflect an important economic development problem in Nye County—the difficulty in attracting a reasonable share of the service and procurement expenditure. In the EIS assumptions, Nye County receives only 1.65% of the maintenance and supply expenditure associated with the 37th TFW.

Nye County is making substantial efforts under other auspices to enhance procurement opportunities for Nye County businesses. With active cooperation by the Air Force and their contractors, it would seem that a 10% procurement target should be achievable. This would represent a sixfold increase over the estimates of the draft EIS.

5. Induced Economic Activity (pg. B-6, 11)

(12.1) Items #3 and 4 above result in an estimate of $14.55 million direct effect of local procurement and payroll expenditure attributable to the 37th TFW in Nye County. What is the "induced" service sector effect associated with this direct expenditure? The EIS estimates the induced effect at $5.1 million, or about 35¢ per dollar of direct expenditure.

Comment: The induced economic effect in Clark County (a metropolitan center) is estimated at about $1.19 per dollar of direct expenditure, versus about 35¢ in Nye. These estimates are assumptions based on statistics collected for states and counties by the U.S. Bureau of Economic Adjustment. Local verification of these estimates is difficult. However, Nye County accepts this factor in the analysis.

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* Indicates a component of the socioeconomic impact analysis for which revisions are suggested in the final EIS.

SOCIOECONOMIC ANALYSIS SUMMARY: DRAFT EIS

	Total	Clark	Nye County			Elsewhere	Reference
			Sub-Total	Tonopah	Other		
Direct Employment	4,870	3,486	911	440	71	72	pg B-6, 6
• Military	2,000	2,000	0	0	0	0	
• NA F/Services	863	863	0	0	0	0	
• Contractors	1,189	647	911	440	71	72	
• Reno	1,022	NA	NA	NA	NA	NA	
• Hwy	1,022	NA	NA	NA	NA	NA	
Gross Payrolls ($M)	118,813	87,477	21,575	16,577	2,998	2,991	pg B-6, 6
• Military	63,732	63,732	0	0	0	0	
• NA F/Services	1,703	1,703	0	0	0	0	
• Contractors	48,478	21,842	21,575	16,577[1]	2,998[2]	72[3]	
Payroll/Employment ($)	27,481	25,088	48,881	NA	NA	41,131	
• Military	23,647	23,647	NA	NA	NA	NA	
• NA F/Services	7,047	7,047	NA	NA	NA	NA	
• Contractors	41,131	40,113	48,881	NA	NA	41,131	
Local Expenditures ($M)	NA	69,797	12,945	11,149	1,798	NA	pg B-6, 6
• Military	NA	40,932	NA	NA	NA	NA	
• NA F/Services	NA	1,079	NA	NA	NA	NA	
• Contractors	NA	13,166	12,945	11,149	1,798	72	
Services/Procurement ($M)	NA	01,886	1,894	1,804[4]	0[4]	NA	pg B-6, 9
• Maintenance/Supplies	NA	16,486[4]	310	310	0	NA	
• TDY	NA	1,230	1,494	1,494	0	NA	
• Other/Conference	NA	41,287	0	0	0	NA	
Subtotal ($M)	NA	112,884	14,839	14,839	0	NA	pg B-6, 11
Indirect Impacts							
• Output	NA	134,316	5,091	5,091[5]	0[5]	NA	pg B-6, 11
• Earnings	NA	20,402	645	645	0	NA	pg B-6, 11
• Employment	NA	2,457	45	45	0	NA	pg B-6, 11
• Education Employment	NA	NA	41	41	0	NA	pg 4-6
Indirect Ratios							
• Output vs Direct	NA	116.8%	34.0%	NA	NA	NA	
• Earnings vs Output	NA	37.0%	10.7%	NA	NA	NA	
• Earnings Employment	NA	$55,702	$14,333	NA	NA	NA	
Total Impact							
• Employment	NA	3,845	551	485[6]	71[6]	NA	pg B-6, 12
Multiplier	NA	NA	602	397	71	NA	
Education							
• Population	NA	8,859	1,288	NA	NA	NA	
• School Kids	NA	1,007	288	NA	NA	NA	
• School Aides	NA	----	30	NA	NA	NA	pg B-6, 12
Education Payroll							
• Payroll/Employment	NA	0.10	0.09	NA	NA	NA	
Total Base							
• Employment	NA	10,000	2,004	NA	NA	NA	pg 4-6
• Population	NA	10,000	4,304	NA	NA	NA	

[1] Distribution within Nye estimated on direct employment and average payroll per Nye County employee.

Elsewhere estimated on direct employment and average payroll per Clark and Nye employee.

[2] Distribution within Nye estimated on distribution of employment on all gross payrolls.

[3] Assumes all Nye County procurement and indirect output and employment is in the Tonopah commercial/business sector.

[4] Includes "maintenance and supplies," "other supplies/employment," "conference materials/employment."

[5] Excludes education/government agency impacts.

(7.11) 6. Earnings in Induced Activity* (pg. B-6, 11)

A key step in estimating "people effects" is the earnings associated with induced activity—the labor expenditure associated with a given level of induced service sector activities in Nye County in general and Tonopah in particular. The EIS estimates that $5.1 million in induced economic activity in Nye County supports $545,000 in earnings. In other words, induced earnings are only 10.7% of the economic activity it supports.

Comment: Though EIS researchers are providing additional explanation, this factor seems low. The EIS analysis for Clark County estimates earnings at 37.6% of the induced economic activity it supports—i.e., about 3.5 times the Nye County level. The EIS assumption, which is based on nationally collected data, may not reflect the large number of proprietors involved in the service sector economies of Nye County and Tonopah. Equal factors for Clark and Nye would increase the indirect employment effect from 40 to 140 (3.5 times) and the total employment effect by 18% (from 551 to 651). Nye County challenges this aspect of the analysis.

(12.1) 7. Indirect Employment and Average Earnings (pg. B-6, 11)

The EIS estimates average employment earnings in the Nye County service economy at about $13,625, significantly lower than the average in Clark County ($20,702).

Comment: This factor for Nye County reasonably reflects differences between service economies in metropolitan and rural areas. Nye County accepts this factor.

(12.1) 8. Population: Direct Jobs (pg. B-12)

The EIS estimates the population associated with 511 direct employees at 1,380, or about 2.7 persons per employee or per household.

Comment: Without special survey of TTR employees, this estimate is difficult to verify. The estimate seems reasonable, therefore Nye County accepts this estimate.

(7.12) 9. Population: Indirect Jobs* (pg. B-12)

The EIS estimates service sector employment effects at 40 jobs, but estimates no population associated with these jobs. The EIS rationale for this is as follows:

- The households of the 511 workers associated with the 37th TFW include about 331 spouses and other dependents who have sought and found service sector jobs in the local economy.

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* Indicates a component of the socioeconomic impact analysis for which revisions are suggested in the final EIS.

- With relocation, the 511 workers and their families would leave Nye County, freeing up 331 service sector jobs in the local economy.

- The 40 (or 140; see #6) service sector workers associated with the 37th TFW would fill some of the 311 jobs vacated by 37th TFW families.

Comment: On a number of counts, these assumptions do not reflect Nye County circumstances.

- The estimate of household dependents with service sector jobs (65%) is based on national statistics and does not reflect actual job availability in the service sectors of rural economies. Perhaps 331 household dependents would like to work *if suitable jobs* were available, but it is unlikely that more than about 102 (20% of 511) ever found such jobs in Tonopah.

- The shutdowns at the Candaleria and Cyprus mines have already damaged the service economy in Nye County in general and Tonopah in particular. Service sector jobs, never plentiful in Tonopah, have already been depleted, and have long since been absorbed by miners and mining families who have chosen to stay in Tonopah rather than leave.

- When the Stealth relocation begins (perhaps in 1992), there will be no replacement jobs available for impacted service sector workers. The EIS should include full population impacts with these workers.

(12.1) 10. Schc ! District Operations Impacts (pg. 4-5)

The EIS estimates that about 358 school children are associated with the 511 direct employees and their families (.7 school kids per direct employee/household). Based on current school district conditions (373 employees for 3,266 pupils in April 1990), the EIS estimates the "people impact" associated with the departure of 358 school children at 41 school district jobs.

Comment: It is appropriate for the EIS to consider the "people impact" in the county's major government employer separate from the analysis of general service sector effects (steps 5-7, 9 above). The 10.9% effect* is a seasonal measure of the "people impact" on the school district—understanding that the school district is responsible for managing the impact in the most appropriate way. The draft EIS analysis of fiscal impacts on the school district is discussed in step 14 below.

(12.1) 11. Population: School Employment (pg. 4-6)

The EIS assumes that effects on the school district have no implications for population—the "bottom line" measure of people effects. The rationale is similar to

* 358 school pupil impact versus 3,266 school district enrollment in FY 1990.

- Gross payroll was reduced from about $9 million (about $38,000 per employee) to under $700,000 (about $33,000) per employee.

- Local purchases were reduced from $1.7 million to $200,000. Local purchases per employee were increased from $7,200 to $9,500, reflecting diseconomies in the scaled-back mine operations.

- Purchases of electric power (from Sierra Pacific) were reduced from $7.3 million in 1989, to about $6.0 million in 1990 to an expected $900,000 in 1991. The reduction may be greater than anticipated. Power requirements per employee would be expected to be greater during production than during facility maintenance; the above estimates suggest increased power requirements per employee, from $25,400 in 1990 to $42,800 in 1991.

Candaleria Mine*

- Employment was reduced by 200 jobs, about half of whom live in Tonopah/Nye County.

- Gross payroll was reduced by about $6.5 million, about half is lost from Tonopah/Nye County.

- Local purchases were reduced from $1.2 million, about half lost from Tonopah/Nye County.

- Power purchases were reduced by about $5.2 million, with service from the Tonopah district office of Sierra Pacific.

It is suggested that the final EIS analyze the socioeconomic impacts of the mine closings and assess their effects in weakening the economic and fiscal environment in which the impacts of the 37th TFW relocation would occur. This should include lost mine proceeds as well as other local revenues.

(7.15) 14. Impacts on Education/Nye School District*

The discussion of the affected environment (pg. 3-13) notes that since the TTR employees living in Tonopah are civilian contractors rather than military personnel, the Nye County School District does not receive Federal Education Impact Aid. It also discusses the growth in school district enrollment since 1985 and the considerations which led to the $30 million bond issue for school construction including a new high school in Tonopah.

* Indicates a component of the fiscal impact analysis for which revisions are suggested in the final EIS.

* Estimates reflect a limited investigation, using Cyprus experience as an analogy for direct effects at Candaleria.

that discussed in #8 above—any laid off school employees would find replacement service sector jobs available and suitable.

Comment: Laid off teachers would not find replacement service sector jobs available and suitable. (This also applies to the hospital and Nye County government.) As a measure of impact, the people effects should be estimated—understanding that many of the people and institutions affected may choose to "hang on" through bad times.

(7.13) 12. Total Population and Employment* (pg. 3-6, 8)

Based on information available at the time, the draft EIS estimates 1990 population at 19,990 in Nye County and 4,324 in Tonopah. It estimates 1988 employment (by place of work) at 10,860 in Nye County.

Comment: The current 1990 census estimates of population are 17,781 for Nye County and 3,621 for Tonopah. These estimates do not include the effects of the recent mine cutbacks. Their inclusion in the final EIS will increase the percentage population impact. USBEA estimates full- and part-time employment in Nye County at 12,148 in 1988 and PIC has estimated the comparable 1989 figure at 12,833.

(7.14) 13. Mine Cutbacks* (pg. 4-5)

The draft EIS is to be commended for recognizing the recent cutbacks in mining operations at Candaleria and Cyprus which have weakened the local economy and the fiscal position of local agencies. This assists in describing the socioeconomic and fiscal environment in which the effects of the proposed relocation would occur.

Comment: While the draft EIS recognizes mine cutbacks in the discussion on pg. 4-5, these are not addressed in the socioeconomic impact analysis in Appendix B. Thus, the effect of the mine cutbacks in weakening the economic and fiscal environment in which the impacts of the proposed relocation would occur is not specifically addressed.

Inquiries conducted as part of this review (see Appendix item 4 for further detail) resulted in the following estimates of the direct effects of the Cyprus and Candaleria mine cutbacks on Tonopah/Nye County:

Cyprus Mine

- Employment was reduced from 236 to 21; almost all reside in Tonopah or Nye County.

* Indicates a component of the socioeconomic impact analysis for which revisions are suggested in the final EIS.

The discussion of socioeconomic impacts (pg. 4-6) estimates that 358 school pupils would be associated with the 511 contractor personnel affected by the proposed relocation (i.e., about .7 school pupils per employee). The discussion also estimates that, since the Nye County School District had 1 employee for each 8.75 school pupils in 1990 (pg. 3-13), the loss in school enrollment could result in "a reduction of 41 education workers" (pg. 4-5).

The draft EIS, however, does not address the effects of the proposed relocation on the school district or its workforce or finances: e.g.,

- Reductions in staff could limit educational opportunities which the school district could provide for remaining enrollment.

- Retaining staff despite reductions in resources could place additional fiscal strain on the remaining taxpayers.

