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Military Family Housing Demolition, Construction, Renovation, and Leasing Program

Holloman AFB, New Mexico

Environmental Assessment

FINAL

United States Air Force
Air Combat Command

March 2006

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FINAL
ENVIRONMENTAL ASSESSMENT

MILITARY FAMILY HOUSING DEMOLITION, CONSTRUCTION, RENOVATION, AND LEASING PROGRAM AT HOLLOMAN AFB, NEW MEXICO

DEPARTMENT OF THE AIR FORCE

Holloman Air Force Base

March 2006

FAA	Federal Aviation Administration
FBCC	Federal Birds of Conservation Concern
FE	Federal Endangered
FICUN	Federal Interagency Committee on Urban Noise
FONSI	Finding of No Significant Impact
FSC	Federal Species of Concern
FT	Federal Threatened
GI/SI	Globally Impaired/State Impaired
H_2S	Hydrogen Sulfide
HAFB	Holloman Air Force Base
HRMA	Housing Requirements Market Analysis
HUD-SOCDS	U.S. Housing and Urban Development, State of the Cities Data System
HWY	Highway
IRP	Installation Restoration Program
LBP	Lead-Based Paint
MFH	Military Family Housing
MG	Million Gallons
MGD	Millions of Gallons per Day
MILCON	Military Construction
mph	Miles per Hour
msl	Mean Sea Level
MVA	Mega Volt-Ampere
NAAQS	National Ambient Air Quality Standards
NCSHPO	National Conference of State Historic Preservation Officers
NEPA	National Environmental Policy Act
NM DOL	New Mexico Department of Labor Economic Research and Analysis
NMAC	New Mexico Administrative Code
NMAQB	New Mexico Air Quality Bureau
NMDG&F	New Mexico Department of Game and Fish
NMED	New Mexico Environment Department
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NSR	New Source Review
O_3	Ozone
OCEC	Otero County Electric Cooperative
OSD	Office of the Secretary of Defense
OSHA	Occupational Safety and Health Administration
Pb	Lead
PCB	Polychlorinated Biphenyls
PM_{10}	Particulate Matter Less Than or Equal to 10 Micrometers In Diameter
$PM_{2.5}$	Particulate Matter Less Than or Equal to 2.5 Micrometers In Diameter

POL	Petroleum, Oil, and Lubricant
POV	Personally Owned Vehicles
ppm	Parts per Million
PSD	Prevention of Significant Deterioration
QD	Quantity Distance
RCRA	Resource Conservation and Recovery Act
RFP	Request for Proposal
ROD	Record of Decision
ROI	Region of Influence
SCS	Soil Conservation Service
SE	State Endangered
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SO_x	Sulfur Oxides
Sq	Square
SS	State Sensitive
ST	State Threatened
SWDA	Solid Waste Disposal Act
SWMP	Solid Waste Management Plan
SWPPP	Stormwater Pollution Prevention Plan
TSP	Total Suspended Particulates
U.S. or US	United States
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USC	United States Code
USCB	United States Census Bureau
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UST	Underground Storage Tank
VOC	Volatile Organic Compounds
WINDO	Wing Infrastructure Development Outlook

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FINAL
FINDING OF NO SIGNIFICANT IMPACT (FONSI) FOR MILITARY FAMILY HOUSING DEMOLITION, CONSTRUCTION, RENOVATION AND LEASING PROGRAM; HOLLOMAN AFB, NEW MEXICO

NAME OF THE PROPOSED ACTION

Military Family Housing (MFH) Demolition, Construction, Renovation, and Leasing (DCRL) Program, Holloman Air Force Base (AFB), Alamogordo, New Mexico.

DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

The United States Air Force (USAF) would privatize its MFH at Holloman AFB. Under this proposal, USAF would convey 1,413 housing units to a private developer. The developer would redevelop the housing areas to achieve an end-state of 1,280 units at the base. Redevelopment includes demolishing 730 housing units that no longer meet USAF standards. Construction of 597 new units and renovation of 582 existing units would occur over 10 years. Also, 101 existing units already meet current standards and would be used "as-is." All proposed projects are located in the existing MFH area.

SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Earth Resources. Under the Proposed Action, demolition would temporarily disturb about 280 acres. Redevelopment would take place on about 150 acres. Impervious surface would not increase and is likely to decrease since the final number of housing units would decrease by almost 9 percent (about 13 acres). Use of Best Management Practices (BMPs) would limit soil movement, runoff and sedimentation. The Proposed Action would not result in significant impacts to earth resources.

Water Resources. Under the proposal, impervious surface would decrease at the base because of fewer housing units. This would result in a minor decrease in storm water runoff at the base. The base would prepare a project-specific Storm Water Pollution Prevention Plan (SWPPP), complying with its National Pollutant Discharge and Elimination System (NPDES) Storm Water General Permit for Small Construction. As required, the base would use BMPs to minimize loss of exposed soils or migration of contaminants from construction activities into nearby surface waters. Soil disturbance would not impact wetlands. The design of new housing sites would channel storm runoff into existing storm drains. Impacts to water resources would not be significant.

Biological Resources. In general, disturbance has previously occurred on the areas associated with proposed construction and/or demolition. Any remaining natural vegetation is typical of the surrounding Chihuahuan desert plant community. The proposed project areas do not provide important or rare habitat. Animal species found in specific project areas are adapted to the human environment. Sensitive plant or animal species are not known or likely to be present in the MFH area. Prior to construction and/or demolition activities, a qualified field biologist would survey the sites to determine whether sensitive species are present. The base would

coordinate with appropriate state and federal agencies regarding any threatened, endangered or sensitive species, if needed. Impacts to biological resources would not be significant.

Air Quality. Annual emissions related to construction and demolition activities would vary over the 10-year construction period. The highest annual emissions would occur during the latter half of the construction window. The estimated direct project emissions represent the following percentage of current average annual levels for each criteria pollutant: 0.67 percent of carbon monoxide; 0.63 percent of volatile organic compounds; 3.16 percent of nitrogen oxides; 2.26 percent of sulfur oxide; and 3.20 percent of respirable particulate matter (less than or equal to 10 micrometers in diameter). In general, combustive and fugitive dust emissions would produce localized, short-term elevated air pollutant concentrations. These would not result in long-term impacts on the air quality in Otero County (Air Quality Control Region 153). Total emissions are below the conformity threshold of 100 tons per year for all criteria pollutants.

Noise. Under the Proposed Action, vehicles and equipment involved in demolition, facility construction and finishing work would generate noise. Residents and three schools are within and surrounding the construction and demolition areas. Noise resulting from redevelopment activities may cause inconvenience or some annoyance. However, the noise would be temporary and intermittent over the construction period. No long-term impacts would result. Similarly, noise emanating off-site may affect some persons and activities in the immediate vicinity. Temporary inconvenience may occur, but the impact would not be adverse. Aircraft noise would continue to dominate the acoustic environment on and near Holloman AFB. Impacts from project noise would not be significant.

Socioeconomics/Environmental Justice. Construction employment and income resulting from the Proposed Action would not cause substantial change to the socioeconomic characteristics of the region of influence. Construction accounted for 5.0 percent of Otero County's total employment in 2003 and 4 percent of its total earnings in 2003. Given the phased approach to the project and other simultaneous military construction projects, this would not represent a significant change in Holloman-related construction for the region of influence. Therefore, no significant impact on employment or earnings would result. Given the small margin of local vacancies, temporary shortages of suitable rental housing for displaced military families may occur during redevelopment.

The Proposed Action would have no substantial impact on specific minorities. Given standard safety precautions, impacts to children who reside or go to school in the vicinity of the proposed activities are not anticipated.

Safety. All proposed activities and workers at the construction site would comply with Occupational Safety and Health Administration standards and requirements. Workers must use standard safety measures during construction to ensure safety of personnel at or near the construction site. Industry and regulatory standards would govern all materials and equipment use. All construction areas would be fenced to preclude public access. Given these measures, risks to personnel and the public would be minimized. Construction contractors are required to develop a project-specific traffic and safety plan. The plan would identify haul routes through

neighborhoods, set speed limits on construction-related vehicles and define other protocols to ensure safety of residents and children. Impacts to safety would not be significant.

Hazardous Materials and Waste Management. Construction practices would limit the use of hazardous materials, to the extent possible. Petroleum, oil and lubricant products and other hazardous materials (e.g., paints) would be used during construction/renovation activities, as necessary. Building contractors would store these materials in the proper containers, employing secondary containment as necessary to prevent/limit accidental spills. Two Environmental Restoration Program sites (SS-12 and SS-17) situated on the periphery of the housing areas pose little concern. Site SS-12 is closed, requiring no further action. The construction contractor would contact the Holloman AFB Environmental Flight should any unusual odor, soil, or groundwater coloring be encountered during activities in any other areas. New construction would not use asbestos containing building materials (ACBMs) or lead-based paint (LBP). Demolition of older housing known to contain these materials would result in a net decrease in ACBMs and LBP. This would benefit health and safety conditions for residents. These materials would be removed and disposed of in accordance with applicable regulations.

The proposed construction and demolition would generate construction and demolition waste. A portion would be recycled and the remainder taken to the regional landfill, as appropriate. No capacity issues exist with the existing landfills; and at most, the demolition projects would use about 2 percent of the remaining capacity of the regional landfill. Hazardous materials and wastes would be handled, stored and disposed of in accordance with applicable regulations. Impacts to hazardous materials and waste management would not be significant.

Infrastructure. Implementation of the Proposed Action would not alter traffic circulation on most of the base. Haul routes for proposed demolition and construction have not been established, but would be routed on the primary roads in and out of the base and through family housing areas, to the extent possible. There may be some minor traffic inconveniences, but these impacts would be of short duration. In general, the 133-unit decrease in family housing units would lower utility demands on the base. These demands may shift to off-base locations, resulting in no net change in utility consumption in the local region. Overall, impacts to infrastructure would not be significant.

No Action Alternative: Under the No Action Alternative, the USAF would not privatize MFH nor implement the DCRL program at Holloman AFB. Instead, Holloman AFB would continue to manage and maintain military family housing in accordance with existing USAF policy. Based on the Housing Requirements Market Analysis, Holloman AFB has a requirement to supply 1,280 housing units. Under the No Action Alternative, demolition of 133 units is necessary to achieve this level. It is also reasonable to assume that under the No Action Alternative, Holloman AFB would implement military construction actions similar to this proposal, only over a longer time period. Government appropriations would fund these projects rather than private investment. As a result, impacts resulting from the No Action Alternative would be less than or equivalent to those described for the Proposed Action.

CONCLUSION

This Environmental Assessment was prepared in accordance with the requirements of the National Environmental Policy Act (42 United States Code [USC] 4321-4347), Council on Environmental Quality (40 Code of Federal Regulations [CFR] 1500-1508), and 32 CFR 989, et seq., *Environmental Impact Analysis Process* (formerly known as Air Force Instruction [AFI] 32-7061). Based on the findings and after careful review of the potential impacts, I conclude implementation of the Proposed Action would not result in significant impacts to the quality of the human or the natural environment. Therefore, a Finding of No Significant Impact is warranted, and an Environmental Impact Statement is not required for this action.

8 Jun 06

DAVID A. MOORE
Colonel, USAF
Commander

Date

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1.0 PURPOSE AND NEED FOR ACTION

1.1 INTRODUCTION

The United States Air Force (USAF), Air Combat Command (ACC), proposes to privatize its Military Family Housing (MFH) at Holloman Air Force Base (AFB), New Mexico. Holloman AFB is located in Otero County, New Mexico, approximately 8 miles west of Alamogordo (Figure 1-1). As part of privatization, a demolition, construction, renovation, and leasing (DCRL) program of military family housing would be implemented. The base consists of approximately 52,073 acres. Approximately 21,000 Active Duty, Guard, Reserve, retirees, Department of Defense (DoD), civilians, and their families are supported by Holloman AFB (Figure 1-2).

This Environmental Assessment (EA) analyzes the potential environmental consequences of the Proposed Action and the No Action Alternative. It complies with the following.

- National Environmental Policy Act (NEPA) (42 United States Code [USC] 4321 et seq.)
- Regulations established by the Council on Environmental Quality (CEQ), 40 Code of Federal Regulations (CFR) 1500-1508
- 32 CFR 989, which implements Section 102 (2) of NEPA

1.2 BACKGROUND

The DoD is faced with DoD-owned housing in poor condition and a shortage of affordable, private housing. About 60 percent of DoD housing units need to be renovated or replaced (Office of the Secretary of Defense [OSD] 2004). As a result, the DoD set a goal to eliminate nearly all inadequate housing by fiscal year 2007. The *National Defense Authorization Act of 1996* gave DoD the authority to engage private sector businesses through housing privatization. The businesses renovate or demolish existing housing units, build new units, and provide necessary infrastructure. In support of this effort, the Air Force has initiated a combination of traditional military construction and housing privatization. Military Construction (MILCON) funds are used where privatization is not a viable option. Privatization accelerates housing improvements, alleviates housing shortages, and reduces waiting times for adequate housing.

1.3 PURPOSE AND NEED

At Holloman AFB, 88 percent of Base housing units are over 30 years old and do not meet current Air Force housing standards (USAF 2004). A 2003 Housing Requirements Market Analysis (HRMA) for Holloman AFB estimates a total military family housing requirement of 1,506 housing units (USAF 2003). A recent Housing Privatization project has identified a privatization end-state need of 1,280 units. Traditional military construction to support this requirement is cost prohibitive and not a viable option.

The purpose of the Proposed Action is to meet the housing needs identified in the HRMA through privatization. The privatization program improves living conditions, which elevates morale. Elevated morale results in a stronger, dedicated military that is willing and able to protect and defend the United States. Additional information on the initiative is on the DoD housing privatization websites at http://www.acq.osd.mil/housing and http://www.afcee.brooks.af.mil/dc/dcp/news.

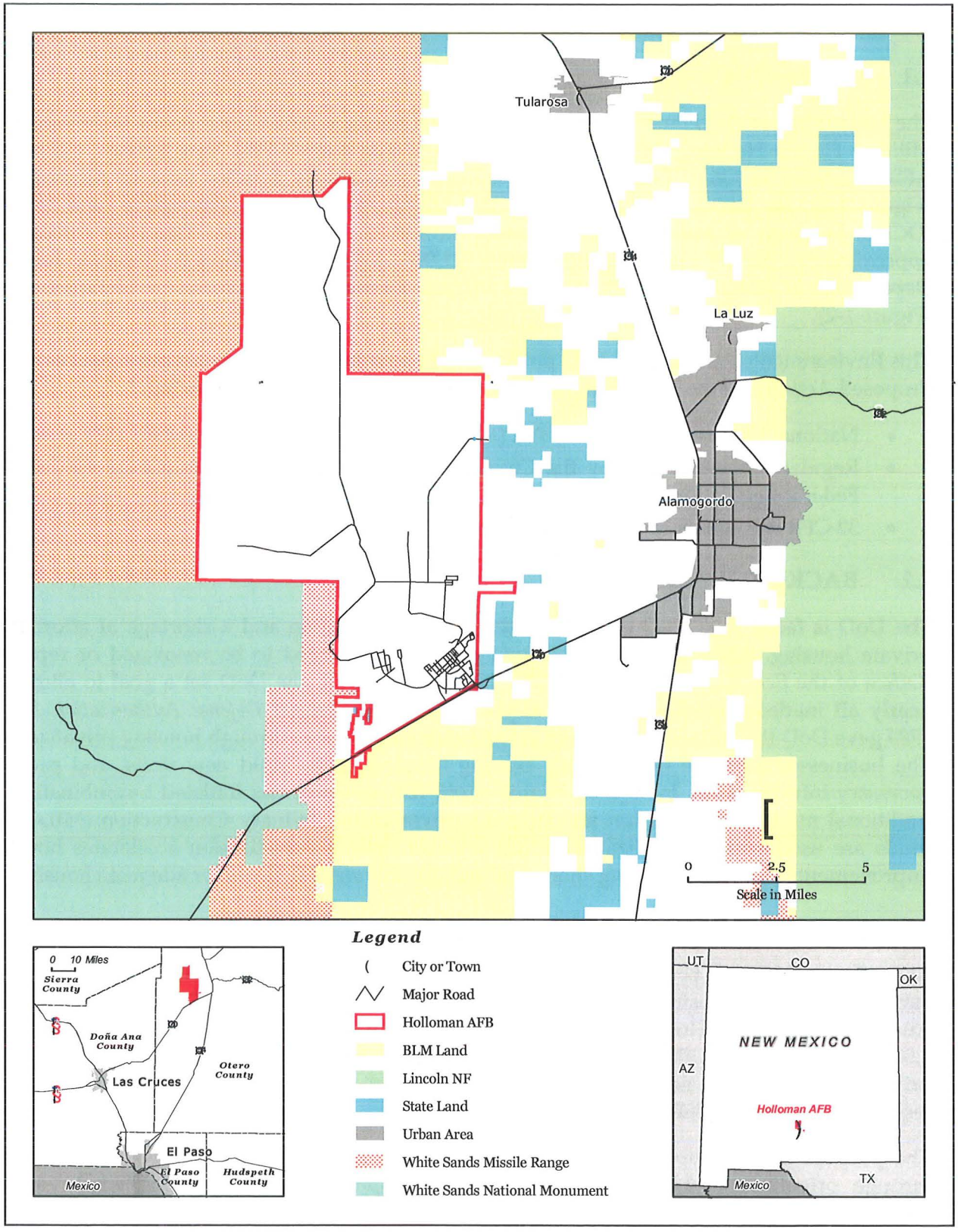

Figure 1-1. General Location of Holloman AFB

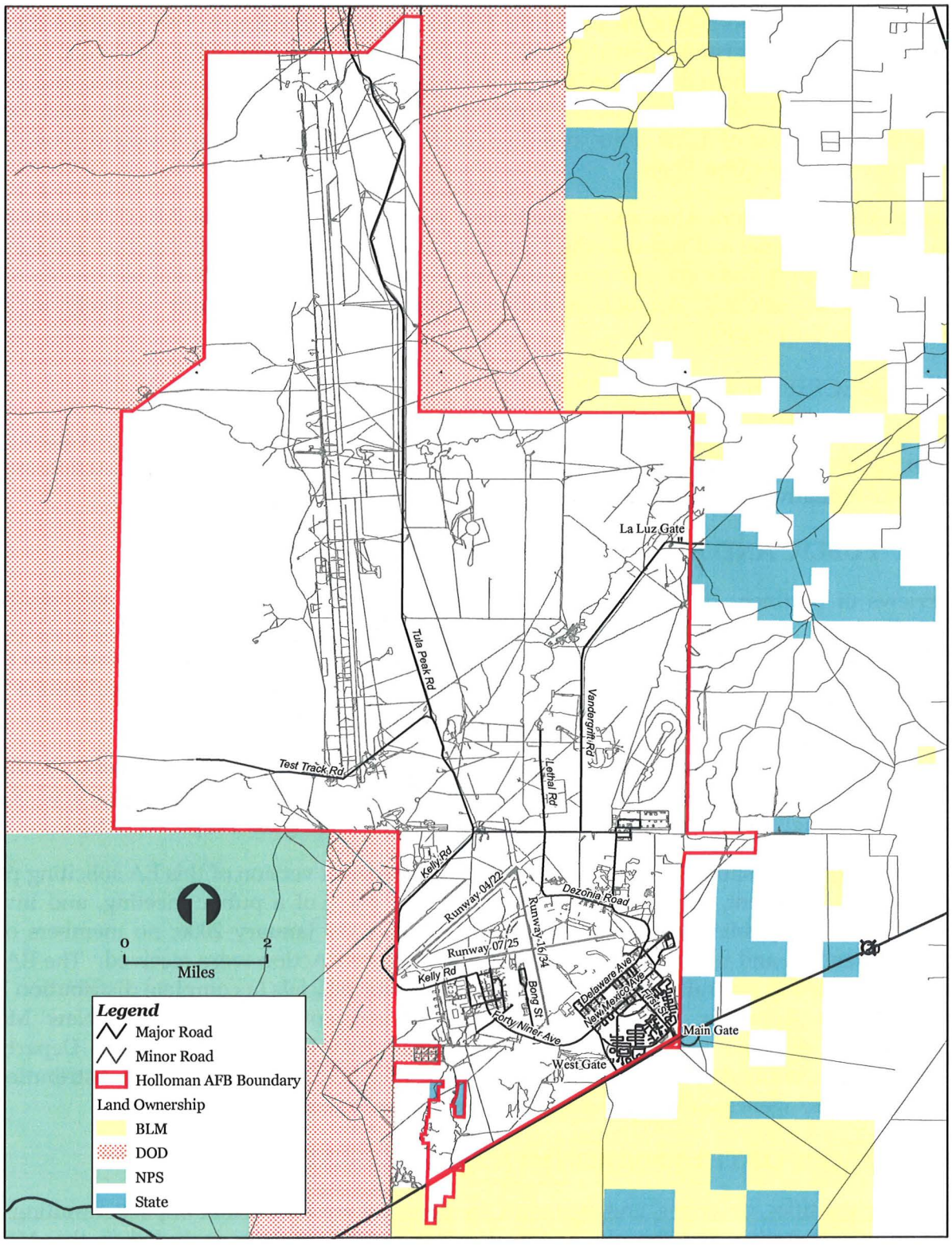

Figure 1-2. Holloman AFB and Surrounding Area

Under the Proposed Action, the Base would convey all 1,413 housing units and maintenance facilities on four parcels (shown in Figure 1-3) to a private developer. The proposal involves demolition of 730 existing housing units, construction of 597 new units, and renovation of 582 existing units. There are 101 existing units that would require no modification and would pass to the private developer "as is." Upon completion, the privatized housing stock on the Base would consist of 1,280 units, meeting Air Force standards. Redevelopment would take place over a 10-year time span.

Under the No Action Alternative, Holloman AFB would implement MILCON actions to accomplish the same end result as the Proposed Action, only over a longer period and through government appropriations rather than through privatization. As a result, should the No Action Alternative be selected, demolition and construction of housing units is likely to occur sometime in the future.

1.4 DECISION TO BE MADE

The decision for the Air Force is how to proceed with military family housing privatization to meet the minimum requirement of 1,280 units at Holloman AFB. The Proposed Action and No Action Alternative are analyzed in this EA to assist the decision process.

1.5 PUBLIC AND AGENCY INVOLVEMENT

Reviews of pertinent documents, site visits, and interviews with Holloman AFB personnel identified no threatened or endangered species in the project area. Additionally, no cultural/historical resources in the project area were identified as eligible for nomination to the National Register of Historic Places (Gomolak 2004). As a result, no consultations with respective regulatory agencies would be required for this action.

A National Pollutant Discharge Elimination System (NPDES) Stormwater General Permit for Small Construction is required for construction activities disturbing more than 1 acre of land area. Accordingly, a permit would be required for implementing the Proposed Action.