- Even with reductions in staff, operating costs per pupil are likely to increase—costs which would affect remaining taxpayers in the district and the state.

- Since operations at TTR are strictly secret, the school district had to make its bonding decision in the absence of knowledge about the prospective relocation. According to the draft EIS, the relocation of the 37th TFW would remove $21.7 in employee salaries from Tonopah/Nye County; but it would not remove the community's obligation to repay the $30 million bond.

(7.15) 15. Impacts on Police and Fire Protection* (pg. 4-6)

The draft EIS concludes that the population impacts of the proposed relocation would not result in staff reductions and would therefore increase levels of service in the short term. This assessment does not consider the following:

- Population impacts are underestimated in the draft EIS, based on comments 4, 6, 9, 12 and 13 above.

- Police service requirements in Nye County are not properly described on a per capita basis. These services are keyed to the extensive area of Nye County and to the nonresident traffic along U.S. 6 and 95. Thus, population reductions do not result in a corresponding reduction in sheriff service requirements to retain a given level of service.

- Fire service in Nye County is largely voluntary, and therefore relies on a pool of residents with reasonably secure jobs and a long-term commitment to the community. The proposed relocation could dramatically affect this voluntary

* Indicates a component of the fiscal impact analysis for which revisions are suggested in the final EIS.

labor pool which the county has relied on to provide an essential service. The draft EIS does not address the impacts in terms of management/organization or costs

- The direct and indirect effects of the proposed relocation could change the economic circumstances in Tonopah/Nye County—reducing income, job opportunity and economic security—thus increasing the per capita requirements for public safety services.

(7.15) 16. Impacts on Health Services* (pg. 4-6)

The draft EIS assumes that the population impacts of the proposed relocation would reduce demand for medical services, but does not consider the possibility that some of the affected population may not leave and/or that the remaining population may have greater health service needs and less resources to pay.

The draft EIS notes that the proposed relocation could reduce revenue receipts, which could increase the difficulty in attracting qualified health care personnel. Like many rural health centers, the Nye County Regional Medical Center (with financial assistance from Nye County government) has struggled to provide quality health services for county residents. The draft EIS suggests no mitigation measures either for the prospective loss in revenues, or the potential reduction in the quality and reliability of local health service, or the consequences of reduced quality for economic development in Tonopah/Nye County.

(7.15) 17. Impacts on Water and Wastewater Services* (pg. 4-6)

The draft EIS indicates that the proposed relocation "would have a positive effect on water supply in the short term." This statement does not reflect the effects of recent mining layoffs in changing the environment in which the proposed relocation would occur. The Tonopah Public Utility District is not currently operating at capacity. The proposed relocation would reduce the customer base of TPU and reduce the ability of the remaining customer base to adequately operate and maintain a water supply system with significant existing deficiencies (e.g., line losses, peak supply). These effects could not just occur in "the long term" as suggested in the draft EIS, but in the short term as well. The draft EIS does not suggest mitigating measures for these potential impacts.

The comment on the draft EIS assessment of wastewater system impacts is similar: the proposed relocation would reduce the customer base and the ability of the remaining customer base, without corresponding reductions in the operations and maintenance costs of an existing system which has significant deficiencies. The draft EIS does not identify or analyze these impacts or suggest appropriate mitigation.

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* Indicates a component of the fiscal impact analysis for which revisions are suggested in the final EIS.

2.0 MITIGATION PLAN: RATIONALE AND PRELIMINARY OUTLINE

The rationale for mitigation of the socioeconomic and fiscal impacts of the proposed relocation is straightforward:

- The draft EIS (and the comments in Section 3.0 above) indicates that the proposed relocation would have a major impact in a small community—one which has recently suffered cutbacks in two of its major mining employers, and whose local government agencies are already under financial stress.

- The Air Force expects major savings in construction costs and annual operating expenses from the relocation proposal described in the draft EIS. It may be fair and appropriate to use a small portion of these savings to assist the community most directly affected—the community which has served well as the host of the 37th TFW during its secret development and testing.

- The Air Force has spent large sums to develop TTR as "a secure training and testing facility for classified AF missions" (pg. 3-1). In relocating the 37th TFW, the Air Force does not intend to abandon this investment, but to retain it in caretaker status for future uses unspecified, unannounced and unscheduled. The Air Force should consider caretaker status for the host community of TTR—the community which it has relied on for housing, workforce and support during development of the Stealth fighter. It is in the interest of the Air Force not to allow either the facilities at TTR or the host community to deteriorate through neglect to the point that they cannot provide future service as they have in the past.

- A recent Supreme Court decision has confirmed the obligation of an environmental impact statement to consider mitigation measures for impacts identified—in this case socioeconomic and fiscal impacts on Tonopah and Nye County.

2.1 Air Force Costs Savings and Nye/Tonopah Mitigation Assistance

According to the draft EIS, the relocation of the 37th TFW would result in major savings for the Air Force. In fact, cost savings (along with "changes in world threats") are the major rationale for the relocation proposal.

- By relocating the 37th TFW to Holloman, the Air Force expects to reduce military and civilian employment requirements from 4,079 (pg. 2-3) to 2,231 (pg. B-14) and contractor employment from 1,130 (pg. 2-3) to 0 (pg. B-14).

- Gross payrolls are expected to be reduced from $112 million (pg. B-2, 6 (plus estimate for 72 contract employees living "elsewhere")) at TTR to $50 million (pg. B-14) at Holloman—an annual saving of about $62 million

- Annual Services and Procurement Expenditure associated with the 37th TFW (excluding new construction) is estimated at $63 million (pg. B-3, 9) currently at TTR, compared to $80 (pg. B-15) million at Holloman and $36 million (pg. B-27)

(7.15) 18. Impacts on Electric Power and Natural Gas* (pg. 4-7)

The draft EIS states that the proposed relocation would have "no measurable effects on the overall level of service currently provided." However, the proposed relocation would reduce the customer base and the ability of the remaining customers to pay. It would not correspondingly reduce the costs of delivering electric power or propane to customers in Tonopah and Nye County. Particularly in the context of recent mining cutbacks which involves substantial reductions in local power demand,[a] the proposed relocation could result in increased costs per unit of power provided, reduced ability of local customers to pay, and potential reductions in the level of service provided. The draft EIS does not identify these impacts or suggest mitigating measures.

(7.15) 19. Impacts on Public Finance* (pg. 4-7)

The TTR facility and activity at TTR does not contribute to the Nye County tax base in the way that a private activity (mining operation, tourism/gaming, etc.) of similar scale would contribute. It does not pay property taxes. The only sales taxes are those associated with purchases in Nye County, and (as discussed in #4 above) the purchases are limited and generate revenues for the Nye County treasury only if the sales are properly designated for use in Nye County. Therefore, the revenue contribution of TTR to Nye County is mainly an indirect one—through property and sales taxes on Nye County goods and services purchased by employees associated with TTR.

The draft EIS indicates that "the proposed relocation . . . would result in a loss of revenues and expenditures in Tonopah" (pg. 4-7). It does not consider the fact that most current services of the county and the town are basic in nature and limited in scale. The ability of Nye County government to cut back services is very limited. Significant cutbacks in many cases would amount to virtual elimination of the service for remaining residents. The losses of revenues occasioned by the proposed relocation would not therefore be accompanied by corresponding reductions in expenditures as suggested in the draft EIS. The impact of the proposed relocation would reduce revenues without reducing necessary expenditures, resulting in increased per-unit service costs without local revenue support. The draft EIS does not identify mitigating measures for these impacts.

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* Indicates a component of the fiscal impact analysis for which revisions are suggested in the final EIS.

[a] The draft EIS does not identify the amount of power required to support current operations at TTR or the supplier of that power.

at Nellis. The savings in annual services and procurement is difficult to evaluate, since full basing for 37th TFW requires some expenditure, but the annual costs of full basing at Nellis appear lower than those at Holloman.

- New construction costs associated with the 37th TFW are estimated at about $70 million (pg. B-15) at Holloman versus $139 million (pg. B-27) at Nellis and significantly more than $159 million (pg. 2-25) if TTR were made a fully operational base for the 37th TFW. Thus, the draft EIS estimates that relocation to Holloman saves $89 million in new construction costs compared to Nellis and more compared to creating comparable facilities at TTR.

- In sum, the draft EIS estimates that relocation to Holloman saves $62 million annually in gross payrolls (compared to current operations at TTR), and $89 million in construction (compared to basing at Nellis).

The relocation proposal that would create substantial savings for the Air Force would have dramatic socioeconomic and fiscal impacts on the community that has hosted the 37th TFW during its highly secret development phase. A portion of the savings (e.g., 1% - 2%) might be used to assist the affected community deal with the impacts and develop its future economy.

2.2 The Draft EIS and Mitigation

In a May 1989 decision (Robertson vs. Methow Valley Citizens Council: 87-1703), the U.S. Supreme Court concluded that:

- Implicit in NEPA's demand that an agency prepare a detailed statement on "any adverse environmental effects that cannot be avoided should the proposal be implemented" . . . is an understanding that the EIS will discuss the extent to which adverse effects can be avoided. (pg. 17)

- More generally, omission of a reasonably complete discussion of possible mitigation measures would undermine the "action-forcing" function of NEPA. Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects. (pg. 17)

The court does not require that a complete mitigation plan be actually formulated and adopted, but it does require that mitigation be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated. (pg. 18) In Robertson vs. Methow Valley Citizens Council, this requirement is applied to off-site as well as on-site effects, and includes mitigation actions by the federal, state and local agencies as well as by the federal agency proponent. In concurring with the decision, Justice Brennan emphasized the observation that "one important ingredient of an EIS is the discussion of steps that can be taken to mitigate adverse environmental consequences."

The draft EIS for the 37th TFW describes significant adverse socioeconomic effects for Tonopah and Nye County, but it includes no analysis and very little discussion of the

consequences of these effects for local businesses and local government agencies, and it includes virtually no discussion of the measures that might be taken by the Air Force and by other federal, state and local agencies to mitigate these effects. A supplemental draft of the EIS may be warranted to address these limitations. Such a supplement should focus on:

a) Adjustments in the analysis of socioeconomic impacts on Tonopah and Nye County, as described in Section 2.0 above.

b) The preparation of an adequate analysis of fiscal impacts in Tonopah and Nye County—not adequately addressed in the draft EIS (pg. 4-6, 7).

c) Identification of appropriate mitigation measures for the socioeconomic and fiscal impacts identified in Tonopah and Nye County—not addressed at all in the draft EIS.

In the meantime, Tonopah and Nye County are developing a mitigation plan outline, discussed in preliminary draft below.

2.3 Mitigation Plan (Preliminary Outline)

This section outlines a plan to mitigate the socioeconomic impacts of the proposed relocation. The outline is preliminary at this point and may be modified.

(2.5) 1. **Encourage Caretaker Workforce to Live in Tonopah**

According to the draft EIS, 160-220 caretaker workers will be required after relocation to maintain the facilities developed for the 37th TFW at TTR. The draft EIS does not indicate whether these would be contractor employees, whether a particular contractor is "in line" for this contract, what skills would be required at what pay levels, or how the caretaker function would be phased in with relocation.

The Air Force should take steps to encourage such employees to live in Tonopah. These steps might include:

- Subsidized airline service from Las Vegas should not be provided to caretaker workers.
- Base housing subsidies (currently $10.50 per week) should not be provided to caretaker workers, caretaker workers could use existing dorm facilities which they help maintain, but this use should not be subsidized.
- Base food subsidies to caretaker workers should be eliminated or substantially reduced; such workers should be encouraged to patronize Tonopah restaurants and food stores.

their remaining taxpayers are "left holding the bag"—a poor reward for the support Tonopah/Nye County have lent to the Air Force program over the past decade.

The Air Force should establish a fund to be used by local agencies to maintain the infrastructure in the Tonopah community in particular and to limit the fiscal impact of the proposed relocation on the remaining taxpayers and ratepayers. This fund should address the needs of the following local agencies:

- Nye County School District
- Nye County Regional Medical Center
- Tonopah Public Utilities
- Nye County Government

(2.6) 5. **Assist Tonopah/Nye County Develop Alternative Economic Potentials**

A growth potentials study conducted in early 1990 pointed to potentials for Tonopah's traveler/tourist economy, for its role as a commercial service center, and for economic development other than the traditional mining and defense-related activities. The study did not suggest that the development of these potentials would be easy, but it did indicate that they exist. Furthermore, the study provides a starting point for economic development planning urgently needed in the aftermath of mine cutbacks and in the prospect of the proposed relocation.

- Revisit the growth potentials study, updating the information base and the growth scenarios analysis.
- Coordinate with local officials, business leaders and citizens to identify and clarify economic development goals for Tonopah.
- Based on the above, prepare an economic development action plan, identifying specific actions, costs, responsibilities and schedule.
- Establish an entity to coordinate and monitor the implementation of the economic development plan.
- Develop selected components identified in the action plan. These might include, for example, a main street urban design plan, assistance in developing pro forma analyses for target businesses, etc.