The Air Force published a Notice of Availability for the Draft version of this EA soliciting public review and comment, providing the time, date, and place of a public meeting, and inviting attendance. The public meeting was held on Thursday, 19 January 2006; no members of the public attended, and no public comments on the Proposed Action were received. The EA was also distributed to several regulatory agencies and public officials (a complete distribution list is presented in Appendix A). The following agencies provided responses: New Mexico Department of Game and Fish (NMDG&F) and the New Mexico Environment Department (NMED). Appendix A contains a summary of the public involvement process, a distribution list of individuals/agencies, and copies of the correspondence received.

1.6 SCOPE OF THE ENVIRONMENTAL ASSESSMENT

This EA identifies, describes, and evaluates the potential environmental impacts resulting from the Proposed Action and the No Action Alternative. The analysis included in the Affected Environment and Environmental Consequences sections incorporates site-specific descriptions or regional overview. Finally, the EA identifies measures that would prevent or minimize environmental impacts.

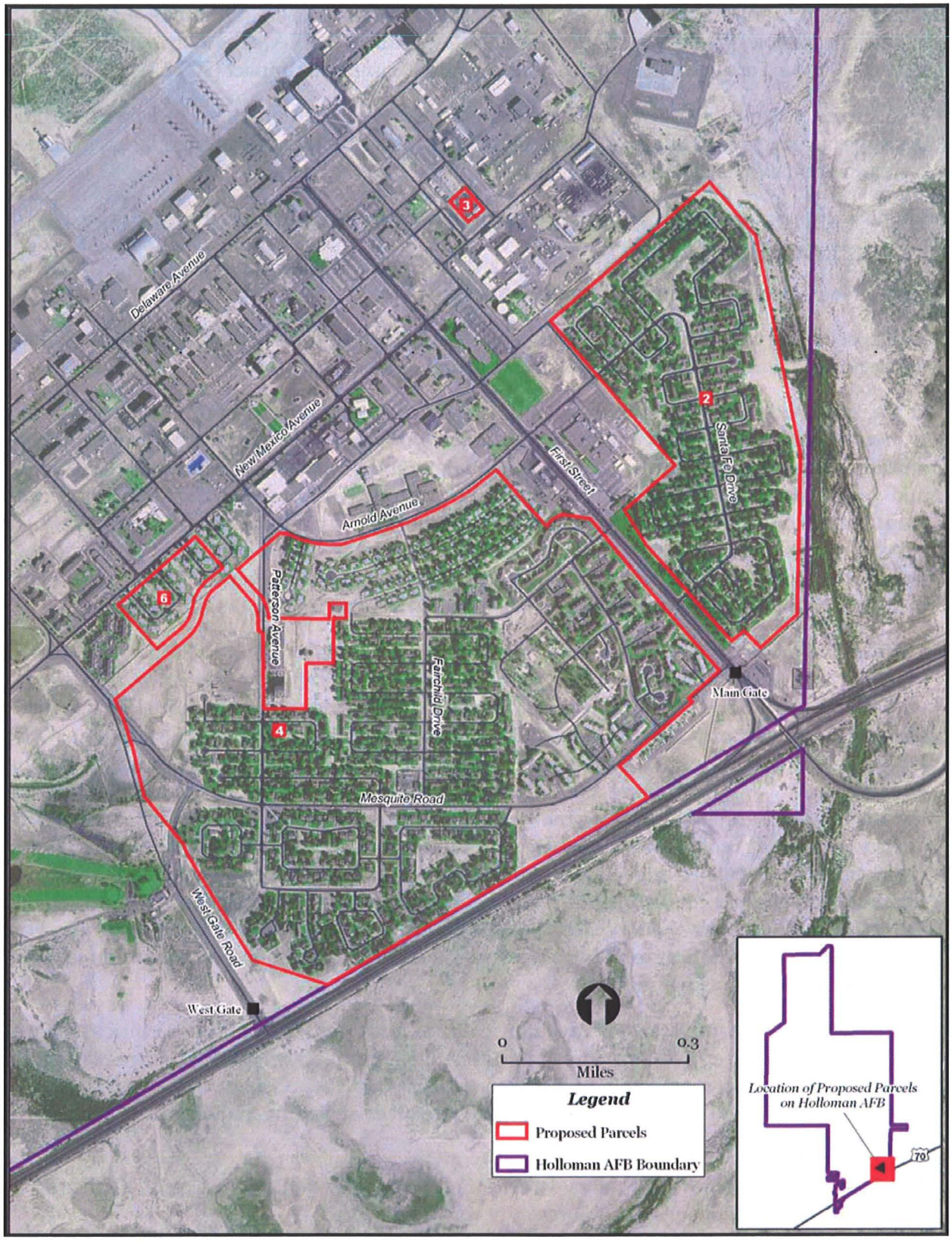

Figure 1-3. Location of Military Family Housing Project Area on Holloman AFB

The decision document will summarize the significance of the impacts analyzed. If the EA were to identify significant impacts, the Air Force would either prepare an Environmental Impact Statement (EIS) or would not implement the proposal. If the EA does not identify significant impacts, the Air Force would prepare a Finding of No Significant Impact (FONSI).

This EA incorporates the Environmental Baseline Survey (EBS) prepared in February 2005 for the subject parcels at Holloman AFB (ACC 2005). The EBS identifies potential environmental contamination associated with the property.

1.7 ENVIRONMENTAL ISSUES IDENTIFIED DURING THE SCOPING PROCESS

Issues Not Carried Forward for Detailed Analysis

After preliminary screening of environmental issues during the scoping process, the following environmental issues were eliminated from further detailed analysis.

Safety and Occupational Health - Potential safety and occupational health impacts are related to construction activities at the sites. Construction workers would use hearing protection during work hours and would follow Occupational Safety and Health Association (OSHA) standards and procedures. Construction areas would be cordoned off and marked, and public access would be controlled. The contractor is responsible for ensuring all employees (and subcontractors) comply with applicable OSHA standards. As a result, there would be no impacts to the safety and occupational health of construction workers or other persons in the construction areas. Therefore, this issue was eliminated from further detailed analysis.

Cultural Resources - Some of the Capehart and Wherry housing that would be demolished are over 50 years old. For Capehart and Wherry-style housing units, the Air Force, in cooperation with the Department of the Navy, completed consultation with the Advisory Council on Historic Preservation, the National Conference of State Historic Preservation Officers (NCSHPO), and the National Trust for Historic Preservation, addressing Capehart and Wherry housing under 36 CFR 800.14(e). For Capehart and Wherry housing, the consultation allows for the maintenance, repair, layaway, mothballing, privatization, and transferring out of federal agency ownership, substantial alteration through renovation, demolition, and demolition and replacement of Capehart- and Wherry-era housing, associated structures and landscape features that may be eligible for listing on the National Register of Historic Places (Cantrell 2003). Demolition of Capehart and Wherry housing units would not interfere with the Air Force's commitments under this agreement; therefore, no further consultation or mitigation is required to demolish these housing units.

The base has been completely surveyed for cultural resources. No cultural resources have been identified within or adjacent to Parcels 2, 3, 4 or 6. Consequently, potential impacts to cultural resources were not considered of concern within this EA. Contract requirements for the successful MFH bidder will include cultural resources reporting requirements for discovery situations.

Land Use - The existing MFH area is classified as single/multifamily residential area. This classification would not change as a result of the MFH project.

Visual Resources - Redevelopment would replace existing housing with new housing. While this may improve the overall appearance of the housing areas, there would be no appreciable change in scale or visual context of the four affected parcels or surrounding areas. Therefore, impacts on visual resources were not further analyzed.

Issues Carried Forward for Analysis

The following are issues carried forward in this EA for further analysis, as potential concerns or impacts were identified.

Soils/Erosion - Construction and the subsequent presence of new structures may contribute to the erosion potential of surrounding soils due to soil/ground disturbance. Excess storm water runoff resulting from the addition of impervious surfaces may also contribute to soil erosion. Areas likely to be impacted by erosion are identified based on parameters such as soil type and the extent and proximity of vegetative cover to the affected area. Potential impacts are then described as they relate to the contribution to erosion potential.

Water Resources - Analysis of water resources focuses on potential storm water impacts associated with construction activities and the increase in impervious surface area under the Proposed Action.

Biological Resources - Habitat within the existing housing areas of Parcels 2, 4, and 6 mainly consists of cultivated landscaped plants and areas associated with small recreational sites/parks. The end condition would be similar, and therefore, little change to ecosystems, habitat, or wildlife is anticipated from activities in Parcels 2, 4, and 6. The EA provides only minimal contextual information for this resource.

Threatened and Endangered Species - Reviews of pertinent documents, site visits, and interviews with Holloman AFB personnel identified no threatened and endangered species in the project area. As a result, potential impacts to threatened and endangered species are not considered an issue of concern and therefore, the EA covers this topic briefly.

Air Quality - The air quality issues associated with the military family housing project are related to construction equipment emissions and fugitive dust emissions from construction and demolition activities. Analysis focuses on estimating emissions from construction activities and identifying any potential impacts to air quality from the Proposed Action.

Noise - Potential noise impacts would be related to the use of equipment associated with demolition and construction activities. Analysis is associated with the potential for construction and demolition activities to significantly contribute to the current noise environment of Holloman AFB.

Socioeconomics/Environmental Justice - Proposed construction and demolition work could generate local jobs. Also, somewhat fewer on-base housing units may alter the housing demand in the local area.

Safety - Proposed construction and demolition activities are reviewed for compliance with existing safety criteria. Safety issues arising from construction activities are assessed for potential impacts on other personnel and functions on the Base.

Hazardous Materials/Waste - Several units within multiple housing areas have documented occurrences of asbestos-containing building materials (ACBM) and lead-based paint (LBP). As a result, the presence of hazardous building materials such as ACBM and LBP and the potential for adverse health and safety impacts will be analyzed.

Solid Waste - The proposal would generate demolition and construction debris. The EA addresses potential impact on regional landfill capacity.

Infrastructure - The main concerns are potential changes in utility systems, demands, and interruptions to services during and following construction. Analysis focuses on identifying potential problem areas and the appropriate coordination and planning procedures to minimize potential conflicts. Similarly, impacts on circulation and the local road network during and following construction are addressed in terms of safety, traffic flow, and access.

1.8 INTRODUCTION TO THE ORGANIZATION OF THE DOCUMENT

This EA has eight chapters and three appendices.

- **Chapter 1.** *Purpose and Need for Action.* This chapter provides background information and describes the purpose and need for the proposal under consideration.
- **Chapter 2.** *Description of Proposed Action and Alternatives.* This chapter describes the Proposed Action in more detail and describes other alternatives considered.
- **Chapter 3.** *Existing Conditions.* This chapter contains a general description of the current conditions of the resources that could be affected by the Proposed Action.
- **Chapter 4.** *Environmental Consequences.* This chapter describes potential impacts from implementing the Proposed Action and No Action Alternative.
- **Chapter 5.** *Summary of Cumulative Consequences.*
- **Chapter 6.** *List of Preparers.*
- **Chapter 7.** *Persons and Agencies Contacted.*
- **Chapter 8.** *References.*
- **Appendix A.** Agency Coordination.
- **Appendix B.** Best Management Practices.
- **Appendix C.** Land Use Compatibility Guidelines.

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

This chapter describes the Proposed Action (Section 2.1) in detail, and provides a summary of the activities and issues associated with alternatives considered. The No Action Alternative is described in Section 2.2.

2.1 PROPOSED ACTION

The Proposed Action involves a real estate transaction with a contractor. In the transaction, the government would convey 1,413 existing housing units to a private developer, the housing maintenance area, and certain associated improvements, including infrastructure and utilities. Additionally, the government would lease approximately 425 acres of land divided among four parcels (Figure 1-3). The entire project area is composed of the following housing areas shown in Figure 2-1:

- Capehart and Wherry Family Housing Areas (Parcel 2 [2400, 2500, and 2600 areas]; and Parcel 4 [2000, 2200, 2300, 2700, 2800, and 2900 areas])
- Housing maintenance area (Parcel 3)
- Semi-improved parcel (Parcel 6) located to the northwest of Parcel 4.

The depicted housing area boundaries are for planning and analysis purposes only. Definitive housing area boundary descriptions can be found in the MFH Privatization Request for Proposal (RFP) by contacting the Holloman AFB housing office.

In exchange for the conveyed assets, the contractor would maintain and manage a 1,280-unit rental housing development over 50 years. The development would include all paving and drainage, as well as any utilities conveyed to or constructed by the developer. All construction, demolition, and renovation activities would occur within 10 years of project initiation. The overall program involves demolition of 730 units, renovation of 582 units, and construction of 597 units. In 2003, 101 units were constructed in Parcel 4 (2900 Area) that would remain "as-is." Table 2-1 provides a detailed list of the housing areas, the units to be conveyed to the developer, and the final disposition of existing structures.

All privatized units would be designated for occupancy by pay grade. Rent would not exceed the Basic Allowance for Housing (BAH) at the dependent rate for the designated military pay grade. Additionally, the rent is adjusted by an amount sufficient to cover 110 percent of average estimated utility charges.

The desired new and renovated units would consist of a mixture of two-, three-, and four-bedroom structures. The desired mixture of buildings would consist of single-family dwellings and duplexes. No fourplexes or stacked units would be constructed. Table 2-2 shows the proposed mix of demolition and new construction by unit bedroom count.

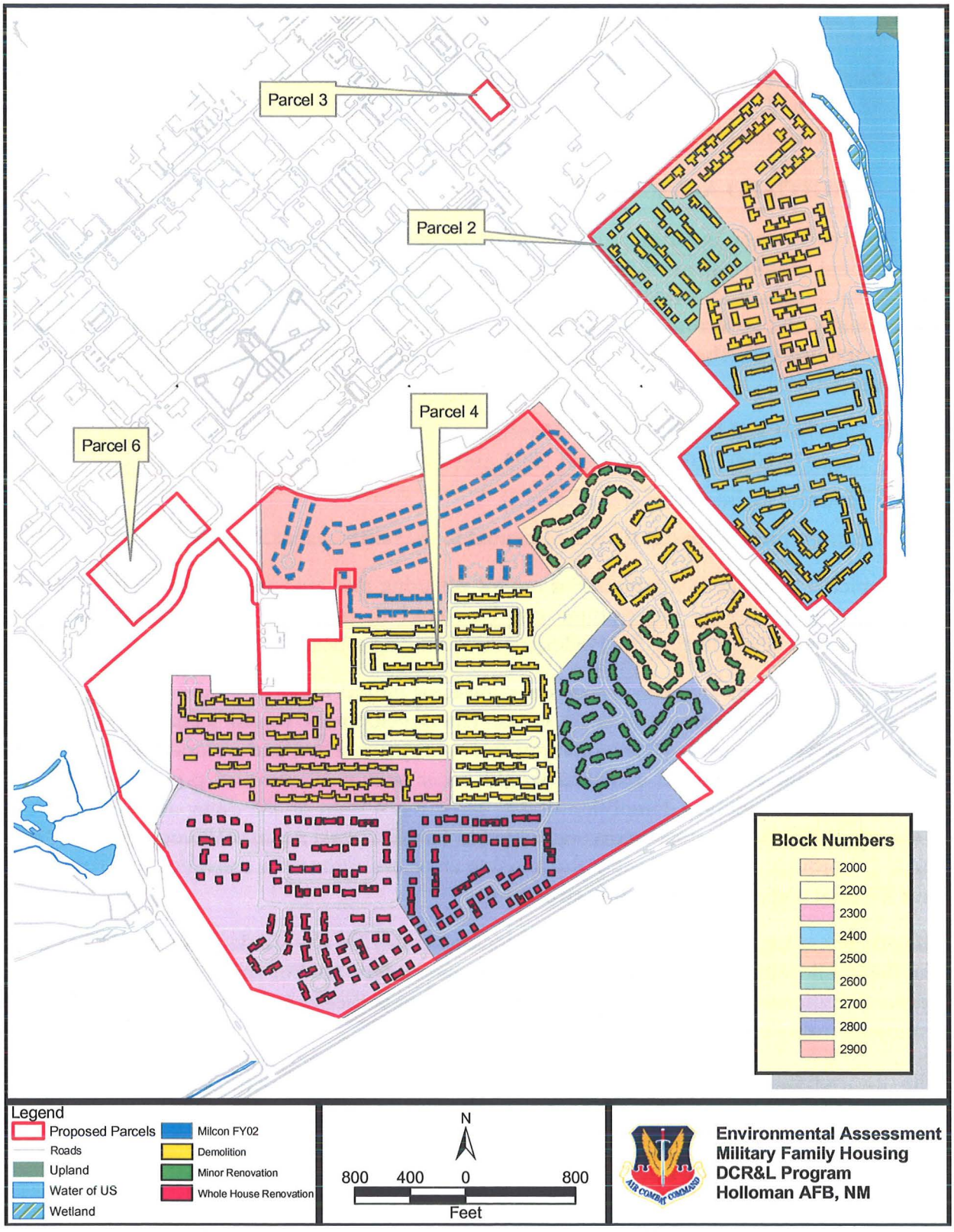

Figure 2-1. Proposed Action (Parcels 2, 3, 4, and 6)

Table 2-1. Projected Housing Developments under the Proposed Action

Existing Housing Area	*Size of Leased Area (Acres)*	*Units Currently Available for Conveyance*	*Year Built*	*Project-Related Activities*			*Total End-State Units*
				Demolition	*Construction**	*Renovation***	
				Max # Units			
Parcel 4	306***	973		530	487	342	1,280****
2000 Area	38	154	1970	154	130	0	
		80	1996	0		80	
		2	2002			2	
2900 Area	47	101	2003	0			
2200 Area	54	249	1953	249	220	0	
2300 Area	29	127		127	137		
2700 Area	50	102	1959	0		102	
		12	1966			12	
2800 Area	51	76	1959			76	
		70	2002			70	
Parcel 2	109	440		200	98	240	
2400 Area	46	200	1956	200	98		
2500 Area	46	164	1959	0	0	164	
2600 Area	17	76		0	0	76	
Parcel 6	9	0	N/A	0	12	0	
Parcel 3	1	0	Housing Maintenance Area				
Total	425	1,413	N/A	730	597	582	

* Based on maximum density of 4 units per acre.
** Renovation includes both minor and "whole-house" renovations.
*** Includes 37 acres of area not within housing blocks (unshaded in Figure 2-1).
**** Includes 101 units at the 2900 Area that will be conveyed "as-is."

Until the Air Force selects a developer's project concept, the exact size, configuration, and location of units is not known precisely. However, in order to assess environmental impacts, total ground disturbance is estimated. The estimate assumes that half the area (based on existing average density) of demolition sites would be disturbed and that the entire area developed for new units would be disturbed by digging, grading, and moving equipment. The estimate also assumes that ground disturbance from demolition is added to ground disturbance for new construction, since the construction schedule for specific parcels is unknown. Based on this, a total of about 280 acres of ground disturbance is projected for the entire proposal. This would be phased over 10 years, with most demolition occurring in the first five years and most new construction in the second five years. Impervious coverage on the 425-acre privatization area (estimated at about 160 acres) is expected to decrease slightly since the total number of units (and associated driveways and parking areas) would decline by about 9 percent. A reduction of 133 units could reduce impervious coverage in 425 acres by about 13 acres.

Table 2-2. Estimated Total Net Square (Sq) Footage of Construction & Demolition for the Proposed Action

Number of Bedrooms	*Pay Grade*	*Demolition*		*Construction*		
		Number of Units	*Total Net Sq Footage*	*Number of Units*	*Max Net Sq Footage/Unit*	*Total Net Square Footage*
2	E1-E6	450	1,755,564	526	1,500	945,960
	O1-O3			22	1,790	
3	E1-E6	201		0	1,760	
	E7-E8			0	2,050	
	O1-O3			0	2,050	
	E-9/O4-O5			0	2,300	
4	E1-E6	78		37	2,200	
	E7-E8			0	2,500	
	O1-O3			0	2,500	
	E-9/O4-O5			0	2,700	
	O6			11	2,920	
	O7			1	4,060	
5	E-9	1		0	0	
Total	*N/A*	***730***		***597***	*N/A*	

Source: Lippis 2005

A network of neighborhoods is the preferred site development design concept. Neighborhoods would provide a full range of recreation and community-desired facilities. In addition, the design would provide efficient and separate vehicular and pedestrian traffic patterns. The design would identify constraints such as easements, drainage, and offensive environments (i.e., blight, bright lights, and loud noises) to ensure activities within and surrounding the site are compatible. Development would incorporate common green spaces with native landscaping; recreational areas; appropriate buffer area/screening; street lighting; and sidewalks on both sides of the street. These site designs would be consistent with good land use planning, practices, and economics.

Future plans may involve the addition of quality-of-life improvements to support the housing areas, which are listed as desired features of the MFH Privatization RFP. Such improvements may include, but are not limited to "tot lots" (e.g., play areas/playgrounds) that may contain half-size or full-size basketball courts, soccer fields, and a jogging trail/bike path. Other quality-of-life improvements listed as desired features could include sheltered group picnic areas, a community/youth/recreation center, a fitness/walking/bike path connecting to existing trails and playgrounds, soccer/football fields, tennis and volleyball courts, and recreational park area(s).

Demolition and construction would take a phased approach throughout the life of the project (i.e., a certain number of units would be constructed and demolished each year). The exact phasing of the project would be identified by the developer. However, the Air Force developed a phasing scenario for inclusion in the MFH Privatization RFP. This phasing scenario is largely based on offers received for other housing projects. The offers weighed considerations as varied as the desire not to lose tenants due to home demolition prior to replacement construction and the number of qualified and available construction workers. While developers may submit a

more aggressive schedule, the difference would not likely result in meaningfully different environmental impacts. However, should a difference occur, the Air Force would consider the necessity of supplemental NEPA documentation.

Table 2-3 provides a summary of the Air Force's project timeline scenario.

Table 2-3. Projected Timeline Scenario for Demolition and Construction Activities under the Proposed Action

Activity (Bedroom Count)	*Units/Year*										*Total*
	2006	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	
Demolition											
2-Bedroom	80	40	25	45	55	55	75	75	0		**450**
3-Bedroom	70	20	14	27	20	10	20	20			**201**
4-Bedroom	0		17	16	18	27	0				**78**
5-Bedroom			**1**	**0**							**1**
Subtotal	**150**	**60**	**57**	**88**	**93**	**92**	**95**	**95**	**0**	**0**	**730**
Renovation											
2-Bedroom	0	0	0					10	10	10	**30**
3-Bedroom			10	58	50	75	72	65	74	57	**461**
4-Bedroom		10	22	15	20	19	5	0			**91**
Subtotal	**0**	**10**	**32**	**73**	**70**	**94**	**77**	**75**	**84**	**67**	**582**
Construction											
2-Bedroom	28	10	55	55	55	55	55	75	105	55	**548**
3-Bedroom	0										**0**
4-Bedroom	4	0	5	7	11	7	7	4	3	1	**49**
Subtotal	**32**	**10**	60	62	66	62	62	79	108	56	**597**

Source: USAF 2005

2.2 NO ACTION ALTERNATIVE

Under the No Action Alternative, the Air Force would not privatize MFH at Holloman AFB. At a minimum, the Base would proceed with demolition of 133 units to meet the HRMA housing supply target of 1,280 units. It is also reasonable to assume that Holloman AFB would implement MILCON actions that would involve virtually the same demolition, construction, and renovation actions as described for the Proposed Action, only over a 25- to 35-year time period. Funding would come through government appropriations rather than through private investment.