(2.6) 6. **Coordinate Assistance for People and Families**

Programs to provide unemployment support, relocation, job training and other direct people assistance often exist but are not effectively coordinated. The Air Force should cooperate with Nye County and state agencies to provide effective

- A portion of the funds saved through elimination of the base housing subsidy should be used to assist caretaker workers to purchase housing in the Tonopah community. The Cyprus housing program provides a possible model.
- Another portion of the savings from the above policies might be used as per diem allowances for workers living in the local area. Such allowances are often used as an incentive for workers to live in remote communities.

(2.5) 2. **Encourage TTR Security Employees to Live in Tonopah**

The draft EIS notes that security workers at TTR will not be affected by the proposed relocation (pg. 2-3). The EIS does not indicate the number of security employees that would not be affected, or their skills, gross payroll, work schedule or employer. It is assumed that the security workforce at TTR is similar in its characteristics to that at NTS.

The Air Force should take steps to encourage such employees to live in Tonopah. These steps might include those applicable to caretaker employees, with adjustments to reflect work schedule differences between the two groups.

(2.6) 3. **Maximize Caretaker Procurement Opportunities in Tonopah and Nye County**

- The Air Force should provide a list of procurement opportunities associated with TTR generally, and the caretaking function specifically. The list should identify bid schedules, bid requirements, selection criteria, selection agencies, etc.
- The Air Force should cooperate with state and local agencies in providing assistance to local businesses in responding to procurement opportunities at TTR.
- The Air Force should publicize the results of procurement at TTR—which contracts for what amounts went to which business in particular communities.
- The Air Force should cooperate with state and local agencies in applying for U.S. Economic Development Administration loan funds to encourage small business development in response to procurement and other local economic opportunities.

(2.6) 4. **Provide Financial Support for Local Government Agencies**

As discussed in Section 3.0, many local government agencies made fiscal decisions during the 1980s to extend or enhance services to Nye County residents, including those directly or indirectly associated with the 37th TFW. Because operations at TTR were shrouded in secrecy, these decisions were of necessity made without the normal information on Air Force intentions and schedule. Now these agencies and

coordination of such assistance in Tonopah. An attached memorandum provides some useful details.

(2.6) 7. **Monitor Community Conditions During Impact**

One difficulty in managing impact is that it is sometimes difficult to know exactly the extent and nature of impacts are particular points in time. The Air Force should assist the community in developing and maintaining such information during the impact period. This would include information on employment and population, economic conditions, and local agency finances.

DOCUMENT W

TOWN of TONOPAH
TONOPAH, NEVADA 89049
P. O. Box 151
Telephone 482-6643

March 29, 1991

Headquarters TAC/DEVE
Relocation of 37th Tactical Fighter Wing
Attn: Capt. Clark
Langley AFB
Langley VA 23665-5562

Captain Clark,

In response to the March 12, 1991 Public Hearing held regarding the relocation of the 37th Tactical Fighter Wing from the Tonopah Test Range, I have several requests for your consideration.

As mentioned at that hearing, several businesses have extended themselves financially based on growth projections for Tonopah. The removal of the 37th will impact the Tonopah community economically.

The Town of Tonopah completed a sports complex in 1990, which includes two softball fields, one baseball field and appurtenances. This complex was built with a $200,000 bond being paid by taxpayers of Tonopah. With the loss of the 37th, the users of this complex will be greatly reduced, therefore creating a financial burden for the operation of the complex by the Town of Tonopah. The residents of Tonopah are currently burdened as taxpayers with this bond repayment and may be burdened in the future for operation costs.

I respectfully request the Air Force consider the following requests:

(2.1) 1. Businesses that have obtained SBA loans in Tonopah be given special consideration for repayment, i.e. low interest loans to sustain such business through the transition period of this relocation; and

(2.1) 2. The $200,000 bond for the complex be repaid by the Air Force as partial "good faith" compensation for the relocation of the 37th Tactical Fighter Wing from Tonopah Test Range.

DOCUMENT W (continued)

The Air Force's consideration of these requests is appreciated. I understand that these comments will be made part of the Final Economic Impact Study. I request that our office be furnished with the Final Study upon completion.

Should you require additional information regarding these requests, please contact my office at (702)482-6643.

Respectfully Submitted,

Robert B. Sorensen

Rober: B. Sorensen, Manager
Town of Tonopah

cc: Nye County Commission
Tonopah Town Citizens Advisory Council

RBS/ps

H.3 RESPONSE TO COMMENTS

1.1 Cost savings of $70M were verified through GAO audit (GAO 1991). Cost saving estimate did include the Key Airlines contract as it stood at the time of the analysis. Subsequent cost reductions in the Key Airlines contract do not sufficiently reduce TTR operating expenses to justify reversing this basing decision.

1.2 DMR objectives were to achieve cost savings through consolidation of resources, streamlining operations, and reducing overhead operating costs. None of these objectives would have been met by establishing an infrastructure at TTR.

Costs associated with establishing an operational base at TTR were estimated to be $240M, far in excess of the construction costs associated with the move to Holloman AFB.

1.3 Relocating the 37th TFW was a USAF response to the Defense Management Review (DMR) initiative to reduce DOD budgets.

1.4 The formal decision will be presented in the Record of Decision.

1.5 The exact nature of caretaker operations or re-use of TTR have not been determined at this time.

1.6 During its cost savings analysis, TAC considered all possible reductions in TTR operational costs which could be implemented as a result of reduced security associated with the F-117. TAC would have to realize an annual reduction in operating costs of greater that $79M at TTR before consideration could be given to establishing TTR as a permanent operating location. Cost reductions of this magnitude were considered a remote possibility which did not warrant further consideration.

1.7 The 37th TFW was originally based at TTR to take advantage of its remote location and extraordinary physical security capabilities. This decision was made despite recognition of substantial high cost disadvantages associated with this location. The public disclosure of the F-117A aircraft resulted in reduced security requirements. As a result, the disadvantages of the TTR location were no longer seen as sufficient to justify continued operations out of TTR.

1.8 Holloman AFB did not possess the security requirements referred to in Response 1.7 above.

1.9 Military and retired manpower increases/reductions were taken into consideration when the Description of Proposed Action and Alternatives was developed. Medical

Group manpower authorizations will continue to be based on active and retired military populations based on established manpower standards.

1.10 Comment noted. Decisions concerning reuse of TTR have not been made at this time. The analysis does, however, consider worst case conditions.

2.1 NEPA requires the consideration of socioeconomic impacts to the extent that the biophysical environment is affected. No such affects have been identified in this EIS. Nevertheless, the USAF recognizes the importance of socioeconomic impacts for the communities involved. There is no USAF program available for mitigating socioeconomic impacts. However, the USAF will prepare an additional socioeconomic assessment of the project to better understand and to assist in planning for impacts, separate from NEPA.

The noise impacts around Holloman AFB have been reduced as much as possible. The development and refinement of the airspace proposal attempted to avoid population centers, ranches, National Parks and other noise sensitive areas without affecting the operability and training requirements of the USAF. Therefore, no further mitigating recommendations were identified.

2.2 The Holloman multi-year dormitory alteration program planned for FY 90 to FY 93 and altering 143 family housing units (cf. Section 2.1.2.4) is separate from the alternatives evaluated in the EIS. These alteration projects bring existing facilities up to current USAF standards. There are no plans to construct new dormitory space (DEIS, pg 3-55). Additionally, there are no proposals to construct new dormitory or family housing units to support actions evaluated in this EIS.

2.3 No, the requirement to assess cumulative impacts at Holloman AFB are not related to the scale of impacts, prior to the EIS (cf. Section 3.2.5.3.2). Rather, National Environmental Policy Act (NEPA) requires each action to be assessed in combination with other actions affecting the proposed area. This additive analysis is called a cumulative impact analysis.

2.4 The proposed timing of the personnel changes should not seriously affect state funding. Proposed personnel changes in FY 91/4 and 92/4 occur in the late summer months (July, August and September), before the new school year, so families should be in place to register students prior to 15 October. Meanwhile, proposed personnel changes in FY 91/3 and 92/3 occur late in the school year (April, May and June). Many families will elect to keep their children in their current school to complete the school year prior to moving. This action would avoid serious funding shortfall late in the school year. There is only one proposed action that does not fall in FY quarter 3 or 4, and that is the second 49th TFW squadron drawdown (FY 92/2 - January, February and March). Since this action occurs after 15 October, the state would have already determined yearly funding levels.

In essence, the state would have overpaid for students that the county would have instructed for a partial year. This overfunding would be off-set by some families electing to bring their students in FY 92/3.

2.5 As previously discussed in comment 1.5, decisions regarding TTR reuse and caretaker actions have not been determined at this time. Neither the USAF or Department of Energy who operates TTR can hire or require employees to live in a specific geographic area.

NEPA requires the consideration of socioeconomic impacts to the extent that the biophysical environment is affected. No such affects have been identified in this EIS. Nevertheless, the USAF recognizes the importance of socioeconomic impacts for the communities involved. There is no USAF program available for mitigating socioeconomic impacts. However, the USAF will prepare an additional socioeconomic assessment of the project to better understand and to assist in planning for impacts, separate from NEPA.

2.6 NEPA requires the consideration of socioeconomic impacts to the extent that the biophysical environment is affected. No such affects have been identified in this EIS. Nevertheless, the USAF recognizes the importance of socioeconomic impacts for the communities involved. There is no USAF program available for mitigating socioeconomic impacts. However, the USAF will prepare an additional socioeconomic assessment of the project to better understand and to assist in planning for impacts, separate from NEPA.

4.1 Comment noted. Document has been revised accordingly.

5.2 Table 3.2-6 indicates lowest altitudes for MTRs affected by the proposed action. Figure 2.2-1, 2.2-2 and 2.2-3 show the location of these MTRs. Figure 4.2-1 shows the relationship of air space units to the mentioned land use categories.

6.1 The only Ft. Bliss air space that would be affected is R-5103 associated with McGregor Range. As indicated in Table 2.1-2, 2.2-2 and 2.3-2, sorties in air space above McGregor Range will decrease substantially under the 37th TFW/49th TFW alternative (13% reduction) and the Holloman-Nellis alternative (72% reduction). A slight increase (7%, amounting to approximately one extra sortie every other day, assuming 240 training days per year) is projected under the Holloman Alternative. As indicated in these tables, no change in night time (post 2200 hours) usage of this unit is projected for any alternative.

6.2 The data in Table 2.2-2 (and similar tables) encompasses take off/landing sorties, and airspace events. The term "take off/landing" refers to the number of times per year aircraft take off and land at the location in question. The term "sortie" refers to activities of single aircraft. One sortie may include multiple take off and landings

(ie., touch and go, and activities in multiple airspace units). For example, a single sortie might include several touch and go landings, use of one or more MTRs, and use of a MOA or Bombing Range. Data presented in Table 2.1-3, 2.2-2, and 2.3-2 includes information on the total sorties flown as well as the number of sorties flown to various airspace units.

The term "pass" represents the passage of an aircraft through a given airspace unit. On an MTR, one sortie is equivalent to one pass. In a MOA, an aircraft may make multiple passes through the unit during any one training period. The term "event" describes the overflight of an aircraft from the perspective of a ground observer. Multiple aircraft passing over the same point within a few seconds of each other (eg., during the overflight of a 2-ship formation) would be perceived as a single event by the ground observer, but would be counted as two passes, and two sorties.

6.3 The text has been modified to improve clarity and remove ambiguity.

6.4 The text has been modified to eliminate ambiguities. At this time no formal plans exist which would involve the use of WSMR airspace other than, as discussed in the text.

6.5 Prior to selection of the proposed MTR routes TAC conducted a siting evaluation with the objective of minimizing biophysical, airspace management, socioeconomic impacts. The routes selected for analysis both minimized such impacts, and meets TAC training requirements. As additional information became available during the NEPA process, the preferred routes were modified to meet environmental considerations. The finalized routes addressed in the Final EIS reflect these considerations, while still meeting TAC training requirements.

6.6 No new restrictions will be placed on civilian pilots in the area under any of the alternatives considered. Airspace access would not be restricted beyond that required by due prudence under visual flight rules. MTR routes will be noted on appropriate aeronautical charts to warn aviators of potential hazards.

6.7 The aircraft lights will be left on for operational reasons.

7.1 The revised discussion of impacts will note that unemployed indirect and school workers unable to take positions left open by working spouses of departing TTR contractors would leave Nye County.

7.2 Estimates of reduction in school-related employment and expenditures were incorporated in the revision of socioeconomic impact estimates. NEPA requires the consideration of socioeconomic impacts to the extent that the biophysical environment is affected. No such affects have been identified in this EIS.

Nevertheless, the USAF recognizes the importance of socioeconomic impacts for the communities involved. There is no USAF program available for mitigating socioeconomic impacts. However, the USAF will prepare an additional socioeconomic assessment of the project to better understand and to assist in planning for impacts, separate from NEPA.

7.3 NEPA requires the consideration of socioeconomic impacts to the extent that the biophysical environment is affected. No such affects have been identified in this EIS. Nevertheless, the USAF recognizes the importance of socioeconomic impacts for the communities involved. There is no USAF program available for mitigating socioeconomic impacts. However, the USAF will prepare an additional socioeconomic assessment of the project to better understand and to assist in planning for impacts, separate from NEPA.