2.3 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD

Several alternatives were considered for the siting of the housing development area. The selection process was conducted through a Product Development Team. The Team reviewed potential sites and selected the most viable sites based on purpose, need, and other considerations (infrastructure, safety, environment, feasibility, etc.). Although several sites were considered, many alternative sites were not carried forward because they either did not meet the need or had other constraint issues associated with them.

East-side Alternative – A 320-acre parcel of New Mexico State Trust Lands immediately east of Parcel 2 was considered for future housing. This area is outside the Base property line. Although easily separable for development purposes, it presented force protection issues. The AF or developer would need to lease the land from the State to ensure MFH remained within base boundaries. Additionally, the majority of the area is considered wetland, adjacent to "Waters of the U.S." (USAF 1996). New construction would require very large quantities of fill to place the houses above the 100-year floodplain. As a result, this alternative was eliminated for consideration (Casiano 2003, Gomolak 2005).

South-side Alternative – The area south of U.S. Highway (US) 70, across from Parcels 2 and 4, was also considered as an alternative site. As with the east-side alternative, this area is outside the Base property line and presented force protection issues. The Air Force would need to purchase the land from private landowners or obtain a land withdrawal from the Bureau of Land Management to ensure MFH remained within Base boundaries. As a result, this alternative was eliminated for consideration (Casiano 2003, Gomolak 2005).

Parcel 4 Alternative – The area within Parcel 4 was considered for placement of 1,506 new units. However, the area was too small to accommodate all the units at the desired density. Placement of all 1,506 units in this area would create associated crowding issues (e.g., privacy, traffic congestion). As a result, this alternative was not carried forward for consideration (Casiano 2003, Gomolak 2005).

Golf Course Alternative – The area currently used for the golf course was considered for location of housing units. However, because of noise and safety issues associated with aircraft flight profiles and the presence of wetlands at the site, this alternative was not carried forward (Casiano 2003, Gomolak 2005).

Parcels 1 and 5 Alternative – Use of two parcels located in the northeast portion of the installation was considered. These parcels are located near the La Luz gate (see Figure 1-2), about 5 miles from the current housing area. Due to the cost of extending infrastructure, safety issues associated with nearby firing ranges, as well as threatened and endangered species, and cultural resource issues, these parcels were not considered (Casiano 2003, Gomolak 2005).

Boles Wells Field Housing Alternative – A portion of Air Force land south of Alamogordo adjacent to other suburban development areas, known as the Boles Well Water System Annex (BWWSA), was initially considered for the location of housing units. This area was not carried forward because the location is too far from the Base to allow rapid recall of military personnel. Safety and security concerns for military personnel and their families precluded this alternative, as well (Gomolak 2005).

State Trust Land Alternative – The State of New Mexico owns approximately 320 acres on the east boundary of Holloman. Adjacent to the existing housing area and immediately east of the main gate, the location offers excellent access to the Base, utilities, and services. While the New Mexico State Land Office was interested in leasing this land for development, Dillard Draw and its associated 100-year floodplain occupy the west side of this parcel. The remainder of the parcel would require fill to provide safe elevation for housing construction. Consequently, high development costs and potential environmental impacts prevented this alternative from being carried forward (Gomolak 2005).

North Industrial Area Alternative - An area fairly central to the Base, north of the runways near the offices of the 46th Test Group, was briefly considered. The size of this parcel was limited by restrictions associated with explosive safety areas, as well as aircraft noise and airfield accident potential zones. This alternative was not carried forward due to concerns about proximity to ordnance, industrial facilities, and aircraft traffic (Gomolak 2005).

Far North Area Alternative - This location is several miles north of Douglas Road, east of Range Road 9, in an undeveloped, undisturbed area. It is more remote than the Parcel 1 and 5 Alternative (La Luz Gate Road). Utility extension cost estimates indicated that this was not a feasible alternative. Consequently, it was not carried forward (Gomolak 2005).

The Rail Road Parcel Alternative - The Air Force owns a 160-acre parcel that extends a half-mile east of the Base boundary. The rail line on the parcel is no longer used by the Base, thus initial consideration was given to this location. Other than being crossed by the rail line, this area is undeveloped and relatively undisturbed. It is situated near an existing ordnance facility, which imposes safety restrictions. This site would require construction of a bridge over a wide fork of Dillard Draw to provide reliable emergency access. Cost estimates for utility extensions and access indicated that this was not a feasible site for housing development. As a result, this alternative was not carried forward (Gomolak 2005).

2.4 PAST, PRESENT, AND REASONABLY FORESEEABLE ACTIONS IN THE REGION OF INFLUENCE

Cumulative impacts to environmental resources result from incremental effects of proposed actions when combined with other past, present, and reasonably foreseeable future projects in the region of influence of the project. Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies (federal, state, and local) or individuals. In accordance with NEPA, a discussion of cumulative impacts resulting from projects that are proposed, under construction, or recently completed is required. At this time, there are no known off-base projects planned or ongoing that would cumulatively contribute to potential impacts associated with this Proposed Action or Alternatives.

Short- and long-term planning efforts at Holloman AFB include this action as well as several others.

Recently completed projects include the following.

- Construction of MFH Units. In 2003, 101 units were constructed as part of a previous MILCON action to revitalize Holloman AFB MFH.
- Inactivation of the 20th Fighter Squadron and reduction in personnel, based aircraft, and air training operations

On-going projects include the following.

- Martin Avenue Roadwork

According to information provided by Holloman AFB, reasonably foreseeable planning efforts at the Base include the following major projects.

- Development of the 49th Material Maintenance Group BEAR Base area (involving construction of new facilities and pavement redevelopment
- Widening and improvements to Forty Niner Avenue
- Santa Fe Drive/Arnold Avenue Expansion
- Implementation of Wing Infrastructure Development Outlook (WINDO) projects (mostly located to the west of the housing areas in the southern part of the Base), including replacement of a water tank; construction of three Fire Crash/Rescue stations, a Mobility Processing Center, a new Hazardous Cargo Pad and Taxiway, a new golf clubhouse and improvements to the golf course, a War Reserve Materiel storage facility, enclosing of a storm drain, repairs to an open drain for Runway 07, repairs to Bong Street and an extension for Kelly, and removal of several airfield obstructions
- Repair of 4 miles of Prather Water Main in the City of Alamogordo

Holloman AFB and the local community update facilities on a continual basis, as necessary. These planned activities have the potential to generate environmental impacts that could exacerbate impacts associated with the proposal described in this chapter unless projects are planned and implemented with consideration for this potential. Each of the federal actions listed above either have been or will be the subject of subsequent NEPA analysis. These analyses will evaluate the existing environment at the time of each proposal. The existing environment described in each of those subsequent NEPA documents will include the actions of this proposal.

2.5 SUMMARY OF IMPACTS

Potential impacts resulting from the Proposed Action and the No Action Alternative are summarized in Table 2-4.

Table 2-4. Summary of Environmental Consequences

Issue	*Proposed Action*	*No Action Alternative*
Earth Resources	Approximately 280 acres would be temporarily disturbed during demolition of existing units and depending on density, phased over 10 years. About 150 acres would be redeveloped with 597 new housing units. Impervious surface would not increase and is likely to decrease since the final number of housing units would decrease by almost 9 percent. Best Management Practices (BMPs) would be used during and following construction to minimize impacts associated with erosion.	The No Action Alternative would eventually result in less than or essentially the same construction/ demolition activities as under the Proposed Action. Therefore, the impacts to earth resources would be the same or less than those described under the Proposed Action.

Table 2-4. Summary of Environmental Consequences Cont'd

Issue	*Proposed Action*	*No Action Alternative*
Water Resources	Under the proposal, there would be a net decrease in impervious surface at the Base as a result of fewer housing units. This decrease in impervious surface would result in a minor decrease in storm water runoff at the Base. In accordance with U.S. Environmental Protection Agency (USEPA) Stormwater General Permit for Small Construction, the Base would prepare a project-specific Storm Water Pollution Prevention Plan (SWPPP) under the National Pollutant Discharge Elimination System (NPDES) program. BMPs would be implemented to minimize impacts to waterways. No disturbance would directly overlap wetlands in the vicinity of the housing areas. Storm runoff for new housing would be directed into existing storm drainage channels and ditches.	The No Action Alternative would eventually result in less than or essentially the same construction/demolition activities as under the Proposed Action. Therefore, the impacts to water resources would be the same or less than those described under the Proposed Action.
Biological Resources	To a large extent, the areas associated with proposed construction and/or demolition are currently developed and have been previously disturbed. Any remaining natural vegetation is typical of surrounding Chihuahuan desert plant community and does not provide important or rare habitat. There are no known sensitive plant or animal species in the area for proposed activities. The Base would survey the site prior to implementation of proposed activities. NMDG&F does not anticipate any significant impacts to wildlife or sensitive habitats from the proposed project.	The No Action Alternative would eventually result in less than or essentially the same construction/ demolition activities as under the Proposed Action. Therefore, the impacts to biological resources would be less than or the same as those described under the Proposed Action.
Air Quality	Annual emissions related to construction/demolition would vary over the 10-year construction period, with the highest emissions during the latter half. Estimated average annual project emissions represent the following percentage of current levels for each criteria pollutant: 0.67 percent of carbon monoxide; 0.63 percent of volatile organic compounds; 3.16 percent for nitrogen oxides; 2.26 percent for sulfur oxide; and 3.20 percent for respirable particulate matter less than or equal to 10 micrometers in diameter. In general, combustive and fugitive dust emissions would produce localized, short-term elevated air pollutant concentrations. No long-term impacts on the air quality would result in Otero County Air Quality Control Region 153. Total emissions are below the conformity threshold of 100 tons per year for all criteria pollutants. NMED concurs that there would be no long-term adverse impacts to ambient air quality. However, NMED notes that fugitive dust control measure should be implemented, and that disturbed areas should be replanted with vegetation to minimize the potential for long-term erosion and fugitive dust impacts.	The No Action Alternative would eventually result in less than or essentially the same construction/ demolition activities as under the Proposed Action. Therefore, the impacts to air quality would be less than or the same as those described under the Proposed Action.

Table 2-4. Summary of Environmental Consequences Cont'd

Issue	*Proposed Action*	*No Action Alternative*
Noise	Vehicles and equipment involved in demolition, facility construction, and finishing work would generate the primary noise from the Proposed Action. Residents and three schools near the construction and demolition areas would be exposed to noise from redevelopment activities. The resulting temporary, intermittent noise may cause inconvenience or some annoyance, but would not result in long-term impacts. The developer would incorporate noise-level reduction construction into housing as recommended by Air Installation Compatible Use Zone guidelines, as needed.	The No Action Alternative would eventually result in less than or essentially the same construction/ demolition activities as under the Proposed Action. Therefore, the impacts from noise would be less than or the same as those described under the Proposed Action.
Socioeconomics and Environmental Justice	The socioeconomic characteristics of the region of influence likely would not be substantially affected by the Proposed Action-related construction employment and income. Construction accounted for 5 percent of total employment in 2003 and 3.5 percent of total earnings in 2003. Given the phased approach to the privatization projects and other simultaneous MILCON projects, a significant change would not occur in employment or earnings in the area. A local shortage of suitable local rentals for displaced military families may occur during redevelopment. The Proposed Action would have no substantial impact on specific minorities. Given standard safety precautions, there are no impacts anticipated to children who may reside or go to school in the vicinity of the proposed activities.	The No Action Alternative would eventually result in less than or essentially the same construction/ demolition activities as under the Proposed Action. Therefore, the impacts to socioeconomics and environmental justice would be less than or the same as those described under the Proposed Action.
Safety	All proposed activities and workers at the construction site would comply with Occupational Safety and Health Administration (OSHA) standards and requirements. Workers would be required to conduct construction activities in a manner that would not pose any risks to personnel at or near the construction site. All materials and equipment would be used in accordance with industry and regulatory standards. All construction areas would be fenced to preclude public access. Given these measures, risks to personnel and the public would be minimized. Construction contractors would be required to develop a plan addressing traffic and safety concerns. The plan would identify haul routes through neighborhoods, set speed limits on construction-related vehicles, and define other protocols to ensure safety of residents and children.	The No Action Alternative would eventually result in less than or essentially the same construction/ demolition activities as under the Proposed Action. Therefore, the impacts to safety would be less than or the same as those described under the Proposed Action.

Table 2-4. Summary of Environmental Consequences Cont'd

Issue	*Proposed Action*	*No Action Alternative*
Solid and Hazardous Materials and Wastes	New Holloman AFB housing units would be constructed using normal residential construction methods, which would limit the use of hazardous materials to the extent possible. Petroleum, oil, and lubricant (POL) products and other hazardous materials (e.g., paints) would be used during construction and renovation activities, as necessary. Building contractors would store these materials in the proper containers, employing secondary containment as necessary to prevent/limit accidental spills. NMED notes that all parties involved in the project must respond to and report discharges in accordance with accordance with Section 20.6.2.1203 of New Mexico Administrative Code. There are two Environmental Restoration Program (ERP) sites on the periphery of the housing areas (SS-12 and SS-17). Site SS-12 is closed, and SS-17 is schedule to close in 2005. Should any unusual odor, soil, or groundwater coloring be encountered during activities in any other areas, the Holloman AFB Environmental Flight would be contacted immediately. Neither asbestos-containing building material (ACBM) nor lead-based paint (LBP) would be used for any new construction; therefore, there would be an overall beneficial result to residents upon the removal of potential exposure to ACBM and LBP. As noted by NMED, demolition of the buildings containing asbestos is regulated under National Emission Standards for Hazardous Pollutants, 40 CFR Part 61, Subpart M, and removal of these products must comply with applicable regulations. The project may use 2 percent of remaining capacity of the regional landfill over the next 10 years.	The No Action Alternative would eventually result in less than or essentially the same construction/ demolition activities as under the Proposed Action. Therefore, the impacts from hazardous materials and hazardous and solid wastes would be less than or the same as those described under the Proposed Action.
Infrastructure	Implementation of the Proposed Action would not alter traffic circulation on most of the Base. Haul routes for proposed demolition and construction have not been established, but would be routed on the primary roads in and out of the Base and through family housing areas, to the extent possible. There may be some minor traffic inconveniences, but these impacts would be of short duration. In general, utility usage (including water use) on Base would decrease as a result of the Proposed Action because of 133 fewer housing units; however, these savings would be offset off-Base, resulting in no substantial net change in utility consumption. According to correspondence from NMED, wastewater service lines associated with demolished units that will no longer be used should be removed or properly abandoned.	The No Action Alternative would eventually result in less than or essentially the same construction/ demolition activities as under the Proposed Action. Therefore, the impacts to infrastructure would be less than or the same as those described under the Proposed Action.

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3.0 EXISTING CONDITIONS

Section 3.0 describes the existing environmental and socioeconomic conditions potentially affected by the Proposed Action. This section provides information to serve as a baseline from which to identify and evaluate environmental and socioeconomic changes likely to result from implementation of the Proposed Action. Baseline conditions represent current conditions. The potential environmental and socioeconomic impacts of implementing the Proposed Action or its alternatives are described in Section 4.0.

In compliance with NEPA, CEQ guidelines, and 32 CFR 989, et seq., the description of the affected environment focuses on those resources and conditions potentially subject to impacts. For this EA, these resources and conditions include: earth resources, water resources, biological resources, air quality, noise, socioeconomics and environmental justice, safety, solid and hazardous materials and wastes, and infrastructure.

3.1 EARTH RESOURCES

3.1.1 Definition of the Resource

Earth resources include geology, soils, and topography. Geologic resources of an area typically consist of surface and subsurface materials and their inherent properties. The term "soils" refers to unconsolidated materials formed from the underlying bedrock or other parent material. Soils play a critical role in both the natural and human environment. Soil drainage, texture, strength, shrink/swell potential, and erodibility all determine the suitability of the ground to support man-made structures and facilities. Topography refers to an area's surface features including its vertical relief. These resources may have scientific, historical, economic, and recreational value.

The region of influence (ROI) for earth resources in this EA includes the land within the boundaries of Holloman AFB. This region also includes water channels and areas downstream from project sites where soils may be deposited. The descriptions of topography and geology, described in a regional context, depict the setting. The section focuses on specific properties of soils in the housing areas that are most likely to be affected by, or to have an effect on, construction of the proposed facilities.

3.1.2 Existing Conditions

3.1.2.1 Geology

Holloman AFB is located in the Tularosa Basin in central New Mexico. The Tularosa Basin is a closed basin that is part of the Rio Grande rift. In the Tularosa Basin, surface water can only escape through infiltration or evaporation. Much of this area is underlain by limestone and gypsum; sand dunes composed primarily of gypsum are prominent. The area ranges between 3,800 and 5,200 feet above mean sea level (msl) and is characterized by gently sloping plains broken by the Rio Grande to the west, the Sacramento Mountains to the east, and the San Andres Mountains to the west (Soil Conservation Service [SCS] 1980). The terrain at Holloman AFB is nearly level to gently sloping toward the southwest. Elevations range from 4,028 to 4,100 feet above msl (USAF 1998).

Based on a national system that delineates generalized regions sharing recognizable associations of soils, vegetation, hydrology, and other similar land features, Holloman AFB is within Major Land Resource Area 42 (the Southern Desertic Basins, Plains, and Mountains) and the Subresource Area SD-2. Subresource Area SD-2 includes most of the Tularosa Basin (SCS 1980).

3.1.2.2 Soils

The predominant soils, typical of areas with low precipitation, have little soil horizon development, high pH, and are susceptible to wind and water erosion. The soil temperature regime is thermic, having a mean annual temperature between 59 degrees Fahrenheit (°F) and 72°F; the soil moisture regime is aridic (dry) (SCS 1980).

Within the housing areas (shown in Figure 1-2), the predominant soil map unit is Holloman-Gypsum land-Yesum complex, with 0 to 5 percent slopes. This complex is composed of soils that are shallow, intermingled with deep, well-drained soils and areas of exposed gypsum. In general, soil permeability is moderate, the available water-holding capacity is low, and the soils are very susceptible to wind erosion where the surface is bare. Because vegetation is not productive on these soils, blowing dust from bare soil is common. These soils provide poor quality roadfill material. Moderate to severe limitations for construction of buildings result from low soil strength and the shallow depth to bedrock, although the rock is soft enough to be rippable. For these sites, there is a high risk of corrosion of buried, uncoated steel and concrete (SCS 1980).

3.2 WATER RESOURCES

3.2.1 Definition of the Resource

Water resources analyzed in this EA include surface water and ground water quantity and quality. Surface water resources include lakes, rivers, and streams. Such resources are important for a variety of reasons, including economic, ecological, recreational, and human health. Ground water includes the subsurface hydrologic resources of the physical environment and is an essential resource. Ground water properties are often described in terms of depth to aquifer or water table, water quality, and surrounding geologic composition.

The Clean Water Act (CWA) of 1977 (33 USC § 1251 *et seq.*) regulates pollutant discharges that could affect aquatic life forms or human health and safety. Section 404 of the Clean Water Act, and Executive Order (EO) 11990, *Protection of Wetlands*, regulate development activities in or near streams or wetlands. Section 404 regulates development in streams and wetlands and requires a permit from the U.S. Army Corps of Engineers (USACE) for dredging and filling in wetlands.

EO 11988, *Floodplain Management*, requires federal agencies to take action to reduce the risk of flood damage; to minimize the impacts of floods on human safety, health, and welfare; and to restore and preserve the natural and beneficial values served by floodplains. Federal agencies are directed to consider the proximity of their actions to or within floodplains. Other issues relevant to water resources include the downstream water and watershed areas affected by

existing and potential runoff, and hazards associated with 100-year floodplains. Floodplains are defined by EO 11988 as "the lowland and relatively flat areas adjoining inland and coastal waters including flood-prone areas of offshore islands, including at a minimum, the area subject to a 1 percent or greater chance of flooding in any given year" (that area inundated by a 100-year flood). Floodplain values include natural moderation of floods, water quality maintenance, ground water recharge, as well as habitat for many plant and animal species.

The ROI for water resources in this EA includes Holloman AFB. This region also includes water channels and areas downstream from project sites within the Tularosa Basin. The soil and water resource information is site-specific, focusing on those properties most likely to be affected by, or have an effect on, construction activities.

3.2.2 Existing Conditions

3.2.2.1 Surface Water

Holloman AFB is located on the east side of the Tularosa Basin and on the west bank of the Sacramento Mountains escarpment. The Tularosa Basin is a closed basin, bisected by ephemeral drainages. The Base is crossed by several arroyos that flow intermittently, primarily with storm water runoff. These arroyos include Lost River, Dillard Draw, Malone Draw, and several smaller tributaries. The arroyos generally drain in the southwest direction. Lost River is supplied by surface water flows, seeps, and springs (Holloman AFB [HAFB] 2001). Flows in many of the surface water drainages sink into the permeable soils or limestone before water reaches their outlets.

Surface water runoff is handled through a storm water system consisting of a combination of swales, inlets, culverts, and pipes that currently have adequate capacity to handle flows. Pollutants in storm water discharges from specified industrial areas are managed in compliance with NPDES requirements under a program administered by the U.S. Environmental Protection Agency (USEPA) to address industrial activities. Holloman AFB has an approved Stormwater Pollution Prevention Plan (SWPPP) that meets the requirements of the base-wide NPDES Multi-Sector General Permit for Industrial Activities (HAFB 2001).

During development of its SWPPP, the Base oversaw site evaluations of facilities to ensure that materials handling and pollution prevention procedures for Base activities adequately preclude contamination of surface or ground water. BMPs are described in the SWPPP to provide guidance to minimize adverse effects on water quality.

Small construction activity that disturbs an area of 1 acre or larger is permitted under the USEPA Phase II Stormwater General Permit for Small Construction. Small construction activity that disturbs an area of 1 acre or larger is permitted under the USEPA Phase II Stormwater General Permit for Small Construction. Compliance with this permit is intended to improve or maintain water quality by minimizing pollutants in storm water runoff that is discharged into the drainage system. Annual monitoring and assessment of potential storm water pollution sources is required under the Stormwater General Permit for Small Construction.

The Stormwater General Permit for Small Construction requires issuance of a Notice of Intent for specific construction or development projects. The project SWPPP would require an erosion and sediment control plan and project-specific control measures. The SWPPP and erosion and sediment control plan would also include temporary and permanent stabilization measures for disturbed areas and the installation and maintenance of BMPs.

3.2.2.2 *Ground Water*

The primary aquifer consists of alluvial deposits that are very thick and very saline in the center of the Tularosa Basin; the best sources for fresh, potable groundwater are located around the edges of the basin. Tularosa Basin water has been extensively developed to provide water for drinking and irrigation (New Mexico Water Quality Control Commission 2002).

3.2.2.3 *Floodplains and Wetlands*

Typically, issues relevant to water resources include the quality and quantity of downstream water bodies that could be affected and hazards associated with 100-year floodplains delineated in accordance with EO 11988, *Floodplain Management.* There are no designated 100-year floodplains in housing areas. Any potential modifications to wetlands are addressed in accordance with EO 11990, *Protection of Wetlands*, which regulates development activities in or near streams (see Sections 3.2.2.1 and 3.3.2.2).

According to Section 328.3 of 33 CFR 328, wetlands are "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." *Waters of the U.S.* are defined in the same section of the law as "All other waters such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce" (USACE 2002).

There are approximately 780 acres of delineated wetlands on Holloman AFB. As shown in Figure 3-1, wetland areas surround the southwest and east side of the housing areas but only a few small fragments extend into the housing areas. While there are no perennial streams on Holloman AFB, some of these drainages are classified as Waters of the U.S. and receive storm water discharges from the Base including Lake Holloman, Dillard Draw, Ritas Draw, and Lost River (HAFB 2001). Ritas Draw flows into Lost River, which sinks into the sand dunes of White Sands National Monument to the west. Flows that reach Dillard Draw and Lake Holloman either infiltrate the soil or evaporate. These fragments on the periphery of the housing areas are each less than an acre in size and are intermittent storm water drainages.

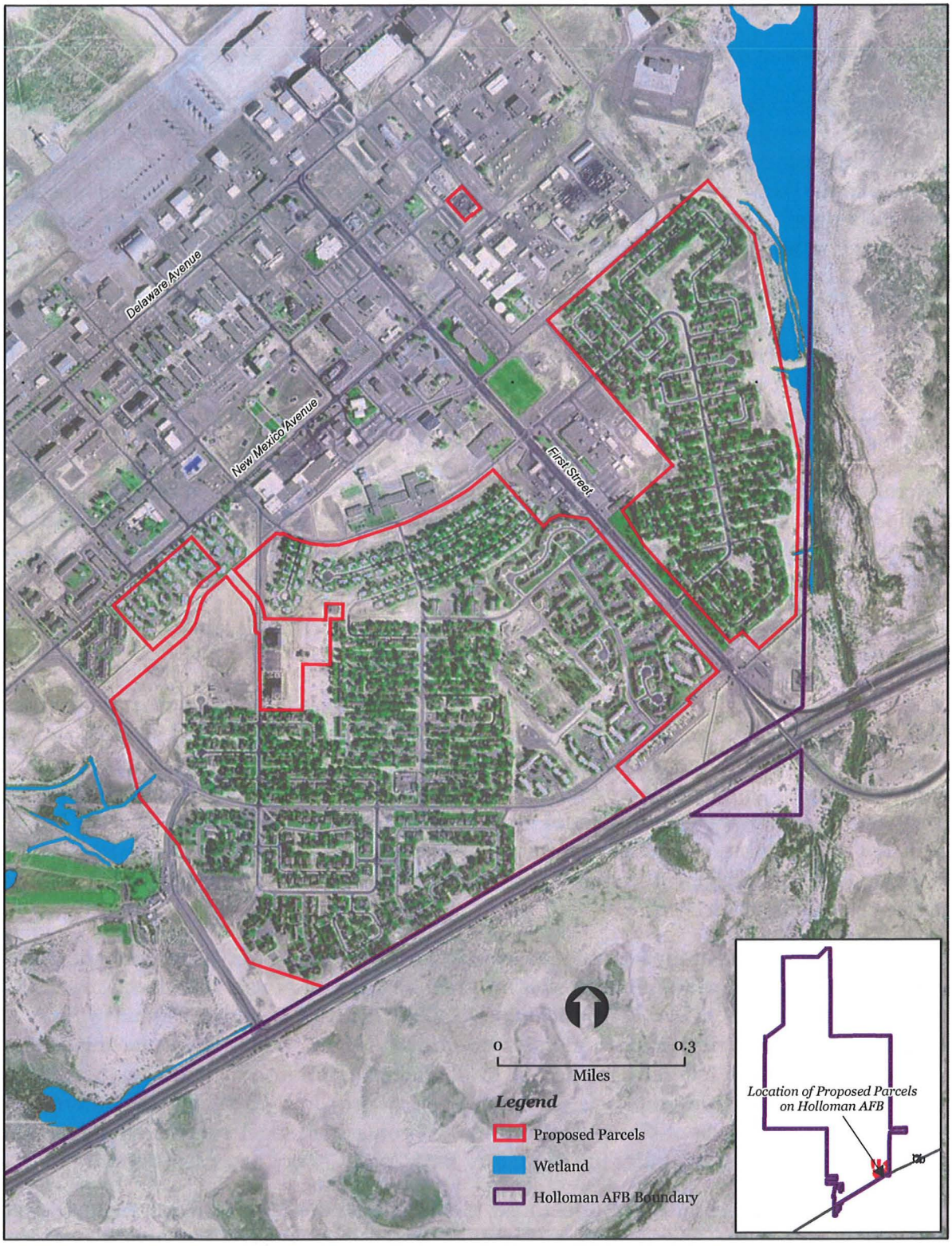

Figure 3-1. Delineated Wetlands and Waters of the U.S. near the Military Family Housing Areas on Holloman AFB

3.3 BIOLOGICAL RESOURCES

3.3.1 Definition of the Resource

Biological resources consist of native or naturalized plants and animals, along with their habitats, including wetlands. Although the existence and preservation of biological resources are both intrinsically valuable, these resources also provide essential aesthetic, recreational, and socioeconomic benefits to society. This section focuses on plant and animal species and vegetation types that are important to the functioning of local ecosystems, are of special societal importance, or are protected under federal or state law or statute.

For purposes of this assessment, sensitive biological resources are defined as those plant and animal species listed as threatened or endangered by the U.S. Fish and Wildlife Service (USFWS) and species that are listed for conservation-related reasons by the State of New Mexico or other relevant entities. Three categories of protection status are included in this section: (1) federally listed threatened and endangered species; (2) state-listed species; and (3) other sensitive species.

Federally Listed Threatened and Endangered Species. The Endangered Species Act (ESA) of 1973 provides protection to species federally listed as endangered or threatened. Endangered species are those species that are at risk of extinction in all or a significant portion of their range. Threatened species are those that could be listed as endangered in the near future.

State-Listed Wildlife and Plants. The State of New Mexico maintains its own list of state endangered, threatened, and sensitive wildlife species.

Other Sensitive Species. Taxa under this heading receive no legal protection under the ESA. They include federally proposed endangered species, proposed threatened species, and species of concern. Federally listed proposed endangered and threatened species are those proposed to be listed as endangered and threatened, respectively (formal ruling in progress). Federal species of concern (formerly labeled as candidate species) are those for which the USFWS has on file sufficient information on biological vulnerability and threats to support proposals to list them as endangered or threatened, but issuance of proposed rules for these species is precluded by higher priority listing actions.

Other sensitive species at the federal level also include birds of conservation concern, defined as those migratory, nongame avian species in greatest need of conservation action at different geographic scales. EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds* (2001), recognizes the ecological and economic importance of migratory birds to this and other countries. It requires federal agencies to evaluate the effects of their actions and plans on migratory birds (with an emphasis on species of concern) in their NEPA documents. Listing among the federal Birds of Conservation Concern confers no legal protection independent of protection that is afforded under the Migratory Bird Treaty Act or other legislation.

Other sensitive species also include those identified by the New Mexico Natural Heritage Program as species critically imperiled globally or at the state level, irrespective of whether they are listed under any of the federal designations described above.

3.3.2 Existing Conditions

3.3.2.1 Terrestrial Communities

Plants

Holloman AFB is located in Bailey's (1995) Chihuahuan Desert Province, which is dominated by thorny shrubs. Overall, creosote bush (*Larrea tridentata*) is the most widespread and abundant plant in the province, especially on gravel fans. On deep soils, however, honey mesquite (*Prosopis glandulosa*) becomes the dominant plant, and cacti are also abundant, particularly prickly pears (*Opuntia* spp.). Other plants that are common to abundant in the Chihuahuan Desert Province include yuccas (*Yucca* spp.), lechuguilla (*Agave lechuguilla*), and ocotillo (*Fouquieria splendens*) (Bailey 1995). Soils along rivers support some trees including cottonwoods (*Populus* spp.).

The project area is within existing family housing parcels. Much of the original vegetation (pre-housing development) has been replaced by ornamental plants and shade trees, such as desert willow (*Chilopsis linearis*), ocotillo, yuccas, pines (*Pinus* spp.), and mulberry (*Morus* sp.). The installation has a golf course, and lawns flank some of the residential buildings. Away from buildings and roads, the vegetation tends to be dominated by four-wing saltbush (*Atriplex canescens*) and patches of sacaton (*Sporobolus* spp.), with also some areas of saltgrass (*Distichlis* spp.). Cryptogamic crusts are present. On disturbed soils, the vegetation may consist largely of silverleaf nightshade (*Solanum elaeagnifolium*), Russian thistle (*Salsola iberica*), or African rue (*Peganum harmala*). African rue in particular is invasive and the focus of local management efforts aimed at preventing its spread. Some areas have alkaline soils that support little or no vegetation.

Wildlife

The fauna of the Chihuahuan Desert Province includes pronghorn (*Antilocapra americana*) and mule deer (*Odocoileus hemonius*) as the most widely distributed large game animals (Bailey 1995). Lagomorphs are represented by the blacktail jackrabbit (*Lepus californicus*) and the desert cottontail (*Sylvilagus audubonii*); kangaroo rats (*Dipodomys* spp.) and woodrats (*Neotoma* spp.) are some of numerous rodents competing with domestic and wild herbivores for forage. The coyote (*Canis latrans*) and the bobcat (*Lynx rufus*) are two of the mammalian predators present in the province (Bailey 1995).

The black-throated sparrow (*Amphispiza bilineata*) is one of the most abundant birds of the Chihuahuan Desert Province. The greater roadrunner (*Geococcyx californianus*), curve-billed thrasher (*Toxostoma curvirostre*), and Chihuahuan raven (*Corvus cryptoleucus*) are also common, as are the scaled quail (*Callipepla squamata*) and Gambel's quail (*Callipepla gambellii*). Some of the raptors that occur in the province are the golden eagle (*Aquila chrysaetos*), great horned owl (*Bubo virginianus*), red-tailed hawk (*Buteo jamaicensis*), and ferruginous hawk (*B. regalis*). The Chihuahuan Desert Province harbors a large number of reptile species including the common chuckwalla (*Sauromalus ater*), Texas horned lizard (*Phrynosoma cornutum*), desert spiny lizard (*Sceloporus magister*), and various rattlesnakes (Bailey 1995).

Among the family housing parcels, great-tailed grackles (*Quiscalus mexicanus*) are present near buildings, while desert cottontails and Gambel's quails frequent the golf course. Some common

terrestrial birds of the general area include the western kingbird (*Tyrannus verticalis*), Cassin's kingbird (*T. vociferans*), and Say's phoebe (*Sayornis saya*). Swainson's hawks (*Buteo swainsoni*), red-tailed hawks, and Chihuahuan ravens nest locally. Juvenile northern harriers (*Circus cyaneus*) have been observed on the military installation, although there is no nesting record for this species at Holloman AFB. Characteristic reptiles include checkered whiptails (*Cnemidophorus tesselatus*), bullsnakes (*Pituophis melanoleucus*), and prairie (or western) rattlesnake (*Crotalis viridis*) and western diamondback rattlesnake (*Crotalis atrox*). The Texas horned lizard occurs only occasionally in the area.

3.3.2.2 *Wetlands and Freshwater Aquatic Communities*

Section 404 of the CWA established a program to regulate the discharge of dredged and fill material into Waters of the U.S., including wetlands. Activities in Waters of the U.S. that are regulated under this program include fills for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports), and conversion of wetlands to uplands for farming and forestry. The federal regulations implementing Section 404 of the CWA define wetlands as quoted in the Section 3.2.2.3. EO 11990, *Protection of Wetlands*, requires federal agencies, including the Air Force, to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands.

Of 780 acres of wetland on Holloman AFB, fewer than 5 acres in small fragments that are each smaller than 1 acre in size are on the periphery of the housing areas. Due to the lack of perennial water within the project area, no fish species are present either.

3.3.2.3 *Threatened and Endangered and Special Status Species*

Table 3-1 lists threatened and endangered plant and animal species on or in close proximity to Holloman AFB. No breeding has been documented at Holloman AFB for any of these species. None of these species are known to occur within the family housing areas (Gomolak 2004).

Table 3-1. Threatened and Endangered Species in Vicinity of Holloman AFB

Common Name	*Scientific Name*	*Status*	*Potential for Occurrence*
Mammals			
Western small-footed myotis bat	*Myotis ciliolabrum melanorhinus*	SS, FSC	Present on Holloman Air Force Base (HAFB); does not occur within the project area based on habitat associations
Spotted bat	*Euderma maculatum*	ST, FSC	Present on HAFB; does not occur within the project area based on habitat associations
Townsend's big-eared bat	*Plecotus townsendii*	SS, FSC	Present on HAFB; does not occur within the project area based on habitat associations
Big free-tailed bat	*Nyctinomops macrotis*	SS, FSC	Possibly present on HAFB; does not occur within the project area based on habitat associations
Rock squirrel	*Spermophilus variegatus tularosae*	SS	Present on HAFB; not likely to occur within the project area

Table 3-1. Threatened and Endangered Species in Vicinity of Holloman AFB Cont'd

Common Name	*Scientific Name*	*Status*	*Potential for Occurrence*
Black-tailed prairie dog	*Cynomys ludovicianus*	SS	Unlikely to be present on HAFB; does not occur within the project area
Botta's pocket gopher	*Thomomys bottae tularosae*	SS	Possibly present on HAFB; not likely to occur within the project area
Desert pocket gopher	*Geomys arenarius*	SS, FSC	Possibly present on HAFB; not likely to occur within the project area
Plains pocket mouse	*Perognathus flavescens gypsi*	SS	Present on HAFB; not likely to occur within the project area
Ringtail	*Bassariscus astutus*	SS	Present on HAFB; not likely to occur within the project area
Western spotted skunk	*Spilogale gracilis*	SS	Possibly present on HAFB; not likely to occur within the project area
Common hog-nosed skunk	*Conepatus mesoleucus*	SS	Possibly present on HAFB; not likely to occur within the project area
Birds			
Brown pelican	*Pelecanus occidentalis*	SE, FE	Accidental occurrence on HAFB (only one record); does not occur within the project area
Neotropic cormorant	*Phalacrocorax brasilianus*	ST	Present on HAFB; not likely to occur within the project area
White-faced ibis	*Plegadis chihi*	SS	Present on HAFB; not likely to occur within the project area
Northern harrier	*Circus cyaneus*	FBCC	Present on HAFB; not likely to occur within the project area
Northern gray hawk	*Asturina nitida maximus*	SS, FSC	Present on HAFB; not likely to occur within the project area
Ferruginous hawk	*Buteo regalis*	FSC, FBCC	Documented only once on HAFB, in gypgrass-four winged saltbush habitat; does not occur within the project area based on habitat associations and level of human disturbance
Common black hawk	*Buteogallus anthracinus*	ST	Does not occur within the project area, as this species prefers riparian gallery forests, a habitat type not present locally
Bald eagle	*Haliaeetus leucocephalus*	ST, FT	Present on HAFB; does not occur within the project area due to the absence of river, lake, or very tall tree
American peregrine falcon	*Falco peregrinus anatum*	ST	Present on HAFB (documented at Lake Holloman); does not occur within the project area
Northern aplomado falcon	*Falco femoralis septentrionalis*	SE, FE	Present on HAFB; does not occur within the project area (has been documented about 3-5 miles to the north)
Snowy plover	*Charadrius alexandrinus*	FE, FBCC	Present on HAFB; does not occur within the project area

Table 3-1. Threatened and Endangered Species in Vicinity of Holloman AFB Cont'd

Common Name	*Scientific Name*	*Status*	*Potential for Occurrence*
Mountain plover	*Charadrius montanus*	SS	Present on HAFB; not likely to occur within the project area
Long-billed curlew	*Numenius americanus*	FBCC	Present on HAFB; not likely to occur within the project area
Interior least tern	*Sterna antillarum athalassos*	SE, FE	Present on HAFB; not likely to occur within the project area
Black tern	*Chlidonias niger*	FSC	Present on HAFB; not likely to occur within the project area
Western burrowing owl	*Athene cunicularia hypugaea*	FSC, FBCC	Present on HAFB, where nesting has been documented in the past; not documented in project area
Costa's hummingbird	*Calypte costae*	ST	Present on HAFB; not likely to occur within the project area
Crissal thrasher	*Toxostoma crissale*	FBCC	Present on HAFB; not likely to occur within the project area
Southwestern willow flycatcher	*Empidonax traillii extimus*	SE, FE	Unlikely to be present on HAFB; does not occur within the project area
Loggerhead shrike	*Lanius ludovicianus*	FSC, FBCC	Present on HAFB; not likely to occur within the project area
Bell's vireo	*Vireo bellii*	ST, FBCC	Unlikely to be present on HAFB; does not occur within the project area
Gray vireo	*Vireo vicinior*	ST, FBCC	Possibly present on HAFB; not likely to occur within the project area
Sprague's pipit	*Anthus spragueii*	FBCC	Present on HAFB; not likely to occur within the project area
Cassin's sparrow	*Aimophila cassinii*	FBCC	Present on HAFB; not likely to occur within the project area
Sage sparrow	*Amphispiza belli*	FBCC	Present on HAFB; not likely to occur within the project area
Lark bunting	*Calamospiza melanocorys*	FBCC	Present on HAFB; not likely to occur within the project area
Baird's sparrow	*Ammodramus bairdii*	ST, SSC, FBCC	Present on HAFB; not likely to occur within the project area
McCown's longspur	*Calcarius mccownii*	FBCC	Present on HAFB; not likely to occur within the project area
Chestnut-collared longspur	*Calcarius ornatus*	FBCC	Present on HAFB; not likely to occur within the project area
Reptiles			
Little white whiptail	*Cnemidophorus gypsi*	SS	Likely present on HAFB; not likely to occur within the project area
Bleached earless lizard	*Holbrookia maculate ruthveni*	SS	Likely present on HAFB; not likely to occur within the project area
Texas horned lizard	*Phrynosoma cornutum*	FSC	Present on HAFB; not likely to occur within the project area

Table 3-1. Threatened and Endangered Species in Vicinity of Holloman AFB Cont'd

Common Name	*Scientific Name*	*Status*	*Potential for Occurrence*
White Sands prairie lizard	*Sceloporus undulates cowlesi*	SS	Likely present on HAFB; not likely to occur within the project area
Fish			
White Sands pupfish	*Cyprinodon tularosa*	ST	Present on HAFB but not in project area
Plants and Lichen			
Sacramento prickly poppy	*Argemone pleiacantha pinnatisecta*	SE, FE	Possibly present on HAFB; not likely to occur within the project area
Kuenzler's hedgehog cactus	*Echinocereus fendleri kuenzleri*	TE, SE	Unlikely to be present on HAFB; does not occur within the project area
Villard pincushion cactus	*Escobaria villardii*	SE, FSC	Possibly present on HAFB; not likely to occur within the project area
Night-blooming cereus	*Peniocereus greggii*	SE, FSC	Possibly present on HAFB; not likely to occur within the project area
Paperspine fishhook cactus	*Sclerocactus papyracanthus*	SS, FSC	Present on HAFB; not likely to occur within the project area
Alamo beardtongue	*Penstemon alamosensis*	SS, FSC	Possibly present on HAFB; not likely to occur within the project area
Gypsophyllous lichen	*Acarospora clauzadeana*	GI/SI	Present on HAFB; not likely to occur within the project area

FBCC = Federal Birds of Conservation Concern; FE = Federal Endangered; FSC = Federal Species of Concern; FT = Federal Threatened; GI/SI = Critically imperiled globally/In-state because of extreme rarity; SE = State Endangered; SS = State Sensitive; ST = State Threatened. See text for information on Federal Birds of Conservation Concern.
Source: HAFB 1998a, 49 FW 2005

3.4 AIR QUALITY

3.4.1 Definition of the Resource

This section discusses air quality considerations and conditions at Holloman AFB in Otero County, New Mexico. It addresses air quality standards and describes current air quality conditions in the region.

Federal Air Quality Standards. Air quality is determined by the type and concentration of pollutants in the atmosphere, the size and topography of the air basin, and local and regional meteorological influences. The significance of a pollutant concentration in a region or geographical area is determined by comparing it to federal and/or state ambient air quality standards. Under the authority of the Clean Air Act (CAA), the USEPA has established nationwide air quality standards to protect public health and welfare, with an adequate margin of safety.

These federal standards, known as the National Ambient Air Quality Standards (NAAQS), represent the maximum allowable atmospheric concentrations and were developed for six "criteria" pollutants: ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), respirable particulate matter less than or equal to 10 micrometers in diameter (PM_{10}), sulfur dioxide (SO_2), and lead (Pb). The NAAQS are defined in terms of concentration (e.g., parts per million [ppm]

or micrograms per cubic meter [$\mu g/m^3$]) determined over various periods of time (averaging periods). Short-term standards (1-hour, 8-hour, or 24-hour periods) were established for pollutants with acute health effects and may not be exceeded more than once in a year. Long-term standards (annual periods) were established for pollutants with chronic health effects and may never be exceeded.

Based on measured ambient criteria pollutant data, the USEPA designates areas of the United States as having air quality equal to or better than the NAAQS (attainment) or worse than the NAAQS (nonattainment). Upon achieving attainment, areas are considered to be in maintenance status for a period of 10 or more years. Areas are designated as unclassifiable for a pollutant when there is insufficient ambient air quality data for the USEPA to form a basis of attainment status. For the purpose of applying air quality regulations, unclassifiable areas are treated similar to areas that are in attainment of the NAAQS.

On 15 April 2004, the USEPA promulgated attainment designations for the newly established 8-hour O_3 standard effective as of 15 June 2004. The USEPA revoked the 1-hour O_3 standard in June 2005. Meanwhile, states must continue to implement existing plans developed under the 1-hour standard during the transition to the new 8-hour standard (USEPA 2005a). On 17 December 2004, the USEPA designated areas as attainment or nonattainment for the newly developed standard for particulates less than 2.5 micrometer in diameter ($PM_{2.5}$), which are fine particulates that have not been previously regulated (USEPA 2005b).