7.4 The loss in direct local contracts because of the action was estimated by the TTR manger. In the absence of more specific information it is assumed that employment and earning losses of local businesses are included in the DEIS estimates of (direct and indirect) impacts.

7.5 Mitigation strategies for negative socioeconomic impacts are beyond the scope of this analysis. Additional studies and implementation of mitigation measures may be undertaken by federal, state, and/or county organizations following the completion of the EIS.

7.6 Impacts to local financial markets are mentioned briefly in the DEIS housing sections, but are largely beyond the scope of the analysis. Detailed mitigation strategies for negative socioeconomic impacts are also beyond the scope of the DEIS. Additional studies and implementation of mitigation measures may be undertaken by federal, state, and/or county organizations following the completion of the EIS.

7.7 Timing of the transfer of personnel is discussed in the document. Refer to Comment 2.4 above.

7.8 Comment noted. Income lost to trailer parks is accounted for in the direct and indirect effects of reduced TTR payrolls.

7.9 Assessment of this issue is considered to be beyond the scope of the EIS. However, the USAF is offering to prepare an in depth socioeconomic study, separate from the NEPA process; this study would address concerns such as this.

7.10 Comment suggests that local services and procurements estimate is low. This estimate ($310K) was taken from interviews with the manager of TTR and USAF personnel, and is reasonable in the absence of more detailed information.

7.11 Comment suggests that Nye County earning multipliers are low, and should be equivalent to those for Clark County. Clark County has a large and diversified economy and is not comparable to Nye County in the ability to generate indirect employment and earnings. Earning multipliers are coefficients calculated specifically for Nye County by the Bureau of Economic Analysis and are considered reasonable (additional response has been sent to the reviewer).

7.12 The revised discussion of impacts will note that unemployed indirect and school workers unable to take positions left open by working spouses of departing TTR contractors would leave Nye County. Also noted will be the reviewers opinion that the proportion of working spouses and dependents per household should be 0.2 rather than 0.65 as used in the DEIS.

7.13 Agreed. Comment noted. Text of the Final EIS has been modified accordingly.

7.14 Information of local mine closings will be incorporated in the revised cumulative analysis.

7.15 The requested analyses of education, community service, and fiscal impacts are at a level of detail beyond the scope of the present study. The USAF has offered and will continue to work with Tonopah to further assess secondary socioeconomic impacts separate from the NEPA process.

8.1 Document text has been amended to describe consultation between the USAF and the U.S. Fish and Wildlife Service. U.S. Fish and Wildlife Service consultation is included in Appendix I.

8.2 The analysis has been expanded to deal more fully with noise related impacts to wildlife and domestic animals. Comments concerning the impact of single event noise levels and low level flights are noted, and additional information is provided on impacts from these sources. It should be noted that the L_{dnmr} metric used for estimating noise levels along the MTRs incorporates a weighting factor to account for startle effect. It thus takes into account the effects of single events. Since the L_{dnmr} integrates noise data through time and space it is seen as a more useful measure for evaluating overall noise impacts than single event data.

The proposed action does not involve low level night sorties (2200 to 0700 local hours). Impacts from night flight of the F-117A would be negligible because these aircraft generally fly at relatively high altitudes (above 5,000 feet AGL).

Finally, supersonic flight under these alternatives would be confined to WSMR airspace. A decrease in supersonic sorties in that airspace unit is projected for all alternatives considered. As a result, no adverse impact from supersonic flight is projected for any alternative.

8.3 The reader is directed to Manci et al. (1988) and ORNL (1988) for recent reviews of the literature on this subject.

10.1 The USAF will fully comply with the requirements of historic preservation law. Sites and facilities that will be affected by the proposed action will be evaluated (and all issues resolved) in consultation with the State Historic Preservation Officer prior to any disturbance to insure that no eligible properties are affected. A cultural/historic resource survey for Holloman AFB will be performed prior to any construction on previously undisturbed lands.

11.1 Comment noted. Text of the Final EIS has been modified accordingly.

11.2 Comment noted. Text of the Final EIS has been modified accordingly.

11.3 Comment noted. Text of the Final EIS has been modified accordingly.

12.1 Your comment is noted, and where appropriate the text has been modified to reflect your observations. The USAF greatly appreciates your input.

12.2 This comment was responded to during the public hearing as shown in the transcript. The response given at the time has not changed.

12.3 This subject was covered thoroughly in the DEIS. The concern expressed in this comment has been taken into consideration in the preparation of the Final EIS.

H.4 COMMENTS RECEIVED AFTER 1 APRIL 1991

This section includes comments postmarked after the 1 April 1991 public comment period cutoff date. To the extent possible with publishing deadlines, these comments have been included and responses prepared. Many comments received were previously addressed. Due to the late arrival of the comments, specific revisions to the text of the EIS could not be accomplished in every case without jeopardizing the project deadlines. Comment documents appear in Table H.4-1. Responses follow:

1. Develop a separate document: Comment noted.

2. Adverse affects on nesting raptors: David H. Ellis, in his 1981 study "Responses of Raptorial Birds to Low Level Military Jets and Sonic Booms," was unable to link disturbances of this intensity with adverse responses.

3. Potential impacts to breeding, wintering, and migrating waterfowl: Noise has been observed to cause various startle responses in some animals, and it has been suggested that repeated, long-term, high noise level can modify some animals behavior. However, the effects of noise in general on animal behavior and physiology is a topic of continuing debate, and the body of evidence is inconclusive. As currently envisioned, the proposed activity will introduce 200 individual aircraft operations into the area each month. However, because the tactics planned under this proposal typically involve use of only one half of the proposed track for each mission, and because those same tactics would typically call for formations of two aircraft, we calculate that land under the proposed flight path would experience an average of five overflight events per day. Considering the width of the airspace (between approximately 6 and 30 miles), and the fact that aircrews are free to operate at will across the airspace, we believe it is unlikely any given point will be overflown with a frequency which is above any threshold that might trigger behavioral or physiological impacts.

4. Impact of low-level nighttime flights: Comment addressed in H.3, Response 8.2.

5. Impacts on bighorn sheep: The impacts of aircraft noise on wild ungulates (including bighorn sheep) is the subject of USAF-supported studies currently underway in Arizona, Nevada, and Utah. The results of those studies will do much to clarify this situation. It would be premature to initiate additional studies until the results of the on-going studies are available.

6. Affects on nocturnal bats: The impacts of aircraft noise on bats is the subject of an USAF-supported study in Arizona. The results of that study will do much to clarify this situation. It would be premature to initiate additional studies until the results of the on-going studies are available.

Table H.4-1 Comment Documents Received After 1 April 1991

DOCUMENT 1

GOVERNOR
BRUCE KING

DIRECTOR AND SECRETARY TO THE COMMISSION
BILL MONTOYA

State of New Mexico

DEPARTMENT OF GAME AND FISH

STATE GAME COMMISSION
JAMES LARRY REID, CHAIRMAN
SANTA FE
CHRISTINE BARRERAS
GALLUP
BOB JONES
GILLETT, TX
JIM JONES
ALBUQUERQUE
BRUCE WILSON
MESILLA PARK

April 4, 1991

Captain David Clark
HQ TAC/DEVE
Langley AFB, Virginia 23665-5542

Dear Captain Clark:

This correspondence is in reference to the Proposed Relocation of the 37th Tactical Fighter Wing, Draft Environmental Assessment (DEIS). The New Mexico Department of Game and Fish (Department) learned of the proposal and DEIS the second week of March, at which time we requested a copy for review. Subsequently, we discovered that the deadline for comment was April 1. Because the Department was omitted from the original mailing list and the DEIS was lengthy, we were unable to complete our review and formulate comments prior to that date. We respectfully request that our comments in the attached letter be considered for inclusion in the Final Environmental Impact Statement.

Thank you for your consideration. If you have any questions, please feel free to contact me at 505-827-7882.

Sincerely,

Robert E. Jenks
Environmental Section Chief

REJ/ala
Att.

DOCUMENT 1 (continued)

Mr. Gary Vest -2- April 3, 1991

Forest Service sensitive species, and approximately 180 species protected by the Migratory Bird Treaty Act. There are also many other species that are protected under New Mexico state statutes.

Based on the information presented in the DEIS, it is not possible to assess the impacts to wildlife in New Mexico. (1) The Department recommends a separate document be developed to provide a detailed assessment of the potential impacts to biological resources. That document should include the following information for each potentially affected biologically sensitive area:

- Flight "floor" level in feet above ground level (AGL).
- Noise levels at ground level.
- Number of flights per day.
- Whether flights will be conducted during the day, night, or both.
- Season of flights.
- Species which could be impacted.
- Mitigation measures and restrictions.
- Assessment of short- and long-term cumulative impacts.
- Monitoring which will be conducted to assess actual impacts.

Following is a summary of concerns identified by the Department and issues not adequately addressed in the DEIS:

(2) - The Department is concerned that extensive disturbance by aircraft and other activities may adversely affect nesting raptors. Potential impacts to raptors throughout the project area need to be assessed.

(3) - The potential impacts to breeding, wintering and migrating waterfowl, need to be thoroughly assessed. The DEIS only comments on potential collisions with aircraft.

(4) - Many desert animals are nocturnal. The potential impact of loud, low-level nighttime flights needs to be assessed.

(5) - Impacts to state-listed endangered desert bighorn sheep (Ovis canadensis mexicana), a species sensitive to disturbance, need to be assessed. Desert bighorn sheep are not mentioned in the DEIS.

(6) - Potential impacts to nocturnal bats, which are abundant in the Carlsbad area and Guadalupe Mountains, need to be thoroughly assessed. Free-tailed bats are known to routinely fly up to 10,000 feet AGL before dispersing.

DOCUMENT 1 (continued)

GOVERNOR
BRUCE KING

DIRECTOR AND SECRETARY TO THE COMMISSION
BILL MONTOYA

State of New Mexico

DEPARTMENT OF GAME AND FISH

STATE GAME COMMISSION
JAMES LARRY REID, CHAIRMAN
SANTA FE
CHRISTINE BARRERAS
GALLUP
BOB JONES
GILLETT, TX
JIM JONES
ALBUQUERQUE
BRUCE WILSON
MESILLA PARK

April 3, 1991

RE: Relocation of 37th Tactical Fighter Wing

Mr. Gary D. Vest, Deputy Assistant Secretary
U. S. Department of the Air Force
Washington, DC 20330-1000

Dear Mr. Vest:

Thank you for affording the New Mexico Department of Game and Fish (Department) the opportunity to comment on the Draft Environmental Impact Statement (DEIS) for the Proposed Relocation of the 37th Tactical Fighter Wing and other Tactical Force Structure Actions. The DEIS addresses extensive low-level jet aircraft flights which would produce high noise levels (up to 118 decibels) over the southern half of New Mexico during both day and night. The proposed flight patterns encompass numerous state and federal wildlife refuges, state and national parks, three national forests, several wilderness areas, Bureau of Land Management lands, and state school trust lands. The DEIS concludes (page 2-27) there will be no significant impact to biological resources under any of the alternatives.

Although the DEIS provides a detailed assessment of the socioeconomic impacts in the vicinity of Holloman Air Force Base, it characterizes the rest of the state as "vacant desert." New Mexico has one of the most diverse faunas of any state in the country. The 14 counties in the project area are inhabited by approximately 450 species of vertebrates. In addition to the federally-listed threatened and endangered animal species listed in the DEIS, there are 94 state-listed endangered species, approximately 75 U.S.

DOCUMENT 1 (continued)

Mr. Gary Vest -3- April 3, 1991

Night flights in these areas could impact bat populations and aircraft.

(7) - Cumulative impacts resulting from this and other current and proposed projects are not adequately addressed. For example, the Arizona Air National Guard, 162nd Tactical Fighter Group is proposing extensive low-level heavy transport flights in southwestern New Mexico. That proposal is not mentioned in the DEIS.

(8) - Monitoring of impacts is essential and required by the National Environmental Policy Act, 1969, (40 CFR § 1505.2 (c); 1505.3). The DEIS does not mention monitoring.

(9) - Outdoor related tourism, including hunting, fishing, hiking, and camping, is an important industry in New Mexico. The DEIS does not address the potential impacts to this industry except to recommend warning campers in the National Forests to expect loud, low-level night flights.

Thank you again for the opportunity to comment on the DEIS. If you have any questions, please contact Jon Klingel (827-9912) of this Department.

Sincerely,

Bill Montoya
Director

BM/JTK/ala

cc: Jennifer Fowler-Propst (Ecological Services, USFWS)
John Cook (Regional Director, National Park Service)
Larry Woodard (State Director, Bur. of Land Management)
David Jolly (Regional Forester, U. S. Forest Service)
Wain Evans (Assistant Director, NMDF)
Richard McCleskey (Assistant Director, NMDF)
Tom Moody (SE Area Supervisor, NMDF)
Craig Nordyke (SW Area Supervisor, NMDF)
Andrew Sandoval (NEL Division Chief, NMDF)
Robert Jenks (Environmental Section Chief, NMDF)
Lisa Fisher (Habitat Specialist, NMDF)
Mike Ball (Habitat Specialist, NMDF)
Nick Smith (Habitat Specialist, NMDF)

DOCUMENT 2

NEW MEXICO

Wildlife Legislative Council

P.O. Box 8178, Albuquerque, New Mexico 87198

Member Organizations
- Albuquerque Parrot Divers
- Albuquerque Chapter Quail Unlimited
- Albuquerque Wildlife Federation
- Central New Mexico Audubon Society
- Coalition of Conservation Organizations
- Committee of Women Supporters
- Dona Ana County Bowhunters Society
- Friends of the Gila River
- Forest Guardians
- Four Corners Environmental Association
- Las Cruces Chapter Native Plant Society
- Mimbres Valley Audubon Society
- Montoya Wolf Coalition
- National Audubon Society
- New Mexico Trout
- New Mexico Wild Turkey Federation
- New Mexico Wilderness Coalition
- New Mexico Wildlife Federation
- Public Lands Action Network
- Sandia Mountain Wildlife & Conservation Association
- Sangre de Cristo Chapter Audubon Society
- Sangre de Cristo Flyfishers
- Santa Fe Group Sierra Club
- Southwest New Mexico Quail Unlimited
- The Wilderness Society
- United Bowhunters of New Mexico
- Wildlife Rescue, Inc. of New Mexico

Capt Darrel Clark
HQ TAC / DEVE
LANGLEY, VA

Capt Clark,

Please enter the attached comments or input from the WLC. The postmark is one day past the deadline as it was on the weekend stated in the Los Alamos County Courthouse and did not "escape" until after 5:00 5:47 to be exact. The PO was closed and it was "carried over" to Tuesday in Tierra Amarilla NM and I could not mail the letter in Albuquerque. Monday while on intended. You will receive an affadavit to that effect from the D.A.'s office. Regards- Larry T. Candelaria

DOCUMENT 2 (continued)

(13) 2.1.2.1 Operations / 3.2.3 Noise

Noise regulations make distinctions between permitted noise levels during the day when ambient levels are normally higher, and the "sleep" hrs of 10:00pm to 7:00 am. Since 70% of flight operations will occur at night with consequent intrusive noise levels. In analyzing noise impacts the draft should consider the comparative noise levels at night (ambient Ldn current vs noise ambient Ldn) of a valid comparison to be included in the DEIS.

Additionally, the DEIS fails to consider the impact of low level night flights and attendant noise impacts on wildlife

(14) 3.2.6.2 Animals (Should be labeled Wildlife instead)

Many of the wildlife species in the area impacted, as the DEIS acknowledges, nocturnal in their activity. This is typical of deserts. Unfortunately the draft totally overlooks the impact of night operations and noise on nocturnal wildlife

(15) 4.0 Environmental Consequences

4.1.2.3.2 - Special Use Airspace - Noise

Again, the DEIS does not compare existing ambient noise levels at night (current) vs (future). Instead it appears to compare present Ldn data to future / proposed Ldn night. Such an applies - averages comparison is totally invalid

DOCUMENT 2 (continued)

General Comments

I feel the DEIS to be deficient in the following areas:

(10) 1) Public Input - The USAF failed to notify or distribute copies of the draft document to any environmental groups in the State. No local or statewide environmental group was listed on the distribution list. This glaring deficiency is reflected in the list of attending representatives which also fails to include any environmental group or representative thereof. Even if a potentially interested party had seen the notice of availability of the DEIS the title says nothing about where the action is proposed; there is no clue or signal that would stimulate environmental groups to respond.

(11) p. 1-5. Public comment appeared at public meetings no doubt emphasized socio economics because no contact had been made with environmental groups who tend to address environmental matters!

(12) 2.1.1.2 Facilities.

How many of maintenance operational facilities have remained in proposed economies? How long would personnel facilities be "temporarily" maintained

DOCUMENT 2 (continued)

In other words, it appears that the projected increase (a) of 108 to 1008 are possibly invalid with actual increases of a far great magnitude.

(16) 4.1.2.6.2 AVIANS (Sic) Wildlife!

The section 1 paragraph in length is totally inadequate. To make a statement that the noise in nighttime noise will be offset by a decrease in daytime noise is ludicrous on the extreme and totally without factual basis. No substantiation for this totally arbitrary "finding" is presented. This is particularly true when so many of the wildlife species are nocturnal.

(17) 4.2.2.1.3 MTRs

Flight operations over Wilderness Study Areas and other public recreation areas represent a significant intrusion on users and could even flights when be avoided.

(18) 4.2.2.6.2 Fauna

What does the statement "that ingestion of chaff would not be expected to cause adverse impacts to livestock or wildlife" mean? Does it or does it not? What authoritative source is used as a basis for basis / documentation for this statement? What "available data on laboratory animals does not indicate chronic ill effects from inhalation of "more dust" (:

DOCUMENT 2 (continued)

(whatever that means) of glass fibers? What particle size? What dose level? What happens to these fibers as they break down or fragment into smaller pieces etc. etc. Again, the USAF is making statements which are not substantiated.

In summary, I consider this document to be inadequate. The differences in the public comment / public involvement alone are enough to send it back to the drawing board. I am particularly upset about a statement from Capt. Clark that a public contact list was obtained from "a source in Texas"! What does a source in Texas know about environmental groups and environmental concerns in New Mexico? The answer to delete the obvious, is nothing!

Please make these comments a part of the public record of the Draft EIS and enter the request of the NM Wildlife Legislative Council, PO Box 8178, Albuq. N. M. 87198 to be placed on the mailing list for the final EIS.

Sincerely,
Perry T. Caudill
Pres. Wildlife Legislative Council

BRUCE KING
GOVERNOR

State of New Mexico
ENVIRONMENT DEPARTMENT
Harold Runnels Building
1190 St. Francis Drive
Santa Fe, New Mexico 87503

DOCUMENT 3

JUDITH M. ESPINOSA
SECRETARY

RON CURRY
DEPUTY SECRETARY

April 4, 1991

Captain David Clark
HQ TAC/DEVE
Langley AFB
VA 23665-5342

Dear Captain Clark:

Attached is a review from our Air Quality Bureau of your Proposed Relocation of the 37th Tactical Fighter Wing Draft Environmental Impact Statement (February 5, 1991). Let me know if you have any further questions.

Cordially,

Gedi Cibas, Ph.D.
Environmental Impact Review Coordinator

GC/mdg
Attachment

cc: David Tomsovic
Office of Internal Affairs
U.S. Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, California 94105

DOCUMENT 3 (continued)

BRUCE KING
GOVERNOR

State of New Mexico
ENVIRONMENT DEPARTMENT
Harold Runnels Building
1190 St. Francis Drive
Santa Fe, New Mexico 87503

JUDITH M. ESPINOSA
SECRETARY

RON CURRY
DEPUTY SECRETARY

MEMORANDUM

TO: Gedi Cibas, Program Support Bureau

FROM: Bill Blankenship, Air Quality Bureau BB

RE: Review of DEIS

DATE: April 2, 1991

I have reviewed the Draft Environmental Impact Statement prepared by the United States Air Force for the proposed relocation of the 37th Tactical Fighter Wing and Other Tactical Force Structure Actions with respect to air quality concerns. My comments are:

(19) 1. The dispersion modeling calculations of ground-level air pollutant concentrations done for each of the three alternatives indicate air quality impacts are insignificant. In fact, air pollutant concentrations from air craft will actually decrease in the area around Holloman Air Force Base under all alternatives because of deactivation of existing units. However, even without this decrease, the increase in air pollutant emissions and ground concentrations from relocated aircraft would be insignificant.

(20) 2. The DEIS correctly indicates existing air quality is very good in Otero County. As indicated, recorded levels of total suspended particulate matter in excess of ambient standards is due to the desert environment and occasional high winds. The Air Quality Bureau requested and EPA Region 6 officially designated Otero County a Rural Fugitive Dust Area. This means high particulate matter concentrations are considered natural in origin and recognizes the lack of industrial sources to impose control measures upon.

3. In summary, I have no concerns regarding this project and impacts on air quality, nor any requests of the Air Force to change the EIS or to implement any further mitigating measures.

cc: Cecilia Williams

DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY AIR DEFENSE ARTILLERY CENTER AND FORT BLISS
FORT BLISS, TEXAS

DOCUMENT 4

ATZC-ISE-E (200)

MEMORANDUM FOR COMMANDER, HEADQUARTERS, TACTICAL AIR COMMAND, DIRECTORATE OF ENVIRONMENTAL PLANNING, ATTN: CPT DAVID CLARK, LANGLEY AIR FORCE BASE, VA 23665-5342

SUBJECT: Comments on the Draft Environmental Impact Statement for the U.S. Air Force

1. Thank you for an opportunity to comment on this action. Fort Bliss fully supports U.S. Air Force training activities and appreciates the training opportunity such activity affords the Fort Bliss Air Defense Mission.

2. We feel the document satisfactorily addresses activities over Fort Bliss; however, recommend additional impact information be presented as regards other airspace areas in order to satisfy anticipated concerns of other resource management agencies. These recommendations are enclosed.

FOR THE COMMANDER:

Encl

JAMES L. SMITH
Colonel, GS
Chief of Staff

DOCUMENT 5

ATZC-ISE-E 10 April 1991

FORT BLISS' Comments to the DRAFT ENVIRONMENTAL IMPACT STATEMENT, PROPOSED RELOCATION of the 37TH TACTICAL FIGHTER WING and OTHER TACTICAL FORCE STRUCTURE ACTIONS, 5 FEBRUARY 1991

Comments refer to both editorial changes and clarifications, and to recommendations for additional impact data. We realize that at this point in the planning process it may be difficult to quantify actual numbers of aircraft and resulting sorties; therefore recommend providing best estimate and noting such uncertainties where appropriate.

(21) 1. Page 2-14: Note that in table 2.2-2, under category "Bombing Ranges", the figure for current McGregor use is about 1500 sorties. Please check as we believe only about 500 sorties occurred on the bombing range, while the remaining sorties were air crew mission training activities within the McGregor Range restricted air spaces R-5103B and R-5103C. Recommend these figures be corrected for both the "Current" and "Proposed" columns. On the fourth page, paragraph 3-24 note that U.S. Highway 54 borders the western edge of McGregor Missile Range, not the reservation.

(22) 2. Reference Table 3.2-7, Restricted Areas Used by Holloman Airforce Base: Note that the portion of restricted airspace R-5107A which overlies the higher cliffs of the Organ Mountains is restricted to 2000'AGL to avoid impact to nesting Mexican spotted owl (present) and nesting peregrine falcon (suspected).

(23) 3. Recommend clarification of the terms "sorties" and "airspace events" (tables 2.2-2), and "passes" (section 3.2.3).

(24) 4. Page 2-12, section 2.2.2.1, second paragraph, states that most MTR sorties would be conducted between 300' and 1000' AGL. Recommend discussing what estimated percentage could occur below 300' AGL to better identify and understand impacts.

DOCUMENT 5 (continued)

levels of flight at lowest above ground level (AGL) and whether the change in single event noise levels associated with the alternatives is significant (for example, on page 4-38, it shows a noise level for an F-4 of 122-124 dB at 630 feet; recommend providing data on the noise level of an F-4 at surface level). Recommend impacts of single event noise occurrences on wildlife be discussed for this action, in particular to sensitive species such as desert bighorn sheep and endangered species.

(31) 11. If noise impact studies of nesting peregrine falcons or other raptors concerning the reproductive period to the point of fledging have been conducted, recommend this data be included to preclude disagreements regarding impacts to raptors.

(32) 12. On page 4-57 and 4-58 it is stated that studies of potential disturbance effects have proven inconclusive or negative. Recommend these be discussed. Given stated uncertainties about noise impacts, recommend the Air Force discuss feasibility of funding monitoring of selected sensitive species or populations, such as desert bighorn sheep that exist on San Andres National Wildlife Refuge. Such a commitment would not delay implementation of the proposed action and would serve as a basis for future environmental decision making.

DOCUMENT 5 (continued)

(25) 5. Recommend discussion of impacts associated with lowest flight operating levels and associated single event noise levels for areas such as national wildlife refuges and parks, wilderness areas, etc. that may be of special concern to resource management agencies and environmental groups.

(26) 6. Point of clarification: On page 2-28, second paragraph, line 12, it is suggested that there will be an increase in special use airspace; however, according to table 2.2-2, page 2-14, overall activity in category "airspace" will decrease. Recommend clarification.

(27) 7. Recommend discussion of impacts to endangered wildlife species under new MTRs and endangered species surveys conducted in those areas. Recommend providing in the EIS copies of Section 7 Consultation correspondence between the U.S. Air Force and the United States Fish and Wildlife Service in order to lend support to no impact conclusion and refute any comments to the contrary.

(28) 8. Point of clarification: On page 4-35, first paragraph, it is stated that flights in VR-176 will increase 5 percent with the Holloman alternative, but table 2.2-2, page 2-14 shows an annual decrease from 1448 to only 288. Similarly, on page 4-35 it is stated that IR-133 net use would increase from 2 or 3 sorties to 11 daily flights (4 to 5 times the current number), and IR-111 would increase from 2 to 13 sorties per day (6 + times current number), but in table 2.2-2 the proposed combined total for IR-133/111, 2484 sorties, is only 1400 sorties more than current, or a 2.3 times increase, rather than the 4 to 6+ times referenced on page 4-35. Recommend clarification.