State Air Quality Standards. Under the CAA, state and local agencies may establish Ambient Air Quality Standards (AAQS) and regulations of their own, provided these are at least as stringent as the federal requirements. For selected criteria pollutants, the State of New Mexico has established its AAQS (New Mexico Administrative Code [NMAC] 2002). New Mexico standards are equivalent to the NAAQS for PM_{10}, O_3, and Pb. New Mexico AAQS are more restrictive than federal standards for CO, NO_2, and SO_2. In addition, New Mexico regulates emissions of total suspended particulates (TSP), hydrogen sulfide (H_2S), and total reduced sulfur, three pollutants for which there are no federal standards. According to the preamble of the regulation that establishes the New Mexico AAQS, these state standards are not intended to provide a sharp dividing line between satisfactory and unsatisfactory air quality. They are, however, numbers that represent objectives that will preserve the state's air resources (NMAC 2002). A summary of the federal and New Mexico ambient air quality standards that apply to the proposed project area is presented in Table 3-2.

State Implementation Plan. For non-attainment regions, the states are required to develop a State Implementation Plan (SIP) designed to eliminate or reduce the severity and number of NAAQS violations, with an underlying goal to bring state air quality conditions into (and maintain) compliance with the NAAQS by specific deadlines. The SIP is the primary means for the implementation, maintenance, and enforcement of the measures needed to attain and maintain the NAAQS in each state.

Table 3-2. New Mexico and Federal Ambient Air Quality Standards

Air Pollutant	*Averaging Time*	*New Mexico Standards*	*Federal Standards*	
			Primary	*Secondary*
Carbon Monoxide (CO)	8-hour 1-hour	8.7 ppm 13.1 ppm	9 ppm 35 ppm	— —
Nitrogen Dioxide (NO_2)	AAM 24-hour	0.05 ppm 0.10 ppm	0.053 ppm —	0.053 ppm —
Sulfur Dioxide (SO_2)	AAM 24-hour 3-hour	0.02 ppm 0.10 ppm —	0.030 ppm 0.140 ppm —	— — 0.50 ppm
Particulate Matter (PM_{10})	AAM 24-hr	— —	50 $\mu g/m^3$ 150 $\mu g/m^3$	50 $\mu g/m^3$ 150 $\mu g/m^3$
Particulate Matter ($PM_{2.5}$) [(a)]	AAM 24-hour	— —	15 $\mu g/m^3$ 65 $\mu g/m^3$	15 $\mu g/m^3$ 65 $\mu g/m^3$
Total Suspended Particulates (TSP)	AGM 30-day 7-day 24-hr	60 $\mu g/m^3$ 90 $\mu g/m^3$ 110 $\mu g/m^3$ 150 $\mu g/m^3$	— — — —	— — — —
Hydrogen sulfide (H_2S)	1-hr[(d)]	0.010 ppm	—	—
Total Reduced Sulfur[(b)]	½-hr[(d)]	0.003 ppm	—	—
Ozone (O_3) [(c)]	1-hour 8-hour	— —	0.12 ppm 0.08 ppm	0.12 ppm —
Lead (Pb)	3-month	—	1.5 $\mu g/m^3$	1.5 $\mu g/m^3$

AAM = Annual Arithmetic Mean; AGM = Annual Geometric Mean; $\mu g/m^3$ = micrograms per cubic meter; ppm = parts per million

Notes: [(a)] The $PM_{2.5}$ standard was promulgated in December 2004, effective as of 5 April 2005. The standard will be implemented over the next few years.

[(b)] Total reduced sulfur does not include H_2S.

[(c)] The 8-hour O_3 standard will replace the 1-hour standard in June 2005, one year after the effective date of the USEPA's nonattainment designations. Meanwhile, states must continue to implement existing plans developed under the 1-hour standard during the transition to the new 8-hour standard.

[(d)] Entire state except for the Pecos-Permian Air Basin, which includes De Baca, Chaves, Curry, Quay, and Roosevelt Counties.

Sources: 40 CFR 50; NMAC 2002

Prevention of Significant Deterioration. Section 162 of the CAA further established the goal of prevention of significant deterioration (PSD) of air quality in all international parks; national parks that exceeded 6,000 acres; and national wilderness areas and memorial parks that exceeded 5,000 acres if these areas were in existence on 7 August 1977. These areas were defined as mandatory Class I areas, while all other attainment or unclassifiable areas were defined as Class II areas. Under CAA Section 164, states or tribal nations, in addition to the federal government, have the authority to redesignate certain areas as (non-mandatory) PSD Class I areas, e.g., a national park or national wilderness area established after 7 August 1977 that exceeds 10,000 acres. PSD Class I areas are areas where any appreciable deterioration of air quality is considered significant. Class II areas are those where moderate, well-controlled growth could be permitted. Class III areas are those designated by the governor of a state as

requiring less protection than Class II areas. No Class III areas have yet been so designated. The PSD requirements affect construction of new major stationary sources in the PSD Class I, II, and III areas and are a pre-construction permitting system.

Visibility. CAA Section 169A established the additional goal of prevention of further visibility impairment in PSD Class I areas. Visibility impairment is defined as a reduction in the visual range and atmospheric discoloration. Determination of the significance of an activity on visibility in a PSD Class I area is typically associated with evaluation of stationary source contributions. The USEPA is implementing a Regional Haze rule for PSD Class I areas that will address contributions from mobile sources and pollution transported from other states or regions.

Emission levels are used to qualitatively assess potential impairment to visibility in PSD Class I areas. Decreased visibility may potentially result from elevated concentrations of PM_{10} and SO_2 in the lower atmosphere.

General Conformity. CAA Section 176(c), General Conformity, established certain statutory requirements for federal agencies with proposed federal activities to demonstrate conformity of the proposed activities with each state's SIP for attainment of the NAAQS. Federal activities must not:

- cause or contribute to any new violation.
- increase the frequency or severity of any existing violation.
- delay timely attainment of any standard, interim emission reductions, or milestones in conformity to a SIP's purpose of eliminating or reducing the severity and number of NAAQS violations or achieving attainment of NAAQS.

General conformity applies only to nonattainment and maintenance areas. If the emissions from a federal action proposed in a nonattainment area exceed annual thresholds identified in the rule, a conformity determination is required of that action. The thresholds become more restrictive as the severity of the nonattainment status of the region increases. Conformity regulations are expected to apply for the new 8-hour O_3 and $PM_{2.5}$ standards in June 2005 and April 2006, respectively. The State of New Mexico Environmental Improvement Board has implemented the federal general conformity regulations in Title 20, Chapter 2, Part 98 of the state's Air Quality Regulations.

Stationary Source Operating Permits. In New Mexico, the New Mexico Air Quality Bureau (NMAQB) Permitting Section processes permit applications for industries that emit pollutants into the air. The Permitting Section consists of two groups: (1) New Source Review (NSR); and (2) Title V. The NSR is responsible for issuing construction permits, technical and administrative revisions, or modifications to existing permits, Notices of Intent for smaller industrial operations, and No Permit Required determinations. Construction Permits (under NSR) are required for all sources with the potential emission rate greater than 10 pounds per hour or 25 tons per year of criteria pollutants (e.g., NO_2 and CO). Air quality permits must be obtained for new or modified sources. Title V of the CAA Amendments of 1990 requires states to issue Federal Operating Permits for major stationary sources. A major stationary source in an attainment or maintenance area is a facility (e.g., plant, base) or an activity that emits more than 100 tons per year of any one criteria air pollutant; 10 tons per year of a hazardous air pollutant; or 25 tons per year of any combination of hazardous air pollutants. The purpose of the

permitting rule is to establish regulatory control over large, industrial activities and to monitor their impact upon air quality (NMAQB 2005).

3.4.2 Existing Conditions

Regional Air Quality. Federal regulations at 40 CFR 81 delineate certain air quality control regions (AQCRs), which were originally designated based on population and topographic criteria closely approximating each air basin. The potential influence of emissions on regional air quality would typically be confined to the air basin in which the emissions occur. Therefore, the ROI for this action is the El Paso-Las Cruces-Alamogordo AQCR (AQCR 153), Doña Ana, Lincoln, Otero, and Sierra Counties in New Mexico and Brewster, Culberson, Hudspeth, Jeff Davis, and Presidio Counties in Texas (40 CFR 81.82).

Attainment Status. A review of the federally published attainment status for Otero County, New Mexico, in 40 CFR 81.322 indicated that this region is designated as attainment (i.e., meeting national standards) for all criteria pollutants, including CO, NO_2, SO_2, PM_{10}, O_3, and Pb. The USEPA has recently designated Otero County as attainment for the new 8-hour O_3 and $PM_{2.5}$ standards (USEPA 2005a, USEPA 2005b).

Class I Areas. Mandatory PSD Class I areas established under the CAA Amendments of 1977 for New Mexico are listed under 40 CFR 81.421. No mandatory federal PSD Class I areas are located within the ROI. The nearest PSD Class I area is the White Mountain Wilderness Area, located approximately 43 miles northeast of Holloman AFB. Other Class I areas within 300 km of Holloman AFB include Bosque del Apache National Wilderness Refuge, Guadalupe Mountains National Park, Carlsbad Caverns National Park, and the Salt Creek and Gila wilderness areas (Figure 3-2).

Climate. The region near Holloman AFB has a semiarid continental climate, with low annual precipitation and many days with clear or partly cloudy skies. The area is far from any major body of water that would moderate the climate. Summers tend to be hot and relatively dry, and winters are cool and very dry with occasional light snow.

The mean annual temperature for Holloman AFB is approximately 62°F. Average monthly temperatures range from 42°F in January to 80°F in July. The average summer high and low temperatures are 93.3°F and 66.0°F, respectively. The average winter high and low temperatures are 55.2°F and 28.7°F. The average annual precipitation for Holloman AFB is 11.6 inches, with 50 percent falling in thunderstorms during the period July through September. Conversely, the winters are very dry, with the total precipitation during December, January, and February averaging 2.0 inches. An average of 4.5 inches of snow falls in the region each year.

Although winds in the region can be strong and gusting in the vicinity of a thunderstorm, typically they are relatively low, averaging 5 miles per hour (mph). The prevailing wind direction is from the west, although southerly winds are common during the warmer months. The atmosphere in the region is generally well mixed. The seasonal and annual average mixing heights can vary from 400 meters in the morning to 4,000 meters in the afternoon. The morning mixing heights are usually low, due to nighttime heat loss from the ground, which produces surface-based temperature inversions. After sunrise, these inversions quickly break up, and solar heating of the Earth's surface results in good vertical mixing in the lower layers of the atmosphere. Dust is frequently entrained into the atmosphere due to gusting winds and the semiarid climate. Most of the seasonal dust storms occur in March and April, when wind speeds are higher.

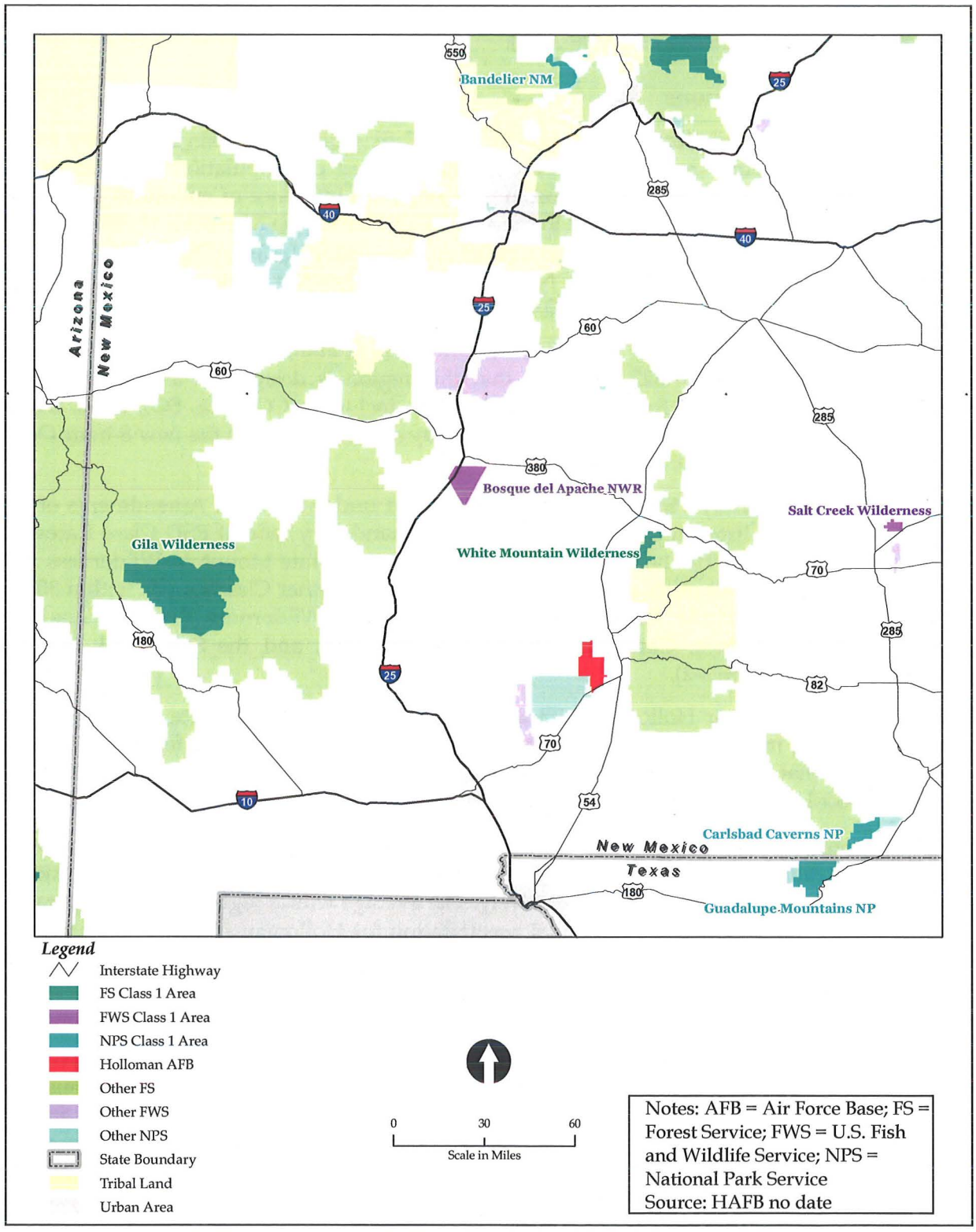

Figure 3-2. Prevention of Significant Deterioration Class I Areas near Holloman AFB, New Mexico

Current Emissions at Holloman AFB. Baseline emissions from Holloman AFB include conventional stationary sources associated with aircraft and facility maintenance; mobile sources such as personal vehicles and facility-based utility and construction vehicles; and aircraft ground and flying operations within the Holloman AFB airfield. Table 3-3 presents the baseline emissions at Holloman AFB for employee commuting and on-base vehicles, stationary sources, and aircraft landing/take-off and touch and go operations as reported in the Proposed Action in the *Environmental Assessment for the 20th Fighter Squadron Inactivation at Holloman AFB* (ACC 2004a). In the following tables and for tables in Section 4.3, volatile organic compounds (VOCs) are precursors to the formation of O_3 in the atmosphere; nitrogen oxides (NO_x) include NO_2 and other related compounds; sulfur oxides (SO_x) include SO_2 and other related compounds; and particulate matter (PM) is equivalent to TSP and includes PM_{10} as a component.

Regional Air Emissions. The previous section lists on-base emissions for Holloman AFB. The NEPA process, however, must also consider impacts from mobile sources and indirect emissions related to the project, some of which occur outside of the installation. For comparison purposes, Table 3-4 lists county-wide emissions for Otero County and for AQCR 153 (which includes Otero County), as compiled by USEPA in its National Emissions Inventory, which was last updated in 1999 (USEPA 2003). The 1999 National Emissions Inventory contains estimates of annual emissions for stationary and mobile sources of air pollutants in each country on an annual basis.

Table 3-3. Criteria Pollutant Emissions at Holloman AFB, Baseline

Source	*Annual Emissions (tons/year)*				
	CO	*VOC*	*NO_x*	*SO_x*	*PM*
Commuting	444.9	60.9	36.1	0.1	1.6
On-Base Vehicles	187.1	22.8	220.2	0.1	21.2
Stationary Sources	19.9	92.8	19.5	1.5	11.3
Aircraft (Airfield only)	496.8	147.6	424.5	12.9	78.1
Total Emissions at Holloman	**1,148.7**	**324.1**	**700.3**	**14.6**	**112.2**

CO = carbon monoxide; NO_x = nitrogen oxides, which include nitrogen dioxide (NO_2) and other nitrogen-related compounds; PM = particulate matter, which is equivalent to Total Suspended Particles (TSP) and includes particulate matter (PM_{10}) as a component; SO_x = sulfur oxides, which include sulfur dioxide (SO_2) and other sulfur-related compounds; VOCs = volatile organic compounds, which are precursors to the formation of ozone (O_3) in the atmosphere
Source: ACC 2004a

Table 3-4. Air Emissions Inventory Otero County, New Mexico, and AQCR 153 Calendar Year 1999

	Pollutants (in Tons per Year)				
	CO	*SO_2*	*NO_x*	*PM_{10}*	*VOC*
Otero County, NM					
Stationary Sources	15,799.8	326.8	1,430.4	30,481.3	2,501.8
Mobile Sources	14,842.7	63.3	1,657.2	51.4	1,183.2
Air Quality Control Region 153					
Stationary Sources	72,659.9	1,905.0	14,530.2	128,481.3	12,979.2
Mobile Sources	135,738.0	585.7	16,377.5	479.3	10,447.3

CO = carbon monoxide; NO_x = nitrogen oxides; PM_{10} = particulate matter; SO_2 = sulfur dioxide; VOC = volatile organic compounds
Source: USEPA 2003

3.5 NOISE

3.5.1 Definition of the Resource

Noise is considered to be unwanted sound that interferes with normal activities or otherwise diminishes the quality of the environment. It may be intermittent or continuous, steady or impulsive. It may be stationary or transient. Stationary sources are normally related to specific land uses (e.g., housing tracts or industrial plants). Transient noise sources move through the environment, either along established paths (i.e., highways, railroads, and airports), or randomly. There is a wide diversity in responses to noise that not only varies according to the type of noise and the characteristics of the sound source, but also according to the sensitivity and expectations of the receptor, the time of day, and the distance between the noise source (e.g., an aircraft) and the receptor (i.e., a person or animal).

The physical characteristics of noise, or sound, include its intensity, frequency, and duration. Sound is created by acoustic energy, which produces minute pressure waves that travel through a medium, like air, and are sensed by the eardrum. This may be likened to the ripples in water that would be produced when a stone is dropped into it. As the acoustic energy increases, the intensity or amplitude of these pressure waves increase, and the ear senses louder noise. The unit used to measure the intensity of sound is the decibel (dB). Sound intensity varies widely (from a soft whisper to a jet engine) and is measured on a logarithmic scale to accommodate this wide range. The logarithm, and its use, is nothing more than a mathematical tool that simplifies dealing with very large and very small numbers. For example, the logarithm of the number 1,000,000 is 6, and the logarithm of the number 0.000001 is -6 (minus 6). Obviously, as more zeros are added before or after the decimal point, converting these numbers to their logarithms greatly simplifies calculations that use these numbers. Sound levels are easily measured, but the variability is subjective, and physical response to sound complicates the analysis of its impact on people. People judge the relative magnitude of sound sensation by subjective terms such as "loudness" or "noisiness."

The term most often used when measuring the magnitude of sound is *sound pressure level.* Sound pressure level can vary over an extremely large range of amplitudes. It is a relative quantity, in that it is a ratio between the actual sound pressure and a fixed reference pressure, which is normally the threshold of human hearing. Table 3-5 presents the subjective effect of changes in sound pressure level.

Table 3-5. Perceived Changes in Noise as Sound Pressure Changes

Change in Sound Level (dB)	*Change In Power*		*Change in Apparent Loudness*
	Decrease	*Increase*	
3	1/2	2	Just perceptible
5	1/3	3	Clearly noticeable
10	1/10	10	Half or twice as loud
20	1/100	100	Much quieter or louder

Source: American National Standards Institute [ANSI] 1986

Different sounds contain different frequencies. When describing sound and its effect on a human population, A-weighted (dBA) sound levels are typically used to account for the response of the human ear. The term "A-weighted" refers to a filtering of the noise signal, which emphasizes frequencies in the middle of the audible spectrum and de-emphasizes low

and high frequencies in a manner corresponding to the way the human ear perceives sound. This filtering network has been established by the American National Standards Institute (ANSI 1986). The A-weighted noise level has been found to correlate well with people's judgments of the noisiness of different sounds and has been used for many years as a measure of community noise. Figure 3-3 shows the typical A-weighted sound levels for various sources.

The word "metric" is used to describe a standard of measurement. As used in environmental noise analysis, there are many different types of noise metrics. Each metric has a different physical meaning or interpretation and each metric was developed by researchers attempting to represent the effects of environmental noise.

The day-night average sound level (DNL) was developed to evaluate the total daily community noise environment. DNL is the average A-weighted acoustical energy for a 24-hour period with a 10 dB upward adjustment added to the nighttime levels (10:00 P.M. to 7:00 A.M.). This adjustment is an effort to account for the increased sensitivity of most people to noise in the quiet nighttime hours. DNL has been adopted by federal agencies including the USEPA, the Federal Aviation Administration (FAA), and the Department of Housing and Urban Development as the accepted unit for quantifying human annoyance to general environmental noise.

Land use guidelines identified by the Federal Interagency Committee on Urban Noise (FICUN) are used to determine compatible levels of noise exposure for various types of land use surrounding airports (FICUN 1980). The Air Force developed similar planning guidelines for its Air Installation Compatibility Use Zone (AICUZ) program. Under both guidelines, areas exposed to noise levels of 65 to greater than 85 dB (DNL) are considered when determining compatibility of aircraft operations with local land use. Appendix C provides the AICUZ guidelines for land use compatibility.

3.5.2 Existing Conditions

Noise associated with activities at Holloman AFB is characteristic of that associated with most Air Force installations with a flying mission. During periods of no aircraft activity, noise associated with Base operations results primarily from maintenance and shop activities, ground traffic movement, occasional construction, and similar sources. The resultant noise is almost entirely restricted to the Base itself and is comparable to that which might occur in adjacent community areas.