(29) 9. On page 4-58, section 4.2.2.6.3, Endangered and Threatened Species, next to last paragraph, maximum noise levels are stated to be 61 dB; recommend clarification of whether this level is average or single event.

(30) 10. All references to noise and associated impacts are stated in terms of noise averaged over 24 hours. Since impacts to wildlife were not assessed in the document as "single event" noise occurrences, recommend that the EIS discuss the maximum expected decibel (non-average)

DOCUMENT 6

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
Office of Environmental Affairs
600 Harrison Street, Suite 515
San Francisco, California 94107-1376

ER 91/191

Gary D. Vest
Deputy Assistant Secretary of the Air Force
Department of the Air Force
Washington, DC 20330-1000

Dear Mr. Vest:

The Department of the Interior has reviewed the Draft Environmental Impact Statement (DEIS) for the proposed Relocation of the 37th Tactical Fighter Wing and Other Actions in California, New Mexico, and Nevada. The following comments are provided for your use and consideration when preparing the final documents.

GENERAL COMMENTS

National Park Service (NPS) The DEIS does not adequately recognize the significant presence of several units of the National Park System in the vicinity of the proposal. These units include the White Sands National Monument, Carlsbad Caverns National Park, Guadalupe Mountains National Park, and Salinas Pueblo Missions National Monument (which includes the former Gran Quivira National Monument). They all have national significance and must be thoroughly considered in planning for the proposal and evaluating potential impacts.

Efforts should be made to reduce or eliminate existing impacts on these four National Park System areas, which received a total of over 1.5 million visits in 1990, and to avoid creating new or additional impacts. Potential impacts which should be specifically analyzed in relation to each park area are (1) direct effects such as vibration impacts on historic structures; (2) increased noise and visual intrusions; (3) changes in the quality/quantity of visitor experiences; and (4) safety of visitors/park staff/physical resources/facilities.

The final statement should include thorough analyses of existing and potential impacts on White Sands National Monument, Carlsbad Caverns National Park, Guadalupe Mountains National Park and Salinas Pueblo Missions National Monument. These analyses may be coordinated with the Superintendents listed in Appendix 1.

Maps and figures in the DEIS are generally deficient in depicting the proposal's relationship to National Park System units, especially White Sands National Monument. The NPS recommends that the final statement show these relationships on most project maps to help discern the presence or absence of proximity impacts. Maps showing noise contour and approach, and maps depicting Military Operating Areas (MOA), Special Use Airspace, Military Training Routes (MTR), and bombing ranges would be particularly useful. The NPS also suggests that project maps include reference points such as major

highways and cities (in addition to national parks) to clearly orient the reviewer to locations of project components.

It should be noted that the DEIS covers a broader scope of operations then was outlined at the public scoping meeting in March, 1990. Proposed actions discussed at the meeting in Alamogordo, New Mexico, consisted of the relocation of the 37th Tactical Fighter Wing (TFW) to Holloman Air Force Base (AFB) and the deactivation of the 49th TFW at Holloman AFB, resulting in 18 less aircraft at Holloman AFB. However, the DEIS also considers the relocation to Holloman AFB of the German Air Force (18 aircraft), a Tactical Reconnaissance Squadron (18 aircraft) and a Suppression of Enemy Air Defenses Squadron (18 aircraft). Thus, an increase of 54 aircraft would result. Because the magnitude of changes proposed at Holloman AFB were not fully revealed at the public scoping meeting, the impacts of increased aircraft activity was not identified as an issue since it appeared that there would be a decrease in aircraft numbers. Consequently, the scope of issues to be addressed by the DEIS was not fully identified.

Bureau of Mines

New Mexico and Arizona lands included in the Special Use and Military Operating Areas that may be impacted by the project contain deposits of gypsum and sand and gravel, as well as base and precious metals, rare earths, mica, fluorine, and salt. Because these lands are not unconditionally open to the public for mineral exploration and development, and because there are apparently no new lands to be acquired during project implementation, the Bureau of Mines feels there would be no further impact to mineral resources than that which already exists. No adverse impacts are anticipated to lands in California and Nevada. Therefore, we have no objection to the project as proposed

Fish and Wildlife Service (FWS)

The FWS found that the DEIS lacks sufficient detail and clarity concerning MTR and flight patterns to accurately identify and quantify project-induced impacts. Several special use areas, including the San Andres, Sevilleta, Bosque del Apache, and Bitter Lake National Wildlife Refuges (Refuges) are mentioned in the DEIS. However, no specific information concerning the resources of these Refuges is provided for formulating an assessment of impacts.

Flight patterns and altitudes which are critical to assessing impacts, should be provided in the final document, and an expanded discussion of these factors is also needed in the final document. The discussion concerning threatened and endangered species needs more detail, particularly with regard to the peregrine falcon, bald eagle, whooping crane, interior least tern. The Mexican spotted owl, a Candidate 2 species inhabits forested lands directly under the Beak Military Operation Area.

The different impacts to the desert species of New Mexico which would result from the increased number of night flights on the desert species of New Mexico should also be more critically assessed. Most desert species are crepuscular

and nocturnal. The increased disturbances to these nocturnal animals may critically affect their energy budgets and behavior patterns. The document should address these potential impacts.

The discussion on disturbance to avifauna seems to center on potential bird strikes during flight. This discussion should be expanded to include effects on breeding and nesting birds, particularly raptors. The FWS also disagrees with the assumption made on page 4-58 that no significant impact to sandhill cranes or white pelicans in the Pecos Valley is expected because "neither species is considered threatened or endangered." Impacts to these two species needs to be analyzed in the final documents.

In general, the DEIS states that the wide array of impacts would not result in significant effects to resident and migratory wildlife within the proposed project areas (including flight paths). However, there is no commitment to monitoring of plant or animal populations to determine the accuracy of that statement. Given the value of the diverse resources over which these proposed flights will occur, and the wide geographic range of the proposal, we recommend monitoring be included as a major element of this proposal.

Finally, we suggest that a complete analysis of cumulative impacts of this proposal, in concert with other anticipated aircraft activities on these training routes and flight paths, be presented in the document.

SPECIFIC COMMENTS

33 Figures 2.1-2, 2.1-3, 2.1-4, 2.2-1, 2.2-2, and 2.2-3, pages 2-5, 2-8, 2-9, 2-16, 2-17, and 2-18: Locations of the National Park System units should be marked on maps.

34 Figures 2.2-1, 2.2-2 and 2.2-3, 2-16, 2-17 and 2-18: Reference points, such as major highways and cities, should be included.

35 Section 3.2.1, Land Use, page 3-21: In addition to a reference on White Sands National Monument and visitor activities, we recommend that this section would also describe the values which the monument was established to protect.

36 Section 3.2.1 Land use, page 3-23: The maps from pages 2-5, 2-16, 2-17 and 2-18, showing locations of the four National Park System areas, should be included in this section.

37 Section 3.2.1, page 3-24: The document should indicate whether R-5107B,C, D, E, H, and J would have proximity or direct impacts on Salinas Pueblo Missions National Monument.

38 Section 3.2.1 Land Use, page 3-25: The reference to "Gran Quivera National Monument" should be changed to the Gran Quivira Unit of Salinas Pueblo Missions National Monument.

39 Section 3.2.3 Noise, page 3-27: The discussion on the noise environment would be enhanced by locating the military operation area's, bombing ranges, MTR's, and special use airspaces on noise contour maps.

40 Section 3.2.3 Noise, page 3-27 through 3-36: Existing noise levels at White Sands National Monument should be given.

41 Figure 3.2-1, page 3-32: White Sands National Monument should be depicted on the map.

42 Section 3.2.3 Noise, page 3-27 through 3-30: This section states that "Estimates of noise impacted residential populations and the number of people expected to be 'highly annoyed' by aircraft noise can be derived by demographic analysis of the areas within the day/night average sound level (Ldn) noise contours and by use of established relationships between Ldn noise levels and annoyance criteria" (page 3-27). This analysis does not account for the presence of a unit of the National Park System and the expectation of "natural quiet" that park visitors have identified as an important aspect of their visits. The final statement should evaluate this special aspect of the noise analysis.

43 Section 3.2.4, Airspace Management, page 3-36 and 3-39: The implications on White Sands National Monument should be identified. White Sands National Monument along with Carlsbad Caverns and Guadalupe Mountains National Parks and appropriate reference points.

This section should also indicate (and visually depict) that the headquarters area of White Sands National Monument is located directly beneath the turn-zone for take-offs from Holloman AFB. Park visitors, staff, and resources would be exposed to very high levels of overflight activity at relatively low altitudes. Adjustments in operational procedures may not be fully effective in adequately mitigating such impacts.

44 Section 4.1.2 Holloman AFB, page 4-10: The DEIS states that the 12 to 16 evening interpretive programs, backcountry campsite use, and staff residences could be impacted by increased night operations of F-117A's. Impacts from the 37th TFW/49th TFW alternative on White Sands National Monument are categorized as "minor." These impacts should be quantified by indicating the anticipated noise levels associated with the night flights. If noise levels are substantial, park operations could be significantly impacted. Measures to mitigate these impacts should be identified.

45 Figure 4.1-1, page 4-15: The location of White Sands National Monument should be shown in relation to the noise contours.

46 Figure 4.1-1, page 4-15 and section 4.1.2.8, Archaeological, Cultural, and Historic Resources, page 4-26: Both figure 4.1-1 and section 4.1.2.8 should indicate that actions in relation to a property on the National Register of Historic Places, such as the headquarters buildings at White Sands National Monument, are subject to the requirements of section 106 of the National Historic Preservation Act. The regulations governing the section 106 process are contained in 36 CFR Part 800. It should be noted that the introduction of, or increases in, night overflight activity could be determined to be an adverse effect according to Part 800.9(b)(1), "introduction of visual, audible, or atmospheric elements that are out of character with the property

or alter its setting." Vibration impacts to the historic structures would almost certainly be determined an adverse effect, according to Part 800.9(b)(1), "physical destruction, damage, or alteration of all or part of the property." Further investigations into the potential for vibration damage to these historic properties should be undertaken as soon as possible, to the satisfaction of NPS, and reported in the final statement.

In addition, section 106 consultation should be undertaken with the NPS, the State Historic Preservation Officer and the Advisory Council on Historic Preservation.

47 Section 4.2.2 Holloman AFB, page 4-32: The effect of the Holloman Alternative on White Sands National Monument would be similar to that of the 37th TFW/49th TFW alternative, but the number of daytime aircraft operations would be higher. The impacts of this increase in daytime activity should be discussed and quantified. Methods to mitigate impacts should be investigated and addressed in the final document.

48 Section 4.2.2.1.3 MTR, page 4-35: This section states that the increased use of VR-176 with the Holloman Alternative is not expected to cause significant impacts to "Gran Quivira National Monument." This reference should be changed to the Gran Quivira Unit of Salinas Pueblo Missions National Monument. Impacts should also be quantified, and the predicted noise levels and the mitigation proposals should be indicated in the final documents.

The requirements of complying with section 106 also apply to Salinas Pueblo Missions National Monument, and consultation should be undertaken as previously indicated.

The DEIS indicates that the new segment of IR-134 would pass between Carlsbad Caverns and Guadalupe Mountains National Parks. This segment would typically be flown at 300 to 500 feet above ground level and would generate noise levels from 109 to 114 dB. These may be substantial visual and noise impacts. Because of the route's location between two national parks, the final documents should identify noise levels within the parks that would be generated by aircraft activity along IR-134.

49 Section 4.2.2.3.1 Holloman AFB, page 4-38: The document states that the Holloman Alternative would result in a decrease of operations. Since the Holloman Alternative involves an overall increase in the number of aircraft at Holloman AFB, it appears that there would be an increase in operations. This should be clarified in the final documents.

50 Figure 4.2-2, page 4-41: This figure should depict the location of White Sands National Monument in relation to the noise contours.

51 Section 4.2.2.3.2 Special Use Airspace, page 4-42: The document indicates that the introduction of night overflights to an area could cause initial annoyance. The NPS believes that the annoyance would occur continuously until night operations ceased.

(82) Figure 4.2-3, page 4-50: This figure should indicate locations of the four National Park System areas in the vicinity of the proposal.

(83) Section 4.2.2.8 Archeological, Cultural, and Historical Resources, page 4-59: The discussion of vibration impacts on archeological resources states that recent experiments involving fragile resources in Arizona indicate that subsonic flights as low as 400 feet above ground level are not likely to pose a significant danger to such resources. However, the document also states that 90 percent of the low-level flights would be at 300 feet above ground level. The difference of 100 feet in flight level could be significant and should be discussed in the final documents. Also, the experiment results refer to "significant danger". This qualifier should be defined; does it mean that the cultural resource must sustain direct damage and be in danger of imminent collapse before the impact is classified as significant?

(84) Section 4.2.2.8 Archeological, Cultural, and Historic Resources, page 4-60: The reference to "Gran Quivera National Monument" should be changed to the Gran Quivira Unit of Salinas Pueblo Missions National Monument.

The document indicates that use of IR-YYY could result in potential noise and vibration effects at the Gran Quivira Unit and that the resulting impacts could be avoided. The final documents should indicate that these impacts would be avoided by establishing a flight avoidance special operating procedure. If impacts cannot be avoided, consultation pursuant to Section 106 of the National Historic Preservation Act needs to be initiated.

We appreciate the opportunity to review and comment on this DEIS.

Sincerely,

Patricia Sanderson Port
Regional Environmental Office

Enclosure

cc:
Director, OEA (w/original incoming)
Regional Director, FWS
Bureau of Mines
National Park Service

Appendix 1

Superintendent
White Sands National Monument
Post Office Box 458
Alamogordo, New Mexico 88310

Superintendent
Carlsbad Caverns National Park
3225 National Parks Highway
Carlsbad, New Mexico 88220

Superintendent
Guadalupe Mountains National Park
HC 60, Box 400
Salt Flat, Texas 79847-9400

Superintendent
Salinas Pueblo Missions National Monument
Post Office Box 496
Mountainair, New Mexico 87036

7. Cumulative impacts: Comment noted, where appropriate the text of the document has been modified.

8. Monitoring of impacts: Monitoring of impacts is not a mandatory requirement of NEPA. Paragraph 1505.2(c) addresses where applicable, the monitoring of mitigation measures, not impacts. Similarly, Paragraph 1505.3 discusses monitoring, again where appropriate, in the context of implementing decisions. If the USAF concludes that monitoring is appropriate, it will be adopted in the Record of Decision.

9. Impacts to outdoor industry: Comment noted.

10. Public input: We prepared this EIS under the NEPA and USAF regulations. We have encouraged involvement with the public and Government officials throughout the Environmental Impact Analysis Process. Our public participation program for the EIS includes the following actions to solicit public involvement: First, a Notice of Intent to prepare an EIS was published in the Federal Register on 9 February 1990. At the same time, various press releases were issued, and announcement letters were sent to all federal, state, and local Government officials around Tonopah Test Range, Nellis and Holloman AFBs. In March 1990 we hosted public scoping meetings in the area to determine the significant environmental issues. The issues raised were analyzed in the DEIS. The DEIS was filed with the Environmental Protection Agency on 8 February 1991 and published in the Federal Register on 15 February 1991. Various press releases and announcement letters were again sent out.

11. Environmental matters: The DEIS goes to great length to discuss "environmental matters". In Chapter 4, entitled Environmental Consequences approximately 60 of 87 pages discusses resource areas other than socioeconomics.

12. Facilities: Yes, vacated facility maintenance costs were assessed (cf. Section 2.1.1.2). Comment addressed in H.3, Response 1.5.

13. Noise: Nighttime noise operations (between 2200 and 0700 hours local) were penalized 10 dB in the USAF NOISEMAP computer model. Where appropriate, sleep disturbance was also included in the analysis. The text of the Final EIS was amended to better address low level flight impacts on wildlife.

14. 3.2.6.2 Animals: Comment noted and where appropriate the text has been revised to accommodate your observation. The Air Force has been flying numerous MTRs throughout the continental United States for the past forty years. A significant percentage of these flight operations have been during dark hours. No documented evidence has been developed to indicate major problems in any given

area. Individual animal losses may arise but this is not seen as a widespread problem.

15. Special Use Airspace: The definition of L_{dn} is a day-night average sound level. Therefore, the use of L_{dn} avoids the type of comparison you identified.

16. 4.1.2.6.2 Animals: See comment 14 above.

17. MTRs: The USAF has not proposed to use any MTRs during nighttime hours, refer to Tables 2.2-2 and 2.3-2.

18. Fauna: See Response 14 above.

19. Air pollutant concentration: Comment noted.

20. Existing air quality: Comment noted and where appropriate the text has been revised to accommodate your observation.

21. See Response 12.1

22. See Response 12.1.

23. See Response 6.2.

24. See Response 5.2.

25. See Response 5.2.

26. See Response 6.3.

27. See Response 8.1.

28. See Response 6.3.

29. See Response 8.2.

30. See Response 5.1 and 8.2.

31. See Response 8.2.

32. See Response 12.1.

33. See revised Figure 4.2-3.

34. Figures have been revised where required.

35. Comment noted.

36. See Figures 4.2-1 and 4.2-3.

37. Text has been revised where required.

38. See Response 37 (above).

39. Comment noted.

40. See Figure 3.2-1.

41. See Response 34.

42. Comment noted.

43. See Response 37.

44. Because of the reduction in noise levels under this alternative, no adverse impacts to White Sands National Monument is anticipated.

45. See Response 34.

46. The location of White Sands National Monument Park Headquarters in relation to noise contours is shown in Figures 3.2-1, 4.1-1, 4.2-2, and 4.3-1. In all cases noise levels are shown to decrease. Adverse impacts to historic structures are not, therefore, anticipated.

47. Aircraft operations will decrease under all action alternatives, relative to either baseline or current conditions. This will have a generally beneficial effect, which ever alternative is considered.

48. Air Force regulations require that a minimum altitude of 2,000 feet be maintained above the surface of National Monuments. This should provide ample protection to Gran Quivera.

    The segment between Guadalupe and Carlsbad Caverns National Parks will be flown at altitudes above 3,000 feet AGL. At this altitude, no adverse impact would be expected.

49. The number of operations are determined by mission requirements, and are not necessarily proportional to the number of planes involved.

50. See Response 34.

51. Comment noted.

52. See Response 34.

53. Comment noted.

54. See Response 48.

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS TACTICAL AIR COMMAND
LANGLEY AIR FORCE BASE VA 23665-

26 APR 1991

Honorable Harry M. Reid
United States Senate
Washington DC 20510

Dear Senator Reid

Thank you for your March 20, 1991 letter in which you provided formal comments on the Draft Environmental Impact Statement (EIS) concerning the proposed relocation of the 37th Tactical Fighter Wing (TFW).

The National Environmental Policy Act requires coverage of socioeconomic impacts only to the extent that they affect the biophysical environment. The detailed issues which you raise might be better addressed in a more detailed socioeconomic analysis, apart from the EIS, which we would be willing to undertake.

In addition, we have been informed by Air Force Headquarters that the Office of Economic Adjustment (OEA) in the OSD would be willing to provide an economic adjustment planning grant to Nye County. Dr Rauner, the Director of OEA, met with the planning consultant to Nye County and indicated the same, provided OEA received a formal request from Nye County. HQ USAF also indicated that Dr Rauner met with members of your staff to discuss economic adjustment matters concerning Tonopah.

As is our normal procedure, we will provide you a copy of the Final EIS before releasing it to the public.

Sincerely

MICHAEL A. McAULIFFE
Brigadier General, USAF
DCS Engineering & Services

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APPENDIX I

RECORD OF CONSULTATION UNDER SECTION 7 OF THE ENDANGERED SPECIES ACT

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Field Supervisor
Attn: Mr Brian Hanson
U.S. Fish and Wildlife Service
Ecological Services
3530 Pan-American Highway NE
Suite D
Albuquerque, NM 87107

19 NOV 1990

Dear Mr Hanson

This letter initiates informal consultation under Section 7 of the Endangered Species Act. Its intent is to guide the Air Force in determining if a proposed action may adversely affect listed species or critical habitat. It follows a 14 Nov 90 telephone conversation with Mr Barker of this office.

The U.S. Air Force is considering implementing new low-level aircraft training flights over areas of west Texas and southern New Mexico. We have enclosed an annotated 1:500000 map showing the area that would be subject to the proposed activity. We are also including a table of the coordinates of the turning points on the flight paths.

Although the concept of operations has not been finalized, it is currently envisioned that approximately 200 aircraft flights ("sorties") per month would engage in low-level navigational operations in the circular flight path informally known as Military Training Route (MTR) "New IR-134." Although most low-level activity would be above 300 feet above ground level (AGL), some aircraft would fly as low as 100 feet AGL. Aircraft would fly in a counterclockwise pattern. The westernmost corner of the MTR is the primary entrance and exit point. Aircraft would arrive at (and depart from) the proposed MTR by way of higher altitudes. An alternative entrance is in the center. On the enclosed map, the center line of the MTR is highlighted with a solid yellow line. The lateral boundaries are highlighted with yellow "hash marks."

An additional 200 sorties per month would use a previously unused track linking MTRs IR-133 and IR-161. You will note that, because these two MTRs virtually overlap at this location, virtually no "new" land will experience overflights.

We hope to develop the project so that no listed species or critical habitat will be adversely affected. To that end, we are asking you to identify to us any endangered species concentrations or critical habitat under the subject tracts. Beyond that, we ask you to provide us with any concerns or information you may have at this time relative to this proposal. Please understand that, in our effort to identify listed species issues as early as possible, we have provided you preliminary information that is subject to change. You will be informed of substantive changes.

We look forward to the successful conclusion of consultation. Direct correspondence, questions, and requests for clarification or additional information to Mr Roy Barker at (804) 764-7844.

Sincerely
SIGNED

ERNEST O. HOBBINS, II, Lt Col, USAF
Director, Environmental Programs

2 Atch
1. Map
2. MTR Coordinates

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Ecological Services
Suite D, 3530 Pan American Highway, NE
Albuquerque, New Mexico 87107

December 18, 1990

Cons. #2-22-91-I-044

Lt. Col. Earnest O. Robbins, II
Director, Environmental Programs
Department of the Air Force
Headquarters Tactical Air Command
Langley Air Force Base, Virginia 23665

Dear Colonel Robbins:

This responds to your letter dated November 19, 1990, requesting a list of species Federally listed or proposed to be listed as threatened or endangered. The proposed action involves a new military aircraft training route (IR-134). Approximately 200 aircraft flights per month would transpire with some flights 100 to 300 feet above ground level. The geographic area of interest is in Chaves, Eddy, Otero, and Guadalupe Counties, New Mexico.

We have used the information in your request to narrow the list of species occurring in the project area to those which may be affected by the proposed action. We find the American peregrine falcon and bald eagle may be found in the project area.

In addition to endangered species, the training flights may encounter some migratory birds during the spring and fall, especially where a flight path crosses the Pecos River.

We suggest you contact the New Mexico Department of Game and Fish and New Mexico Energy, Minerals and Natural Resources Department for information concerning fish, wildlife and plants of state concern.

If we can be of further assistance, please call Brian Hanson at (505) 883-7877 or ~~FTS~~ 474-7877.

Sincerely,

for John C. Peterson
Field Supervisor

Enclosure

cc: (wo/enc)
Director, New Mexico Department of Game and Fish, Santa Fe, New Mexico
Director, New Mexico Energy, Minerals and Natural Resources Department, Forestry and Resources Conservation Division, Santa Fe, New Mexico
Regional Director, U.S. Fish and Wildlife Service, Fish and Wildlife Enhancement, Albuquerque, New Mexico

Species Listing

Department of the Air Force
New Military Aircraft Training Route (IR-134)
Chaves, Eddy, Otero, and Guadalupe Counties

December 18, 1990

American Peregrine Falcon (Falco peregrinus anatum) - The peregrine falcon prefers areas with steep rocky cliffs in close proximity to water. Preferred habitat contains dense bird populations in conjunction with large gulfs of air such as is in canyons.

Authority: Sandy Williams, New Mexico Department of Game and Fish, Villagra Building, Santa Fe, New Mexico 87503, (505) 827-9914.

Bald Eagle (Haliaeetus leucocephalus) - Occupies New Mexico primarily as a winter resident, but also occurs as a migrant with several nesting in the state. Roosts in large trees which may or may not be close to their feeding areas. Bald eagles are found in riparian areas adjacent to rivers, reservoirs, and ponds. Rabbits, fish and waterfowl are their primary prey items.

Authority: Sandy Williams, New Mexico Department of Game and Fish, Villagra Building, Santa Fe, New Mexico 87503, (505) 827-9914.

doc 0625v

31 JAN 1991

Field Supervisor
Attn: Mr Brian Hanson
U.S. Fish and Wildlife Service
Ecological Services
3530 Pan-American Highway NE
Suite D
Albuquerque, NM 87107

Dear Mr Hanson

This letter continues informal consultation under Section 7 of the Endangered Species Act with regard to the effects on protected species of proposed low-level military aircraft training flights over areas of west Texas and southern New Mexico. Our letter of 19 Nov 90 gave details of that proposal. Your letter of 18 Dec 90 informed us that the American Peregrine Falcon and Bald Eagle occur in the project area and may be affected by the proposed action.

Based on experience gained in similar situations elsewhere, we believe listed species-related concerns regarding activities of the type proposed include: physical impact between soaring individuals and aircraft; disruption of breeding/nesting activities; and noise-induced stress. A discussion of these concerns follows.

-- Physical impact between soaring individuals and aircraft: A bird/aircraft strike can be catastrophic to both involved parties. Consequently, the Air Force constantly monitors this problem. Operations in situations where this threat is high are avoided or modified. In the present case, the proposed flight path has been evaluated (see atch), and recommendations to minimize the hazard provided to the proponent, who can be expected to implement as many of them as are compatible with the training mission. Considering this, plus the fact that there were only 3500 reported impacts involving both listed and non-listed bird species Air Force-wide in 1989, we do not believe there is a reasonable likelihood of the incidental taking of a listed species in this manner under the proposed action. Consequently, we do not anticipate an effect from this source.