Table 3-6 presents the baseline land acreage exposed to noise levels greater than 65 dB (DNL). For areas on Holloman AFB, Table 3-7 provides acres exposed to 65 to 85 dB DNL noise contours in 5 dB increments by land use. The land use categories used for Holloman AFB are defined in Table 3-8. Much of the Base administrative, industrial, and housing areas are within the 65 dB DNL noise level contour. Although not prohibited, residential and community areas are discouraged from being sited inside the 65 dB DNL noise contour. Sound attenuation is required for residential and administrative facilities exposed to the 70 dB DNL noise contour. At Holloman, 446 acres used for family housing is exposed to DNL of 70 dB and greater (ACC 2004b).

Figure 3-4 depicts the baseline 65 to 85 dB DNL noise contours in 5 dB increments surrounding the MFH areas. Most of the family housing areas are exposed to noise levels of 70 dBA DNL and above (401 acres), with a small portion (42 acres) exposed to levels above 75 dBA DNL.

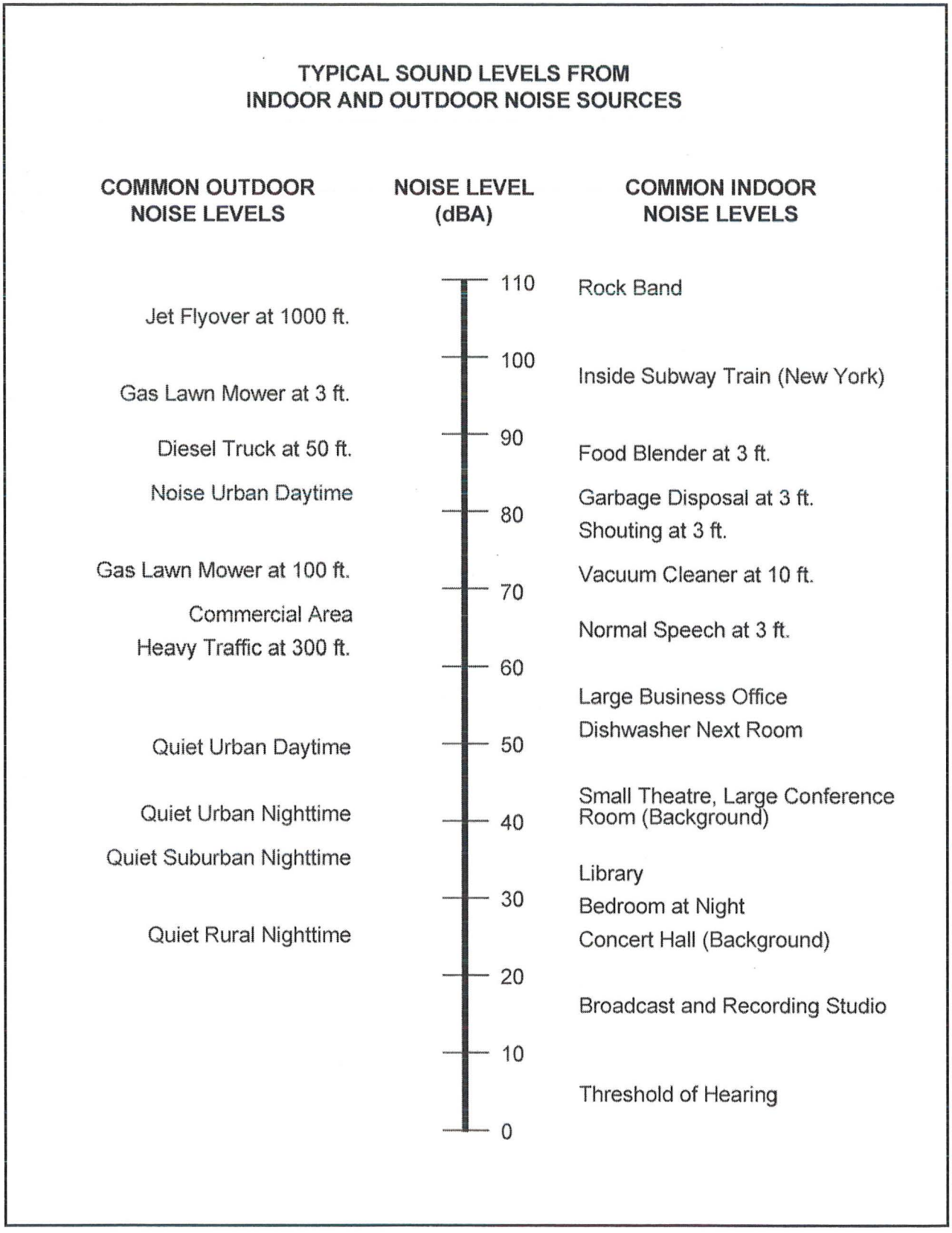

Figure 3-3. Typical Sound Levels from Indoor and Outdoor Noise Sources

Table 3-6. Noise Contour Acreage, Baseline Conditions

Noise Contour (DNL)	*Acres*
65 – 70 dB	23,800
70 – 75 dB	12,750
75 – 80 dB	6,970
80 – 85 dB	3,230
85+ dB	3,200
Total	49,950

dB = decibel; DNL = day/night average noise level
Note: Land areas exposed to indicated sound levels.
Total area exposed to 65 dBA DNL or greater is 49,866 acres.
Source: derived from ACC 2004b

Table 3-7. Current Noise Exposure Levels (DNL) on Holloman AFB by Land Use Category

Land Use	*Current Average Noise Level (DNL)*					
	65-70dB	*70-75dB*	*75-80dB*	*80-85dB*	*>85dB*	*Total*
Airfield	—	79	16	82	295	456
Aircraft Operations and Maintenance	382	193	178	116	93	963
Industrial	1	204	114	33	32	383
Administration	—	20	26	25	8	79
Community/commercial	—	108	16	—	3	127
Community Services	—	—	—	—	—	—
Medical	—	24	—	—	—	24
Accompanied housing	—	401	42	4	—	446
Unaccompanied housing	—	37	11	—	—	48
Outdoor recreation	—	54	51	73	52	229
Open Space	7,342	4,313	2,520	1,508	2,347	18,030
Water	—	—	29	18	—	47
Total	**7,725**	**5,354**	**3,067**	**1,857**	**2,829**	**20,832**

> = greater than; DNL = day-night average sound level; dB = decibel
Source: ACC 2004b

Table 3-8. Land Use Categories at Holloman AFB

Land Use Category	*Example*
Airfield	Runway, overruns, taxiways, aprons
Aircraft Operations and Maintenance	Hangars, maintenance shops, aircrew facilities
Industrial	Supply, civil engineering facilities, vehicle maintenance facilities
Administrative	Headquarters facilities, base support, security
Community Commercial	Base exchange, commissary, credit union, dining halls
Community Services	Schools, post office, library, chapel
Medical	Health care center, dental clinic, veterinarian facility
Accompanied Housing	Family housing, temporary housing, trailer courts
Unaccompanied Housing	Dormitories, visiting officers quarters, visiting airman quarters
Outdoor Recreation	Golf course, swimming pool, playing fields
Open Space	Conservation areas, safety clearance zones
Water	Storm drainage collection ponds

Source: 49 FW 2004b

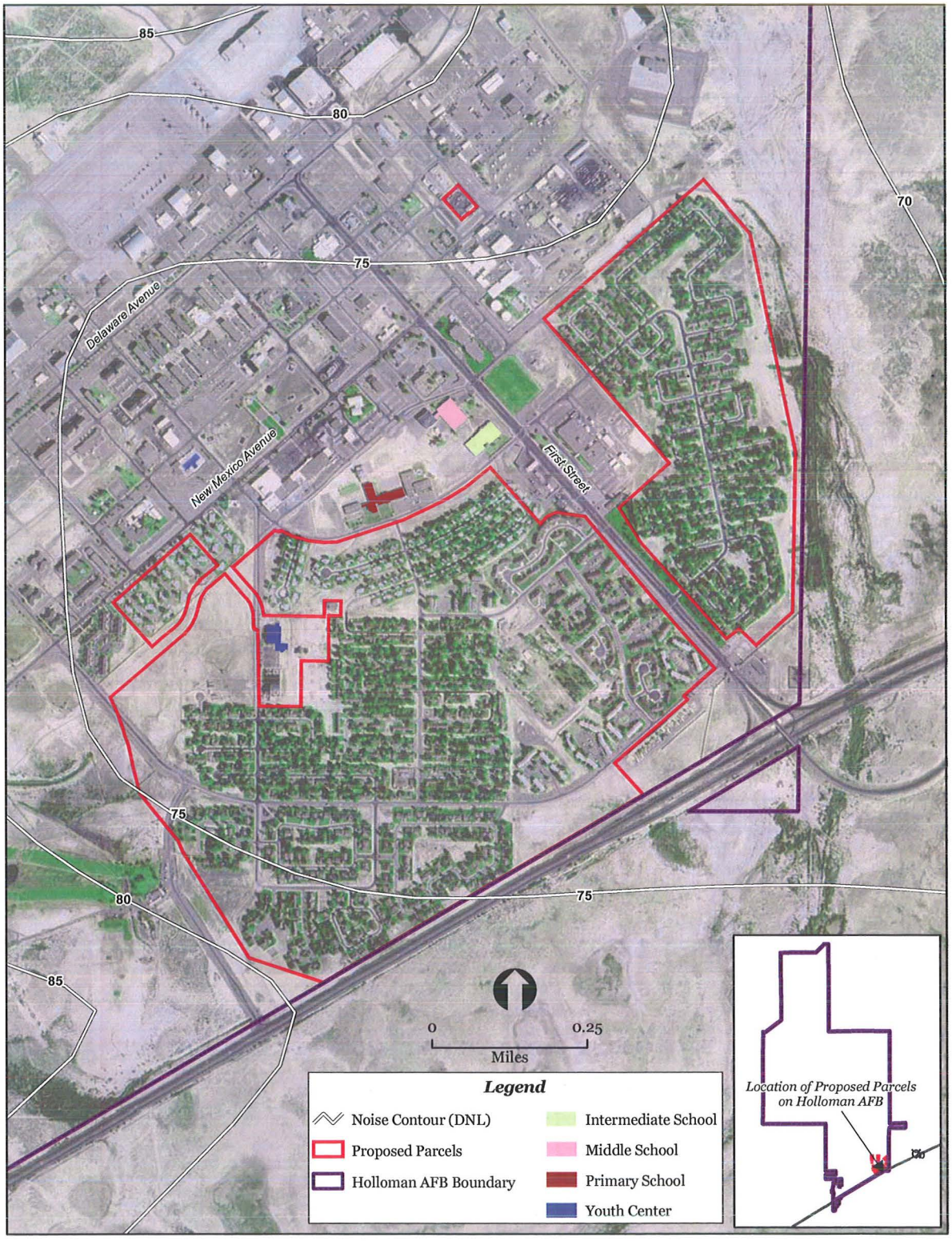

Figure 3-4. Baseline DNL 65 to 85 dB Noise Contours in 5 dB Increments Surrounding the MFH Areas

3.6 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

3.6.1 Definition of the Resource

Socioeconomic resources are defined as the basic attributes associated with human activities. Of particular interest are characteristics of the population including race, ethnicity, and age distribution and economic factors including employment, income, and poverty status. Actions that impact these socioeconomic indicators may have ramifications for other socioeconomic factors such as housing availability and public services.

Environmental justice identifies and addresses activities, policies, and programs of federal agencies that may have a disproportionately high and adverse effect on the environment or human health of minorities or low-income populations. To comply with NEPA, the planning and decision making process for actions proposed by federal agencies requires a study of relevant environmental statutes and regulations, including EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.*

Because children are more sensitive to environmental health risks and safety risks, EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks,* requires federal agencies to identify and assess the environmental health and safety risks of programs, policies, and activities that may disproportionately affect children. The section on children identifies locations where there are a proportionately higher number of children in the affected area (e.g., schools, child care centers).

The ROI for socioeconomics in this analysis is Otero County, which constitutes the City of Alamogordo and the surrounding rural area. Socioeconomic data are presented for the ROI where information is available. Information for the ROI is compared to the state and national scale. Environmental justice within the ROI is assessed through demographic characterization, particularly ethnicity and poverty status.

3.6.2 Existing Conditions

3.6.2.1 Population

Otero County has an estimated 2004 population of 63,282, about 3 percent of New Mexico's population of 1.9 million as shown in Table 3-9 (United States Census Bureau [USCB] 2005). From 2000 to 2004, Otero County experienced 1.6 percent growth, slower than the population growth in New Mexico of 4.6 percent (USCB 2005).

Table 3-9. Population, 2000-2004

	2004	*2003*	*2002*	*2001*	*2000*	*Percent Change 2000-2004*
Otero County	63,282	62,058	61,678	61,533	62,243	1.6
New Mexico	1,903,289	1,878,562	1,855,143	1,832,335	1,821,496	4.6
United States	293,655,404	290,788,976	287,941,220	285,102,075	282,192,162	4.3

Source: USCB 2005

3.6.2.2 *Employment and Income*

Total employment (see Table 3-10) in Otero County grew 5 percent between 2001 and 2003 from 26,775 jobs in 2001 to 28,230 jobs in 2003 (Bureau of Economic Analysis [BEA] 2005a). Similar to the state of New Mexico, the economy and jobs are in Otero County are oriented towards government and services.

Government including federal, state, local, and military contributes 40 percent of Otero County's total employment and showed an increase of 8 percent between 2001 and 2003 (BEA 2005a). The largest employer in Otero County is Holloman AFB, employing over 6,600 people including active duty military and civilians (HAFB 2004). Adjacent to Holloman AFB is White Sands Missile Range (Alamogordo Chamber of Commerce [ACOC] 2005). The two military installations have a combined economic impact on Otero County and the City of Alamogordo of over $450 million (ACOC 2005).

Service-oriented jobs (excluding public administration) account for almost 30 percent of the jobs in Otero County, with retail trade providing about 11 percent of the jobs (BEA 2005a). Within the service sector, administrative and waste services and health care employment has increased while most other services have decreased (BEA 2005a).

Table 3-10. Employment, Otero County, 2001-2003

	2001	*2002*	*2003*	*Percent of Total Employment*	*Percent Change 2001-2003*
Total employment	26,775	27,439	28,230	-	5.4%
Private employment	15,652	15,930	16,270	57.6%	3.9%
Utilities	79	76	66	0.2%	-16.5%
Construction	1,404	1,322	1,402	5.0%	-0.1%
Manufacturing	618	491	324	1.1%	-47.6%
Wholesale trade	264	242	238	0.8%	-9.8%
Retail trade	2,954	2,906	3,002	10.6%	1.6%
Transportation and warehousing	789	761	749	2.7%	-5.1%
Information	310	291	291	1.0%	-6.1%
Fire, Insurance, and Real Estate	1,345	1,396	1,444	5.1%	7.3%
Services [1] (except public administration)	7,678	8,149	8,420	29.8%	9.7%
Government and Government Enterprises	10,493	10,875	11,332	40.1%	8.0%

Source: BEA 2005a

Note: [1] Includes the following service-oriented employment: professional and technical, management of companies and enterprises, administrative and waste services, education services, health care and social assistance, arts/entertainment/recreation, and other services (excluding public administration).

The preliminary March 2005 unemployment rate for Otero County was 5.7 percent with a civilian labor force of 27,153 people (New Mexico Department of Labor Economic Research and Analysis [NM DOL] 2005). New Mexico's unemployment rate was 5.9 percent with a civilian labor force of 927,953. Otero County and New Mexico unemployment rates were similar to the United States unemployment rate of 5.4 percent in March 2005 (NM DOL 2005).

Between 2001 and 2003 Otero County's personal income (see Table 3-11) has grown nearly 10 percent to over $1.2 billion in 2003 from $1.1 billion in 2001 (BEA 2005b). Similar to the state of New Mexico, the primary sources of income in Otero County include government, services (predominantly health care and social assistance), and retail trade. Income from government accounts for $545 million, almost 45 percent of Otero County's personal income (BEA 2005b). The portion of government sector personal income is higher than the equivalent portion of government-sector jobs, indicating that these jobs are generally higher-paying than other jobs. Conversely, service-oriented jobs tend to generate lower personal income (BEA 2005b).

Table 3-11. Income (In Thousands of Dollars), Otero County, 2001-2003

	2001	*2003*	*Percent Total Income*	*Percent Change 2001-2003*
Total Personal Income	1,122,485	1,230,675	-	9.6%
Private Earnings	324,821	361,352	29.4%	11.2%
Utilities	4,220	4,123	0.3%	-2.3%
Construction	38,028	43,345	3.5%	14.0%
Manufacturing	13,851	7,102	0.6%	-48.7%
Wholesale trade	4,536	4,466	0.4%	-1.5%
Retail trade	55,635	63,639	5.2%	14.4%
Transportation and warehousing	24,838	24,637	2.0%	-0.8%
Information	9,582	9,482	0.8%	-1.0%
Finance, Insurance, and Real Estate	23,604	24,365	1.9%	3.2%
Services[1] (except public administration)	147,660	175,663	14.3%	18,9%
Government and Government Enterprises	461,444	545,110	44.3%	18.1%

Source: BEA 2005a

Note: [1] Includes the following service-oriented employment: professional and technical, management of companies and enterprises, administrative and waste services, education services, health care and social assistance, arts/entertainment/recreation, and other services (excluding public administration).

3.6.2.3 Housing

According to the 2003 Housing Requirements Market Analysis in a market area including Otero County and a portion of Dona Ana County, there are 7,526 rental units and 16,443 homeowner units (USAF 2003). By 2008, the housing supply was projected to be 7,849 rental units and 18,278 homeowner units. Building permits have steadily increased for single family units to 209 permits in 2004 from 96 permits in 2000, representing an increase of 118 percent (see Table 3-12). Multi-family building permits have declined 71 percent between 2000 and 2004 with 14 permits in 2004 (United States Housing and Urban Development, State of the Cities Data System [HUD-SOCDS] 2005).

Over the 5-year period from 2003 to 2008, the rental unit stock is projected to increase by 4.3 percent, compared to a projected 11.2 percent increase in homeowner units. Overall in 2003, the rental unit occupancy rate in the HRMA area was 94 percent. On average, 437 units were vacant (USAF 2003).

Table 3-12. Building Permits, Otero County, 2000-2004

	2000	*2001*	*2002*	*2003*	*2004*	*Percent Change 2000-2004*
Single Family Units	96	79	104	168	209	117.7%
Multi-Family Units	48	0	0	0	14	-70.8%

Source: HUD-SOCDS 2005

Homes sales for Otero County (shown in Table 3-13) have been relatively steady from May 2004 to May 2005 with an average of 82 homes sold per month (Otero County Electric Cooperative [OCEC] 2005).

Table 3-13. Homes Sales, Otero County, May 2004-May 2005

	Homes for Sale	*Homes Sold*
May-04	647	76
Jun-04	633	88
Jul-04	645	84
Aug-04	617	105
Sep-04	593	81
Oct-04	589	82
Nov-04	580	88
Dec-04	487	68
Jan-05	497	65
Feb-05	522	69
Mar-05	529	97
Apr-05	550	83
May-05	582	85
Average	575	82

Source: OCEC 2005

3.6.2.4 Environmental Justice

Race and Ethnicity

According to the USEPA's CEQ, a significant minority population exists if 50 percent or more of the general population in the ROI is composed of minorities (USEPA 1997). Table 3-14 shows that in 2003, 86 percent of the total population of Otero County (62,371 persons) was recorded as white (BBER-UNM 2003b and 2000a). This is similar to the state-wide portion of 85 percent. African Americans represented 4 percent of the total population in Otero County, American Indians were 6 percent (less than the state portion), Asians were about 1 percent, and Native Hawaiians and Other Pacific Islander represented less than 1 percent of the total population (BBER-UNM 2003b). Hispanics of any race comprised 33 percent of the total population of Otero County (BBER-UNM 2003c).

Table 3-14. Race and Ethnicity, 2000-2003

	2000 Population	*2003 Population*	*Percent of 2003*	*Percent Change 2000-2003*
Otero County				
Total	62,298	62,371	-	0.1%
White	54,079	53,776	86%	-0.6%
African American	2,562	2,557	4%	-0.2%
American Indian, Alaska Native	3,716	3,937	6%	6%
Asian	795	881	1%	11%
Native Hawaiian and Other Pacific Islander	93	96	0.2%	3%
Hispanic of any race	20,033	20,827	33%	4%
New Mexico				
Total	1,819,046	1,874,614	-	3%
White	1,553,050	1,591,375	85%	2%
Black	38,421	42,427	2%	10%
American Indian, Alaska Native	178,864	187,323	10%	5%
Asian	21,188	24,024	1%	13%
Native Hawaiian and Other Pacific Islander	2,112	2,366	0.1%	12%
Hispanic of any race	765,386	810,060	43%	6%
United States				
Total	281,421,906	282,909,885	-	0.5%
White	211,460,626	215,451,392	76%	2%
Black	34,658,190	34,313,529	12%	-1%
American Indian, Alaska Native	2,475,956	2,173,834	0.8%	-12%
Asian	10,242,998	11,743,093	4%	15%
Native Hawaiian and Other Pacific Islander	398,835	404,619	0.1%	1.5%
Hispanic of any race	35,305,818	39,194,837	14%	11%

Source: BBER-UNM 2003b, 2003c, 2000a and 2000b

Legal Status

In Otero County, 18,300 people representing 29 percent of the total population are individuals under the age of 18. In New Mexico, 508,000 people are under the age of 18, and in the United States 72,000,000 are under 18, representing 28 percent and 26 percent of the total population, respectively (USCB 2000a).

Poverty

In 2000, the USCB determined the poverty threshold for an individual under the age of 65 years is an income under $8,959 per year. For an individual over the age of 65 years, that threshold is decreased to $8,259 per year. A family of four, with two adults and two children under the age of 18 years has a poverty threshold of $17,463 per year (USCB 2000b).

Applying these thresholds, 16 percent of the total number of families in Otero County lives below the poverty threshold (USCB 2000b, Table 3-15). Individuals living below the poverty threshold were 19 percent of the total population. In New Mexico and the United States, nearly 15 percent and 9 percent of the total number of families, respectively, live below the poverty threshold (USCB 2000b). Individuals living below the poverty threshold in New Mexico were 18 percent of the population. In the United States, as a whole, individuals below the poverty threshold were 12 percent of the total population (USCB 2000c). Overall, poverty in Otero County is similar to the state of New Mexico, and higher than the United States as a whole.

Table 3-15. Poverty, 2000

	Otero County	*New Mexico*	*United States*
Families Below the Poverty Threshold			
Households	2,644	68,178	6,620,945
Percent of Total Households	15.6%	14.5%	9.2%
Individuals Below the Poverty Threshold			
Individuals	11,737	328,933	33,899,812
Percent of Total Population	19.3%	18.4%	12.4%

Source: USCB 2000b and 2000c

3.6.2.5 Children

Children are considered a special group of interest for their sensitivity to risks posed by their environment. Of particular concern are areas where the number of children may be concentrated, such as schools.

Three schools are located on Holloman AFB on the north side of Arnold Avenue and west of First Street. Holloman Primary School serves kindergarten through second grade. During the 2003/2004 school year, it had an average enrollment of 336 children (Alamogordo Public Schools [APS] 2005a). Holloman Intermediate School has third grade through fifth grade, with 244 students in the 2003/2004 school year (APS 2005b). Holloman Middle School is adjacent to the Intermediate School, and serves sixth grade through eighth grade. The count for the Middle School in 2003/2004 was 237 students (APS 2005c).

3.7 SAFETY

3.7.1 Definition of the Resource

This section addresses ground safety involving activities conducted by personnel assigned to Holloman AFB. Ground safety considers issues involving day-to-day operations and maintenance activities that support unit operations. The ROI for safety in this EA includes Holloman AFB.

3.7.2 Existing Conditions

3.7.2.1 Ground Safety

Day-to-day operations and maintenance activities conducted by the 49 FW are performed in accordance with applicable Air Force safety regulations, published Air Force Technical Orders, and standards prescribed by Air Force Occupational Safety and Health requirements.

The DoD stipulates certain safety restrictions on land uses in the immediate vicinity of aviation operations around military airfields. These restrictions limit construction and certain land uses. The Clear Zones (CZs) at Holloman AFB are confined to within Base boundaries; however, the Accident Potential Zones (APZs) do go outside of the Base boundary (as shown in Figure 3-5). Although there are several waivers in effect for structures or uses around the airfield, the location of the family housing areas does not conflict with any airfield safety restrictions.

Air Force Manual 91-201, *Explosives Safety Standards,* represents the Air Force guidelines for complying with explosives safety. Restrictions apply to zones around munitions and ammunition storage and handling facilities (defined by distances) to maintain safe separation of potentially hazardous events. These distances, called quantity-distance (QD) arcs, are determined by the type and net explosive weight of explosive material to be stored. No inhabited facilities are allowed within the QD arcs. As Figure 3-5 illustrates, the family housing areas are not affected by any QD arcs.

There are several land use policies at Holloman AFB that directly pertain to airfield safety. The following criteria are applied when siting facilities, functions, and equipment around the airfield.

- New structures cannot be sited within the clear zone.
- Structures within 1,000 feet of the centerline of the runway (lateral clear zone) cannot be above ground level.
- Structures cannot be located within 200 feet of the centerline on taxiways.
- Structures that are not related to flight operations cannot be located within 125 feet of the edge of the aircraft parking apron.

Holloman AFB is implementing a phased initiative to reduce existing obstructions around the airfield (49 FW 2004a).

3.7.2.2 Anti-Terrorism/Force Protection

As a result of terrorist activities, the DoD and the Air Force have developed a series of Anti-Terrorism/Force Protection (AT/FP) guidelines for military installations. These guidelines address a range of considerations that include access to the installation, access to facilities on the installation, facility siting, exterior design, interior infrastructure design, and landscaping (DoD 2002). The intent of this siting and design guidance is to improve security, minimize fatalities, and limit damage to facilities in the event of a terrorist attack.

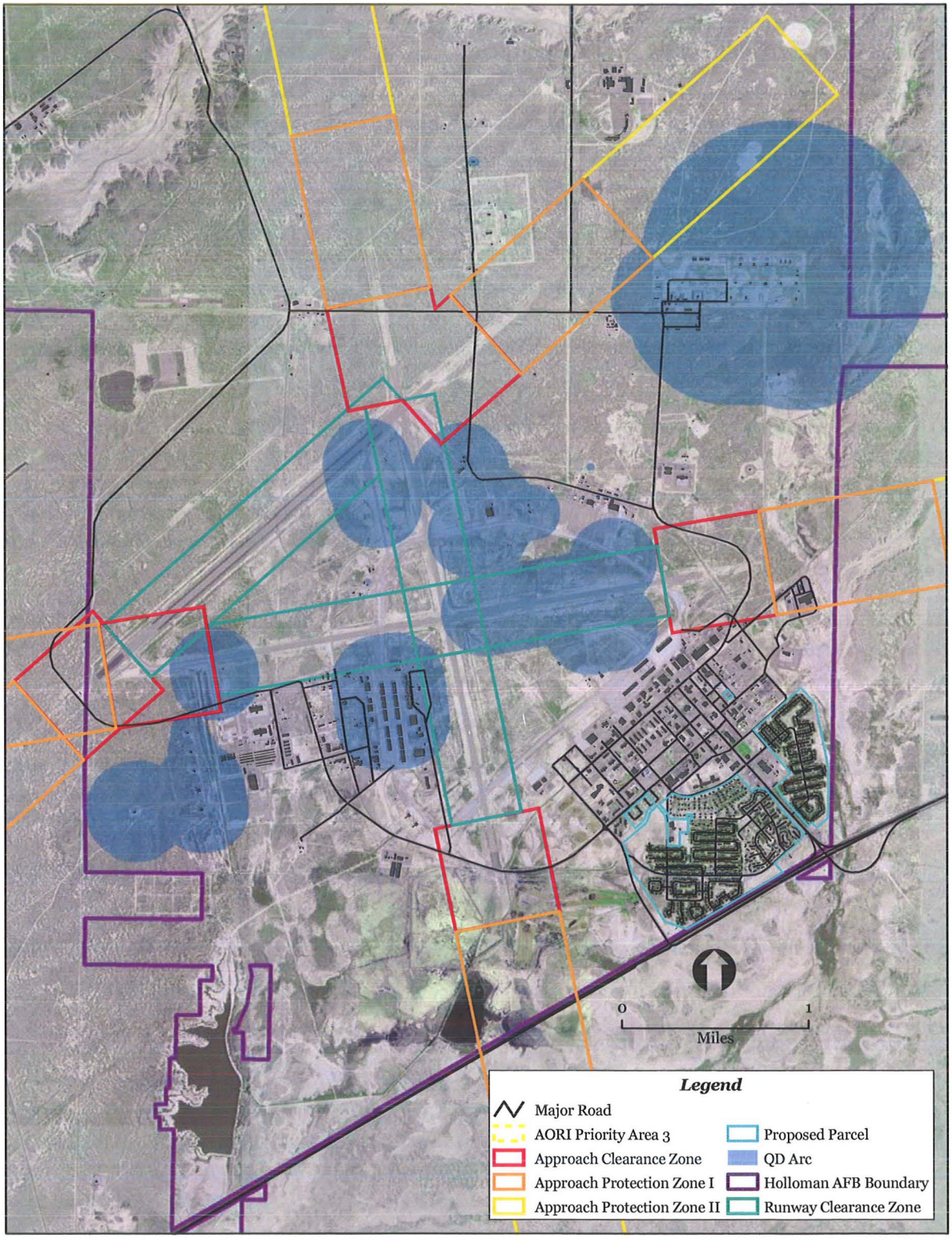

Figure 3-5. Safety Zones at Holloman AFB

Many military installations, such as Holloman AFB, were developed before these considerations became a critical concern. Thus, under current conditions, the Base does not comply with all present AT/FP standards. However, for new construction, facility modifications, or selected priority AT/FP projects, these standards are incorporated to the maximum extent practicable.

3.8 SOLID AND HAZARDOUS MATERIALS AND WASTES

3.8.1 Definition of the Resource

The terms "hazardous materials" and "hazardous waste" refer to substances defined as hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Solid Waste Disposal Act (SWDA), as amended by the Resource Conservation and Recovery Act (RCRA). In general, *hazardous materials* include substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present substantial danger to public health or the environment when released into the environment.

Hazardous wastes that are regulated under RCRA are defined as any solid, liquid, contained gaseous, or semisolid waste, or any combination of wastes that either exhibit one or more of the hazardous characteristics of ignitability, corrosivity, toxicity, or reactivity, or are listed as a hazardous waste under 40 CFR 261. Petroleum products include petroleum-based fuels, oils, and their wastes. The Environmental Restoration Program (ERP) is an Air Force program to identify, characterize, and remediate environmental contamination from past activities at Air Force installations.

Solid wastes are wastes that do not meet the requirement for hazardous waste and whose disposal is not regulated under RCRA. Solid wastes are regulated under the SWDA, which established guidelines for solid waste collection, transport, separation, recovery, and disposal systems. RCRA amended this Act by shifting the emphasis from disposal to recycling and reuse of recoverable materials.

Based on an evaluation of existing conditions at Holloman AFB, the following items are relevant to this assessment and are addressed in this section.

- Hazardous Materials/Hazardous Waste and Management
- Underground Storage Tanks (USTs) and Aboveground Storage Tanks (ASTs)
- ERP Sites
- Asbestos-Containing Building Materials
- Lead-Based Paint
- Polychlorinated Biphenyls (PCBs)
- Solid Waste

Issues associated with hazardous material and waste typically center around waste streams, USTs, ASTs, and the storage, transport, use, and disposal of pesticides, fuels, lubricants, and other industrial substances. When such materials are improperly used in any way, they can threaten the health and well-being of wildlife species, habitats, and soil and water systems, as well as humans. The ROI for hazardous materials and wastes includes Holloman AFB. The ROI for solid waste includes Holloman AFB and receiving landfills in the region.

3.8.2 Existing Conditions

3.8.2.1 Hazardous Materials and Waste

Aircraft flight operations and maintenance, as well as installation maintenance, require the storage and use of many types of hazardous materials, such as flammable and combustible liquids. These materials include acids, corrosives, caustics, glycols, compressed gases, aerosols, batteries, hydraulic fluids, solvents, paints, pesticides, herbicides, lubricants, fire retardants, photographic chemicals, alcohols, and sealants.

The majority of hazardous materials used by Air Force and contractor personnel at Holloman AFB are controlled by the hazardous materials pharmacy established at the Base in 1993 (49 FW 2004b). This pharmacy tracks products used at Holloman AFB and ensures that they are utilized prior to the expiration of their shelf life. This system also operates a just-in-time ordering system to greatly reduce the amount of hazardous materials stored onsite.

Most hazardous materials used by Air Force and contractor personnel at Holloman AFB are controlled through the Air Force Pollution Prevention Program Plan (P2 Plan) and *Holloman AFB Hazardous Waste Management Plan* (HAFB 1998b). Management of the procurement, handling, storage, and issuing of hazardous materials and turn-in, recovery, reuse, or recycling of hazardous materials is centralized. Air Force personnel develop and review these plans that are aimed at ensuring that users are aware of exposure and safety risks. Base management plans provide definitive processes to further compliance with applicable federal, state, and local regulations.

3.8.2.2 Hazardous Waste

Holloman AFB is a large-quantity hazardous waste generator, generating more than 2,200 pounds of nonacute hazardous waste per month. Hazardous wastes are generated from a variety of functions on-base, including aircraft and vehicle operations and maintenance; medical and dental facilities; cleaning and degreasing operations; and various maintenance and paint operations. These wastes include solvents, paints and paint-related material, absorbent material, rags and debris, blast material and expired shelf-life material. Holloman AFB recycles all lubricating fluids, batteries, oil filters, and shop rags. Hazardous wastes generated are managed in accordance with the *Holloman AFB Hazardous Waste Management Plan* (HAFB 1998b). This plan is currently being updated and is expected to be finalized in the near future.

There are approximately 42 locations on Holloman AFB where hazardous waste is accumulated for disposal. None of these are in the project area. Approximately 96,500 pounds of hazardous wastes were disposed of in fiscal year 2003. Wastes generated on-base are managed under regulations set forth in Holloman AFB's RCRA Part B permit. Holloman AFB also holds an RCRA permit for handling the disposal and treatment of waste munitions.

3.8.2.3 Storage Tanks

There is currently one UST and 37 ASTs located at Holloman AFB. All storage tanks at Holloman AFB are in compliance with applicable state and federal regulations (49 FW 2005). There are no storage tanks located within the MFH project area (ACC 2005).

3.8.2.4 Asbestos

ACBMs are materials that contain greater than 1 percent asbestos. Friable, finely divided, and powdered wastes containing greater than 1 percent asbestos are subject to regulation. A friable waste is one that can be reduced to a powder or dust under hand pressure when dry. Nonfriable ACBMs, such as floor tiles, are considered to be nonhazardous, except during removal and/or renovation, and are not subject to regulation.

An asbestos management plan provides guidance for the identification of ACBMs and the management of asbestos wastes. ACBM wastes are removed by contractor, who is responsible for disposal in accordance with state and federal regulations. Material in several buildings in the project area have been sampled and found to have ACBM (ACC 2005).

3.8.2.5 Lead-Based Paint

Lead-based paint is defined as surface paint that contains lead in excess of 1 milligram per square centimeter as measured by X-ray fluorescence spectrum analyzer, or 0.5 percent lead by weight. The LBP Poisoning Prevention Act (42 USC § 4821 et seq.), as amended by the Residential LBP Hazard Reduction Act of 1992 (Public Law [P.L.]. 102-550, also known as Title X), requires that LBP hazards in federal housing be identified and eliminated. Several buildings in the project area have been sampled and found to have LBP (ACC 2005). Demolition and renovation of facilities with LBP require special procedures and disposal. In 1993, OSHA, under 29 CFR 1926, restricted the permissible exposure limit for general industrial workers to 50 micrograms per cubic centimeter of air, which would include workers in the construction field.

3.8.2.6 Environmental Restoration Program

The DoD developed the ERP to identify, investigate, and remediate potentially hazardous material disposal sites that existed on DoD property prior to 1984. Currently, Holloman AFB has three sites that are in the investigation phase, 10 are in the cleanup phase, and 51 have completed the required response (HAFB 2003a). The EBS for the military family housing initiative found no ERP sites located on the subject properties; however, there are several sites in the vicinity of the family housing areas as shown on Figure 3-6. Table 3-16 lists nearby sites and their current status. Of these, only two (SS-12 and SS-17) are located directly on or adjacent to the periphery of the housing areas. These sites are described below.

SS-12: This site involved a spill of about 2,000 gallons of JP-4 fuel from a ruptured pressurized fuel line. The majority of the fuel was recovered following the incident. Test wells and borings completed during the preliminary assessment/site investigation detected little to no fuel, but soil was stained below the saturated interval. The NMED required further investigation to confirm that no release had occurred. A remedial investigation was completed, and a decision document was signed by NMED in 1995 stating that no action was necessary to protect human health and the environment. The site was subsequently closed (HAFB 2003a).

SS-17: This is the site of the Base Exchange gas station. Formerly the station had five underground storage tanks, which have now been removed. In 1981, inventory discrepancies and subsequent excavations revealed that up to 150,000 gallons of fuel had leaked into the groundwater through two tanks and fuel lines. Several actions have been undertaken to remove free product fuel. A soil vapor extraction system is currently in place and will continue until the site closes in 2005, with long-term monitoring through 2006 (HAFB 2003a).

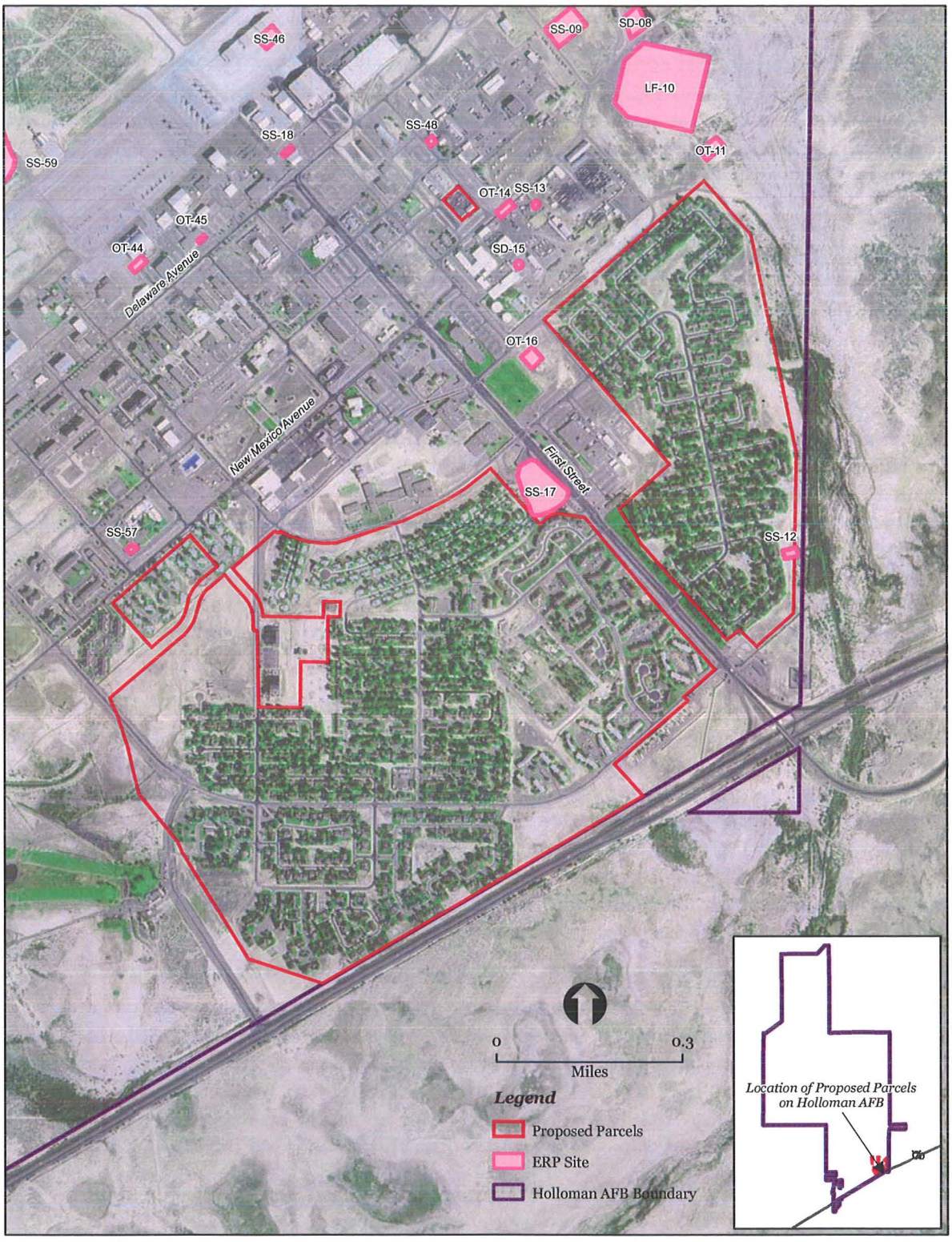

Figure 3-6. ERP Sites in the Vicinity of the MFH Project Area on Holloman AFB

The EBS concludes that none of the ERP sites are likely to cause or contribute to a release of any hazardous substance or any petroleum products in the areas to be redeveloped (ACC 2005).

ACC policy requires that any proposed project on or near a Holloman AFB ERP site be coordinated through the Holloman ERP Manager.

Table 3-16. ERP Sites in the Vicinity of the Project Area

Site ID	*Description*
LF-10	Old Main Base Landfill (domestic wastes, solvents, incinerator ash, waste oils)
OT-11	Main Base Electrical substation (PCBs)
SS-12	Fuel Line Spill site (JP-4)
SS-13	Sodium Arsenite Spill site (sodium arsenite-herbicide)
OT-14	Former Entomology shop (pesticides)
SD-15	Refrigeration/Heat shop (sulfuric acid)
OT-16	Existing Entomology shop (pesticides)
SS-17	Base Exchange Service Station Fuel Leak area (gasoline)
SS-57	Officers' Club (diesel fuels, sulfuric compounds)

Source: HAFB 2003a

3.8.2.7 Polychlorinated Biphenyls

The most common source for PCBs is electrical equipment and infrastructure. All electric transformers associated with the electrical system on Base have been evaluated for the presence of PCBs. Any affected units have been removed and replaced with PCB-free equipment (ACC 2005).

PCBs may also be found in the ballasts of older fluorescent light fixtures in MFH units. Because of this, Holloman AFB requires contractors to dispose of all hazardous materials including fluorescent light ballasts in accordance with 40 CFR 261. Holloman AFB's PCB Plan provides guidance for ensuring that personnel and occupants of facilities are not exposed to excessive levels of PCBs. The Plan also describes requirements for recordation and proper management and disposal of PCBs (Department of the Air Force 2003).

3.8.2.8 Solid Waste

Air Force regulatory requirements and management of solid wastes are established by Air Force Policy Directive (AFPD) 32-70, *Environmental Quality*. AFPD 32-70 requires compliance with applicable federal, state, and local environmental laws and standards. For solid waste, AFPD 32-70 is implemented by Air Force Instruction (AFI) 32-7042. AFI 32-7042 requires that each installation have a solid waste management program that includes a plan addressing the handling, storage, collection, disposal, and reporting of solid waste. AFI 32-7080 contains the solid waste requirement for preventing pollution through source reduction, resource recovery, and recycling.

Solid waste generated on Holloman AFB is removed by Southwest Disposal Corporation and disposed of at the Lincoln/Otero County Regional Landfill. Southwest Disposal also operates the recycling program for Holloman AFB. In fiscal year 2003, Holloman AFB generated approximately 6,079 tons of solid waste. Approximately 1,956 tons were recycled, 364 tons were composted, 63 tons were mulched, 288 tons were reused, and 5 tons were donated. In addition,

Holloman generated 5,919 tons of construction and demolition debris, all of which was recycled. Solid waste at Holloman AFB is managed according to the *Holloman AFB Solid Waste Management Plan* (49 FW 2005). The Holloman AFB Landfill was closed in 1996, but the site is still actively monitored.

Lincoln/Otero County Regional Landfill is a New Mexico permitted solid waste facility designed to dispose of residential, commercial, and construction waste. The facility was opened in 1994 with a total design capacity of 124,226 cubic yards and projected life span of 99 years (NMED 2000a). In 1999, this facility received approximately 1,622 cubic yards of waste of all types. Currently, it is receiving an average of about 275 tons of waste daily. The facility is 92 acres in size, of which about 15 to 20 acres have been used since 1994. The remaining lifespan is about 50 years (Hammann 2005). Tipping fees for Holloman AFB are $22 per ton.

3.9 INFRASTRUCTURE

3.9.1 Definition of the Resource

The infrastructure elements at Holloman AFB include transportation and utility systems, which service all areas of the Base. Transportation refers to roadway and street systems. Utilities include potable water, wastewater, the storm drainage system, the electrical system, heating and cooling systems, and liquid fuels. The ROI for these resources consists of Holloman AFB.

3.9.2 Existing Conditions

3.9.2.1 Transportation

The Main Gate to Holloman AFB is located on US 70 approximately 10 miles west of US 54. The West Gate, located at the intersection of US 70 and West Gate Avenue, is south of the Main Gate on US 70 and is used for exiting traffic only. The La Luz gate is located on the north end of the Base and provides service for Base personnel who live in the La Luz area north of Alamogordo.