-- Disruption of breeding/nesting activities: The proposed activity is not taking place in the vicinity of any known nesting habitat of listed species. Consequently, we do not anticipate an effect from this source.

-- Noise-induced stress: Noise generated by the proposed activity will be from subsonic aircraft operations. Noise has been observed to cause various startle responses in some animals, and it has been suggested that repeated, long-term, high noise levels can modify some animals' behavior. However, the effects of noise in general on animal behavior and physiology is a topic of continuing debate, and the body of evidence is

inconclusive. As currently envisioned, the proposed activity will introduce 200 individual aircraft operations into the area each month. However, because the tactics planned under this proposal typically involve use of only one half of the proposed track for each mission, and because those same tactics would typically call for formations of two aircraft, we calculate (and are consulting on the basis) that land under the proposed flight path would experience an average of five overflight events per day. Considering the width of the airspace (between approximately 8 and 30 miles), and the fact that aircrews are free to operate at will across that airspace, we believe it is unlikely any given point will be overflown with a frequency which is above any threshhold that might trigger behavioral or physiological impacts. Furthermore, approximately one third of the proposed flying will be over areas that have long been subject to similar activity; in those areas it is reasonable to assume a degree of acclimatization to the presence of aircraft and their noises. In light of these considerations, we do not anticipate an effect from this source.

Because our analysis concludes that there will be no effect on listed species, we believe that further consultation under Section 7 of the Endangered Species Act is unnecessary. We are seeking your concurrence with our position.

Direct inquiries on this matter to Mr Roy Barker at 804-764-7844.

Sincerely

SIGNED

JOEL O. [illegible], Lt Col USAF
Dep Director, Environmental Programs

1 Atch
AFESC/DEMM ltr, dtd 16 Nov 90

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Ecological Services
Suite D, 3530 Pan American Highway, NE
Albuquerque, New Mexico 87107

March 26, 1991

Cons. #2-22-91-I-102

Deputy Director, Environmental Programs
Attn: Mr. Roy Barker
Department of the Air Force
Headquarters Tactical Air Command
Langley Air Force Base, Virginia 23665

Dear Mr. Barker:

This responds to your letter dated January 31, 1991, which addresses the impacts of a new low level aircraft training flight over west Texas and southern New Mexico (IR-134 and IR-111). Your letter concludes with a "no effect" determination upon the American peregrine falcon (falcon) and bald eagle. The letter includes the following statement.

> "The proposed activity is not taking place in the vicinity of any known nesting habitat of listed species."

This statement is incorrect, since there is suitable falcon habitat in the flight path southwest of Carlsbad, New Mexico. Noise levels due to overflights will disrupt breeding activities. To avoid impacting the falcon, we suggest you delete the linkage and entry point at the New Mexico state line southwest of Carlsbad, New Mexico (see attachment).

We recommend that you contact our office in Arlington, Texas, for impacts which may occur in Texas. We also recommend that you contact the New Mexico Department of Game and Fish for information concerning fish and wildlife of state concern. The addresses and telephone numbers are:

Field Supervisor
U.S. Fish and Wildlife Service
Ecological Services
711 Stadium Drive East, Suite 252
Arlington, Texas 76011
(817) 885-7830 or FTS 334-7830

Director, New Mexico Department of Game and Fish
Villagra Building
Santa Fe, New Mexico 87503
(505) 827-7882

If we can be of further assistance, please call Brian Hanson at (505) 883-7877 or FTS 884-7877.

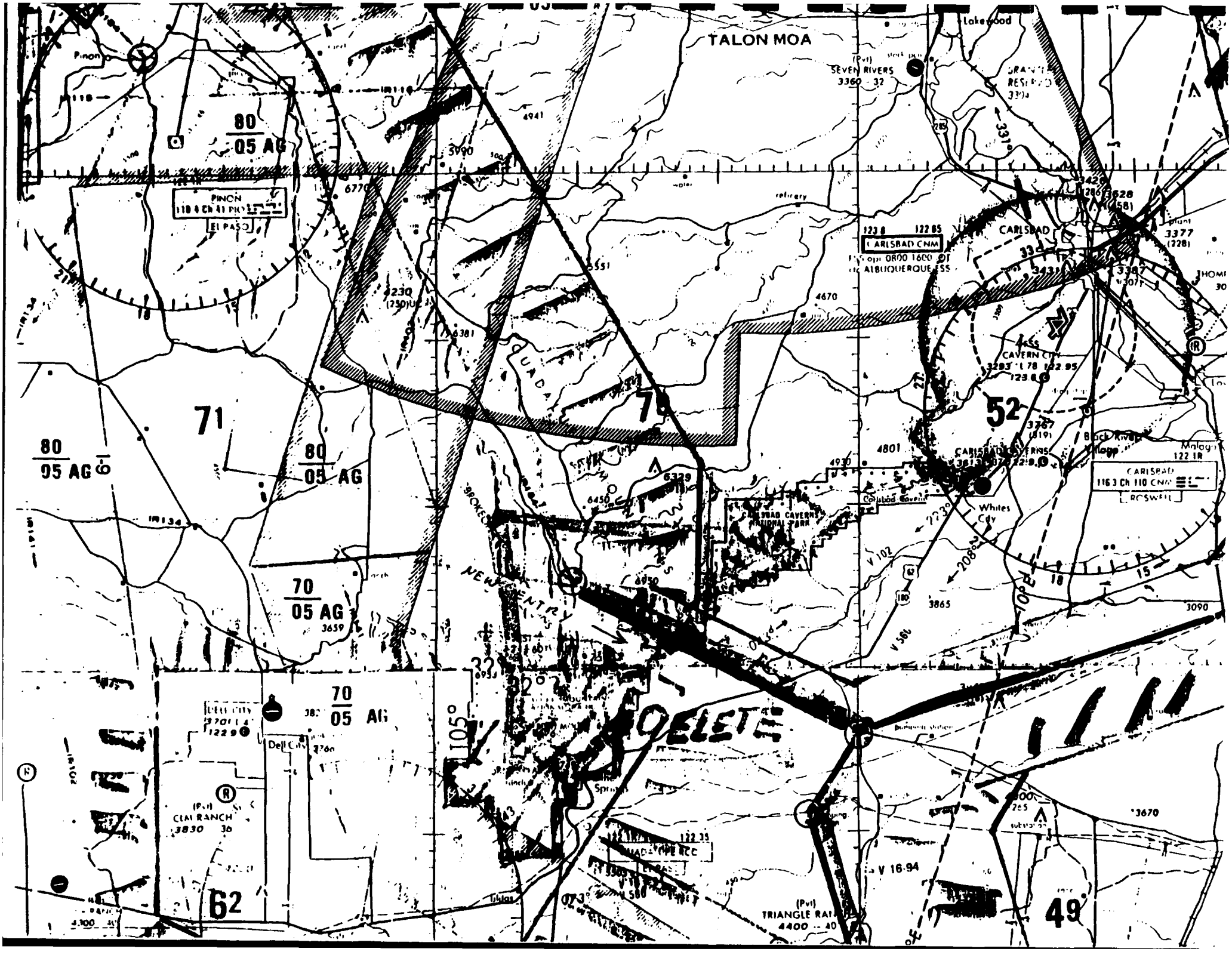
Sincerely,

Gerald W. Horn

for Jennifer-Fowler Propst
Field Supervisor

Attachment

cc: (w/atch)
Director, New Mexico Department of Game and Fish, Santa Fe, New Mexico
Superintendent, Carlsbad Caverns National Park, Carlsbad, New Mexico
Field Supervisor, U.S. Fish and Wildlife Service, Ecological Services, Arlington, Texas
Regional Director, U.S. Fish and Wildlife Service, Fish and Wildlife Enhancement, Albuquerque, New Mexico


TALON MOA
Lakewood
SEVEN RIVERS
3360 32
PINON
110.6 CH 41 PNW
EL PASO
80
05 AG
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CARLSBAD
116.3 CH 110 CNM
ROSWELL
V 102
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DELL CITY
122.9
Dell City
CEMI RANCH
3830 36
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TRIANGLE RAT
4400 40
3670
49

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS TACTICAL AIR COMMAND
LANGLEY AIR FORCE BASE VA 23665-5001

16 APR 1991

Field Supervisor
Attn: Mr Brian Hanson
U.S. Fish and Wildlife Service
Ecological Services
3530 Pan-American Highway NE
Suite D
Albuquerque, NM 87107

1. This is in response to your letter of 26 Mar 91 (your reference #2-22-91-I-102), and continues informal consultation under Section 7 of the Endangered Species Act with regard to the effects on protected species of proposed low-level military aircraft training flights over areas of west Texas and southern New Mexico.

2. In your letter, you took issue with our statement that "the proposed activity is not taking place in the vicinity of any known nesting habitat of listed species," noting that there is suitable American peregrine falcon habitat in the flight path southwest of Carlsbad, NM. You suggested the deletion of that section of the flight path in order to avoid impacting the falcon.

3. We have discussed the matter with the proponents of the action. Although relocation of the section would clearly eliminate environmental concerns, it would so disrupt air operations that alternative measures were investigated. We believe noise levels in the subject area will be reduced to acceptable levels if aircraft operate no lower than 9800′ above mean sea level (MSL). This would place aircraft 2300 feet above the highest point in that segment, while most portions of that segment would be overflown at 3000′ above ground level. We calculate that peak noise at ground level from a single 3000′ overflight event would be approximately 85 dB (roughly equivalent to a diesel truck idling at 50′). Such events would take place over this section up to five times a day, although the likelihood of a given point being directly overflown is substantially reduced by the fact that training philosophy dictates that aircraft operate over the entire width of this section. Ellis, in his 1981 study "Responses of Raptorial Birds to Low Level Military Jets and Sonic Booms," (Institute for Raptor Studies, Oracle AZ 85937) was unable to link disturbances of this intensity with adverse responses. Under these circumstances, we believe that the proposed action in the section in question (as clarified in this letter) is not likely to adversely affect the American peregrine falcon. We ask your concurrence with this position, as well as your concurrence that further consultation under Section 7 of the Endangered Species Act is unnecessary.

4. In your letter of 26 Mar 91, you also suggested contacting the New Mexico Dept of Game and Fish and your Arlington, Texas office. During the distribution of the Draft Environmental Impact Statement for public review and comment, copies were provided to several central clearinghouses, including ones we believe are responsible for notifying the offices you mentioned. The New Mexico Dept of Game and Fish has provided comments on the document, and those comments will be addressed in the Final Environmental Impact Statement. Upon publication, we will forward a copy of the Final Environmental Impact Statement to the New Mexico Dept of Game and Fish and your Arlington office.

5. Direct inquiries on this matter to Mr Roy Barker at 804-764-7844.

Roy L Barker

ROY L. BARKER
Chief, Natural Resources Division

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APPENDIX J

Single Event Noise Level Data For Various Aircraft Expressed as Maximum A-Weighted Sound Levels in dB(A)

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Table J-1

Typical Maximum A-Weighted Sound Levels dB(A)
Below Low Level MTRs for Various Aircraft
At 500 ft AGL Altitude

Aircraft Type	Sideline Distance to Flight Track (ft) 0	500	1000	2000
T-38	84	80	76	68
A-7	103	99	94	86
F-4	106	102	97	90

Table J-2

Typical Maximum A-Weighted Sound Levels dB(A)
Below Low Level MTRs for Various Aircraft
at Various Altitudes

Aircraft Type	Altitude (ft) AGL 100	300	500	600	1000
T-38	100	89	84	82	77
A-7	120	108	103	101	95
F-4	123	112	106	104	98

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Summary or Source Terms

		Aircraft	Construction ($000)	Manpower Autnorizations	Contractor Employees	Acres Disturbed on base	Acres Disturbed off base
37th TFW/49th TFW	**37th TFW/49th TFW Alternative**						
	Tonopah Test Range	-46 F-117A -8 AT-38B			-1,130		
	Holloman AFB	+46 F-117A +8 AT-38B -72 F-15	86,000	-185/-489*	0/-528*	58	2
	Nellis AFB			-2,696			
HOLLOMAN	**Holloman Alternative**						
	Tonopah Test Range	-46 F-117A -8 AT-38B			-1,130		
	Holloman AFB	+46 F-117A +8 AT-38B +72 F-4 -72 F-15	106,000	+2,316/2,012*	0/-528*	70	7
	Nellis AFB			-2,696			
HOLLOMAN-NELLIS	**Holloman-Nellis Alternative**						
	Tonopah Test Range	-46 F-117A -8 AT-38B			-1,130		
	Holloman AFB	+72 F-4 -72 F-15	20,000	+269/-35*	0/-528*	10	7
	Nellis AFB	+46 F-117A +8 AT-38B	159,000	-649		130	
PREFERRED	***Preferred Action***						
	Tonopah Test Range	-46 F-117A -8 AT-38B			-1,130		
	Holloman AFB	+46 F-117A +8 AT-38B +18 F-4 -72 F-15	87,500	-57/-361*	+278/-250*	62	2
	Nellis AFB			-2,696			

* **Due to alternative / cumulative, including Reduction of the 479th TTW**