The primary road network on Holloman AFB (see Figures 1-2 and 1-3) is organized into arterials, collector, and local streets. Primary arterials include First Street and West Gate Avenue leading directly to and from the main cantonment gates. Other arterials that directly interface with the housing areas include New Mexico Avenue and West Gate Avenue. Collector streets for the housing areas include Patterson Avenue, Mesquite Road, Arnold Avenue, Fairchild Drive, and Santa Fe Drive.

The General Plan for Holloman AFB describes some of the most noticeable transportation issues for the Base, including traffic backing up onto US 70 at the Main Gate, the intersection of First Street and Delaware Avenue, and the school bus drop-off on Arnold Avenue (49 FW 2005). Only one intersection on-base, First Street and New York Avenue, warrants, and has, a traffic signal (49 FW 2004b).

3.9.2.2 Utilities

Potable Water. Holloman AFB relies on off-base sources of groundwater and surface water to provide potable water to Base personnel. Groundwater provides about 75 percent of the potable supply. The groundwater is drawn from five well fields: the Boles, Escondido, San Andreas,

Frenchy, and Douglas well fields (HAFB 2003b). Two ground storage tanks with a total storage capacity of 0.9 million gallons (MG) associated with the well fields feed the BWWSA Pumping Station.

The Base uses surface water from Bonito Lake and springs in Fresnal Canyon and La Luz Canyon, transported via pipeline to reservoirs at the City of Alamogordo's La Luz water treatment plant. At the La Luz plant, the water is filtered and chlorinated. Potable water for use by Holloman AFB is pumped through the Prather water main to the BWWSA Pumping Station. Potable water is fed to the Base from the BWWSA Pumping Station through two separate pipelines for storage, chlorination, and distribution within the Base system. The Base's average daily water demand is approximately 2.1 millions of gallons per day (MGD). The MFH area consumes about 16 percent of the potable water (approximately 320,000 gallons per day) (Air Force Center for Environmental Excellence [AFCEE]/ACC 2004).

Potable water is stored in three tanks on Holloman AFB: Eagle Tower with 0.3 MG capacity, Challenger Tank with 0.4 MG capacity, and North Area Tower with 0.25 MG capacity. Total storage capacity is 0.95 MG.

Wastewater. Holloman AFB has operated the existing aeration-activated sludge wastewater treatment plant since 1996. The plant has an extended aeration activated sludge design with a design flow capacity of 1.5 MGD and operates under an NPDES permit NM0029971, effective 1 March 2000, and New Mexico Discharge Plan DP-1127, renewed 28 October 2002 (49 FW 2004b). Peak flow capacity of the treatment plant is 4.5 MGD. The plant currently treats an average of 1.0 MGD based on fiscal year 2003 flow data (49 FW 2004b). The sewer collection system contains a series of gravity collection main, lift stations and force mains, which route the wastewater to the Base wastewater treatment facility. Effluent from the treatment plant is discharged through a 5,250-foot effluent line to Lake Holloman, Pond G, or the constructed wetlands.

Storm Drainage System. Storm water, typically generated in the arid climate of central New Mexico during the months of June through October, is conveyed through drainage channels, underground piping (storm sewer), and, in a few areas, by sheet flow on Holloman AFB. Base topography slopes slightly to the south-southwest and, correspondingly, storm water flows in a southerly direction across the Base. Base storm water discharges are permitted under a NPDES Stormwater Multi-Sector General Permit for Industrial Activities and are managed under the Base's SWPPP. Fourteen drainage areas, synonymous with *outfall tributary areas* or *outfall areas,* have been delineated for the areas of the Base containing industrial activities. Eleven of these drainage areas have been identified as contributing to distinct discharges from the Holloman AFB to Waters of the U.S. (e.g., wetlands and flowing, and intermittently flowing, rivers, creeks, or streams). Two of the remaining drainage areas discharge to depressions in the ground (located on-base) where storm water evaporates or percolates into the ground. A fourteenth drainage area drains mainly by sheet flow towards Waters of the U.S. (HAFB 2001).

Waters of the U.S. that receive discharges from the identified drainage areas include Lake Holloman, Dillard Draw, Lost River, Ritas Draw, and three unnamed wetlands. Land development/construction sites disturbing 1 acre or more require an NPDES Stormwater General Permit for Small Construction. Each site must be covered by a site-specific SWPPP that addresses BMPs to reduce introduction of sediment and pollutants into the storm water.

Electrical System. Holloman AFB receives power from two separate utility companies, El Paso Electric Company and Otero County Rural Electric Cooperative. The Otero County Rural Electric Cooperative provides power to approximately one-half of the Base housing area. El Paso Electric Company provides service using a 115 kilovolt (kV) switching station located near the main gate. The El Paso Electric 115 kV line is run to three 115 kV/13.2 kV substations (Main, North and Atlas) on the Base. The Main and North substations are currently capable of providing power to the entire Base and the overall system capacity is approximately 65 mega volt-ampere (MVA) (49 FW 2004b). The current total Base system loads have a historical peak average of 21 MVA.

El Paso Electric Company provides power to 324,100 customers in southern New Mexico, including Holloman AFB and the City of El Paso, Texas. In 2003, the last year of available data, El Paso Electric supplied 8,991,630 megawatt-hours of energy with a peak load of 1,546 megawatts (49 FW 2005). Otero County Electric Cooperative serves about 11,000 customers (OCEC 2005).

Heating and Cooling Systems. Holloman AFB provides heat and cooling to its facilities from individual systems. There is no central heating or cooling systems installed on-base. Natural gas is used primarily for space heating, incineration, hot water heaters, and small gas furnaces. PNM Gas Services is the Holloman-contracted local distribution company responsible for transferring the gas from the El Paso Natural Gas pipeline to the Base. The Base receives natural gas from PNM Gas Services near US 54. The pipe serving the Base has a mainline pressure of 45 pounds per square inch. In the period between January 2003 and December 2003, the Base purchased 339,649 million cubic feet. On the Base, the gas lines, upgraded to polyethylene lines in 1987 through 1989, are looped in a continuous system to provide service to the main area, the west area, and the north area (49 FW 2005).

4.0 ENVIRONMENTAL CONSEQUENCES

This section of the EA assesses potential environmental consequences associated with the Proposed Action and the No Action Alternative. Potential impacts are addressed in the context of the scope of the Proposed Action as described in Section 2.0 and in consideration of the potentially affected environment, as characterized in Section 3.0.

4.1 EARTH RESOURCES

4.1.1 Methodology

Protection of unique geologic features, minimization of soil erosion, and the siting of facilities in relation to potential geologic hazards and soil limitations are considered when evaluating impacts to earth resources. Impacts to soil resources can result from earth disturbance that would expose soil to wind or water erosion. Generally, impacts can be avoided or minimized if proper construction techniques, erosion control measures, and structural engineering designs are incorporated into project development.

4.1.2 Impacts

4.1.2.1 Proposed Action

Under the Proposed Action, almost 280 acres would be disturbed during redevelopment of the family housing projects. Approximately 110 acres would be temporarily disturbed during demolition of 730 existing units. Up to 149 acres would be redeveloped with 597 new housing units (assuming a density of 4 units per acre). Some disturbance may also occur on an estimated 20 acres during renovation of 582 units. Overall, impervious surface is likely to decrease by about 13 acres since the final number of housing units would decrease by about 9 percent.

Proposed construction and demolition would occur on soils categorized as Holloman-Gypsum land-Yesum soils. This soil type is prone to erosion; therefore, implementation of BMPs to control erosion and soil loss following ground disturbance is required. A Soil Erosion Plan would be prepared for the privatization projects in compliance with Holloman's SWPPP and NPDES permit. BMPs would include, but not be limited to, silt fencing and sediment traps, water sprays to keep soil from becoming airborne, and timely revegetation of disturbed areas, as appropriate. For example, areas disturbed during demolition but not immediately redeveloped would need to be seeded with stabilizing vegetation. More formal landscape materials would be used on redevelopment land that is not covered by pavement or a structure.

Soil grading and fill placement for new facilities would not substantially alter existing soil conditions at Holloman AFB because much of this land has been previously disturbed. The area is relatively flat with a slight gradient to the southwest that promotes drainage; therefore little borrow material would be needed. There are no special qualities associated with the soils or geologic resources at these sites.

Overall, potential impacts to earth resources as a result of the proposal would be minor.

4.1.2.2 No Action Alternative

Under the No Action Alternative, Holloman would, at a minimum, demolish 133 housing units. Additionally, under the No Action Alternative, Holloman AFB could implement MILCON actions that would involve virtually the same demolition and construction as under the Proposed Action, only over a longer time period and through government appropriations. Therefore, the impacts to earth resources associated with the No Action Alternative would be either less than or equivalent to those of the Proposed Action, as described in Section 4.1.2.1. Potential impacts to earth resources as a result of the No Action Alternative would be minor.

4.2 WATER RESOURCES

4.2.1 Methodology

Criteria for evaluating impacts related to water resources associated with the Proposed Action are water availability, water quality, and adherence to applicable regulations. Impacts are measured by the potential to reduce water availability to existing users; endanger public health or safety by creating or worsening health hazards or safety conditions; or violate laws or regulations adopted to protect or manage water resources.

The NMED Surface Water Quality Bureau and the USACE are the regulatory agencies that govern water resources in the state of New Mexico and at Holloman AFB. These agencies have adopted the USEPA's applicable environmental rules and regulations. The CWA of 1977 regulates pollutant discharges and development activities that could affect aquatic life forms or human health and safety.

4.2.2 Impacts

4.2.2.1 Proposed Action

The proposal would temporarily disturb about 280 acres over a 10-year construction timeframe. In compliance with the requirements of the NPDES Storm Water General Permit for Small Construction, a site-specific SWPPP and erosion and sediment control plan would be developed for each construction project disturbing over 1 acre of ground. Each plan would identify BMPs appropriate for each site (see Appendix B). The plans would include steps to minimize wind erosion, to reduce off-site sedimentation due to water erosion, and to keep increases in surface water runoff to a minimum. After construction has been completed, all disturbed areas would be stabilized by recontouring and revegetating, using a combination of native plants and gravel ground cover as part of a xeriscape plan. The recontouring and revegetation would minimize erosion and improve infiltration of precipitation. Holloman AFB is relatively flat, and most construction sites would not need cut and fill.

Potential secondary effects from surface-disturbing activities, such as increases in storm water runoff or off-site sedimentation, would be minimized through the installation and maintenance of BMPs and landscaping around buildings on the Base. These practices would minimize soil loss and downstream sedimentation and, therefore, prevent impacts to water quality. Runoff from new impervious areas would be designed to comply with NPDES Storm Water General Permit for Small Construction criteria and minimize any potential source of surface water pollutants. Total impervious surface may decrease by about 9 percent in the housing areas

(based on a reduction in housing units), reducing the total volume of storm runoff. Therefore, the proposal would not impinge on the current NPDES permit held by the Base. No impacts to surface or groundwater resources are therefore anticipated.

A permit from the USACE to excavate or fill wetlands is required under Section 404 of the CWA. A state water quality certification under Section 401 of the CWA may also be required by the Surface Water Quality Bureau (NMED 2000b). There are a few acres of wetlands (composed of non-contiguous pieces each less than acre in extent) within the subject parcels; however, demolition sites do not overlap with wetlands or Waters of the U.S. It is highly unlikely that any portion of the new housing sites would be located in existing drainages that are classified as wetlands. Therefore, no impact to wetlands would result. Final site grading would reestablish storm water drainage into ditches and channels linked to the surrounding wetland system similar to the current condition.

4.2.2.2 No Action Alternative

Under the No Action Alternative, Holloman AFB could implement MILCON actions that would involve virtually the same demolition and construction as under the Proposed Action, only over a longer time period. Therefore, the impacts to water resources associated with the No Action Alternative would be either less than or equivalent to those of the Proposed Action, as described in Section 4.2.2.1.

4.3 BIOLOGICAL RESOURCES

4.3.1 Methodology

Impacts are based upon (1) the importance (legal, commercial, recreational, ecological, or scientific) of the resource; (2) the rarity of a species or habitat regionally; (3) the sensitivity of the resource to proposed activities; and (4) the duration of the impact. Impacts to biological resources are considered to be greater if priority species or habitats are adversely affected over relatively large areas or disturbances cause reductions in population size or distribution of a priority species.

4.3.2 Impacts

4.3.2.1 Proposed Action

The proposed demolition and construction would occur in developed areas of Holloman AFB. Wildlife species found within the housing areas are typical of developed areas, and include, for example, earthworms, lizards, gophers, and birds.

Terrestrial Communities

About 280 acres would be disturbed during demolition and construction over a 10-year period. The parcels affected either have buildings surrounded by pavement or lawn or contain landscaped vegetation (primarily ornamentals, ground covers and shade trees). Any natural vegetation surrounding the housing areas consists chiefly of invasive non-native species, such as saltcedar and African Rue, or natural vegetation that is extensive on-base.

Consequently, temporary disturbance of vegetation does not represent a significant loss of resource. At completion, construction areas would be landscaped and have similar characteristics as the current context. Other disturbed areas would be reseeded with appropriate native seed mix to inhibit the spread of invasive weeds. Implementation of management activities associated with an Integrated Pest Management Plan would minimize the occurrence of invasive exotic plant species and noxious weeds within the project areas. Therefore, in the end, there would be no net loss of vegetative cover, and the type and quality of vegetation would be essentially the same.

Wildlife that is using the proposed construction areas consist of species already accustomed to human-dominated environments. It is expected that these species would continue to utilize the project area after implementation of the Proposed Action. During construction, noise levels may be elevated in the immediate vicinity of project sites. Less mobile species and fleeing species could be impacted as a result of construction and demolition activities; however, should mortalities occur, they would likely be isolated instances and would not result in long-term impacts to populations of wildlife species.

Considering the urban context of the housing areas, any migratory bird species currently utilizing this area for forage or shelter are likely to be well-adapted to the urban nature of the site. It is unlikely they would be substantially affected by the temporary construction and demolition activities.

Wetland and Freshwater Aquatic Communities

Figure 3-1 shows that the margins of some wetlands fall within the family housing parcels. The total area of these fragments is less than 5 acres. Within the project area, these wetlands are intermittent drainages that convey storm runoff and are located on the edges of the housing areas. No construction projects would be sited in any existing drainage or wetland. Therefore, minimal or no impact on wetland habitat would result. Holloman AFB would comply with any required approval and permitting through the NMED Surface Water Quality Bureau and the USACE, if applicable.

Threatened, Endangered, and Special Status Species

There are a total of 53 sensitive species occurring or potentially occurring on Holloman AFB. Of these 53 species, none are known or likely to occur in the project area (Gomolak 2004). The project area is a developed residential setting that lacks habitat to support any of the species listed in Table 3-1. Sensitive species would be very unlikely to depend on any already developed or heavily disturbed proposed construction or demolition sites. Upon review and accounting for measures undertaken as part of this action, no significant impacts to threatened, endangered, or sensitive species or habitats would result. A qualified Environmental Flight biologist would oversee actions on the subject properties to ensure that there are no threatened, endangered, or sensitive species present at the time of construction. If any are present, construction work would stop until coordination and consultation with USFWS is completed, as needed. Coordination with NMDG&F finds that the agency does not anticipate any significant impacts to wildlife or sensitive habitats from the proposed project (NMDG&F 2006).

4.3.2.2 No Action Alternative

Under the No Action Alternative, demolition and construction may happen over an extended time frame. Impacts to biological resources would be similar to or less than under the Proposed Action, and therefore negligible.

4.4 AIR QUALITY

4.4.1 Methodology

Air emissions resulting from the Proposed Action were evaluated in accordance with federal, state, and local air pollution standards and regulations. Air quality impacts from a proposed activity or action would be significant if they:

- increase ambient air pollution concentrations above any NAAQS.
- contribute to an existing violation of any NAAQS.
- interfere with or delay timely attainment of NAAQS.
- impair visibility within any federally mandated federal Class I area.

The air quality analysis estimated the increase in emission levels due to the Proposed Action.

According to the USEPA's General Conformity Rule in 40 CFR 51, Subpart W, any proposed federal action that has the potential to cause violations in a NAAQS nonattainment or maintenance area must undergo a conformity analysis. A conformity analysis is not required if the Proposed Action occurs within an attainment area. Since Otero County is in attainment for all criteria pollutants, a conformity determination is not required.

As described in Section 3.4.1, Section 169A of the CAA established the PSD regulations to protect the air quality in regions that already meet the NAAQS. Certain national parks, monuments, and wilderness areas have been designated as PSD Class I areas, where appreciable deterioration in air quality is considered significant. The nearest PSD Class I area is more than 40 miles from Holloman AFB. Therefore, the Proposed Action would be unlikely to have a significant impact on any PSD Class I areas.

4.4.2 Impacts

4.4.2.1 Proposed Action

The Proposed Action would involve construction, demolition, and paving activities, including construction of new structures, additions to or demolition of existing structures, installation of new pavement, and upgrading of existing pavement.

Construction Emissions. Emissions during the construction period were quantified to determine the potential impacts on regional air quality. Calculations of VOC, NO_x, CO, and PM_{10} emissions from construction, grading, and paving activities were performed using USEPA emission factors compiled in the *California Environmental Quality Air Quality Handbook* (South Coast Air Quality Management District 1993), *Calculations Methods for Criteria Air Pollution Emission Inventories* (Jagielski and O'Brien 1994), and *Air Emissions Inventory Guidance Document for Mobile Sources at Air Force Installations* (O'Brien and Wade 2002). The emission factors for building

construction include contributions from engine exhaust emissions (i.e., construction equipment, material handling, and workers' travel) and fugitive dust emissions (e.g., from grading activities). Demolition emissions evaluated include fugitive dust and transport of demolition debris off-site. Grading and trenching emissions include fugitive dust from ground disturbance, plus combustive emissions from heavy equipment during the entire construction period. Paving emissions include combustive emissions from bulldozers, rollers, and paving equipment, plus emissions from a dump truck hauling pavement materials to the site. Estimated emissions that would occur from construction, demolition, grading, trench work, and paving activities under the Proposed Action during calendar years 2006-2015 are presented in Table 4-1. Emissions were allocated for each year based on the projected schedule shown in Table 2-3. The average annual project emissions represent about 3 percent or less for each criteria pollutant compared to current year emissions for Holloman AFB.

Table 4-1. Temporary Construction Emissions – Proposed Action, Calendar Years 2006-2015

Year	Emissions (Tons/Year)				
	CO	VOC	NO_x	SO_x	PM_{10}
2006	7.9	1.8	16.0	0.3	3.6
2007	2.9	0.7	5.5	0.1	1.3
2008	7.2	1.9	21.6	0.3	3.4
2009	8.4	2.2	23.4	0.3	3.9
2010	8.9	2.3	24.9	0.4	4.2
2011	8.5	2.2	23.6	0.4	4.0
2012	8.6	2.2	23.7	0.4	4.0
2013	10.1	2.7	29.2	0.4	4.7
2014	9.5	2.8	35.0	0.5	4.5
2015	4.9	1.5	18.1	0.2	2.3
Average per year	7.69	2.03	22.1	0.33	3.59
% of current emissions	0.67%	0.63%	3.16%	2.26%	3.20%

Emissions generated by construction, demolition, and paving projects are temporary in nature and would end when construction is complete. The emissions from fugitive dust (PM_{10}) would be considerably less than those presented in Table 4-1 due to the implementation of control measures in accordance with standard construction practices and as recommended by NMED (NMED 2006). For instance, frequent spraying of water on exposed soil during construction, proper soil stockpiling methods, and prompt replacement of ground cover or pavement are standard landscaping procedures that could be used to minimize the amount of dust generated during construction. Appropriate methods would be identified in the project SWPPP and Soil Erosion Plan. Using efficient practices and avoiding long periods where engines are running at idle may reduce combustion emissions from construction equipment. Vehicular combustion emissions from construction worker commuting may be reduced by carpooling. Construction related emissions are summarized in Table 4-1, which presents worst-case scenarios and, therefore, annual emissions would be expected to be somewhat lower.

In general, combustive and fugitive dust emissions would produce localized, short-term elevated air pollutant concentrations, which would not result in any long-term impacts on the

air quality in Otero County (AQCR 153). The temporary construction-related emissions of PM_{10} and SO_x are not expected to adversely impact the air quality or visibility in any of the PSD Class I areas in the vicinity of the Base. NMED concurs that there would be no long-term adverse impacts to ambient air quality (NMED 2006).

Operational Emissions. Air emissions at Holloman AFB after the Proposed Action is completed are expected to be virtually identical to or less than current operations, as sources that are removed due to demolition of current housing would be replaced by similar air emission sources in the new housing facilities. It is likely that the newer equipment would be more efficient and have lower emissions than the equipment currently present in the buildings. Nevertheless, the installation or modification of any air emission sources, such as boiler and heaters, emergency generators, etc., would trigger an evaluation of permitting and NMAQB regulatory requirements prior to commencement of construction activities.

There are no expected increases in operational emissions at Holloman AFB as a result of the Proposed Action.

Indirect Emissions. Implementation of the Proposed Action would result in a net decrease of 133 housing units at the Base. The resultant increase in commuting emissions, due to vehicular travel to and from the installation by those who would then live off-base, were calculated using emission factors from *Calculations Methods for Criteria Air Pollution Emission Inventories* (Jagielski and O'Brien 1994). Average vehicle occupancy was assumed to be 1.2 passengers per vehicle, which were assumed to have an average model year of 1995. Annual criteria pollutant emissions from personally owned vehicles (POV) commuting of 113 additional trips per day, assuming an average round-trip commuting distance of 25 miles, 5 days per week, 52 weeks per year, are shown in Table 4-2.

Table 4-2. Emissions from Additional POV Commuting

Source	Pollutants (Tons / Year)				
	CO	VOC	NO_x	SO_x	PM_{10}
POV Commuting	13.4	2.0	1.3	< 0.1	0.1

It is expected that these additional emissions due to POV commuting would not result in any long-term impacts on the air quality of Otero County or AQCR 153.

4.4.2.2 No Action Alternative

Under the No Action Alternative, Holloman AFB would, at a minimum, demolish 133 housing units. Additionally, in the future under the No Action Alternative, Holloman AFB could implement the MILCON process that would involve virtually the same renovation and construction actions as described under the Proposed Action, only over a longer time period. Therefore, the impacts to air quality in the AQCR associated with the No Action Alternative would be either less each year (spread over a longer time period) or roughly equivalent to those of the Proposed Action, as described in Section 4.4.2.1. Potential impacts to air quality as a result of the No Action Alternative would be minor.

4.5 NOISE

4.5.1 Methodology

Noise is unwanted sound. Potential changes to the existing noise environments would result from demolition and construction. This change would affect the exposed human population as well as wildlife. Potential changes in the noise environment can be beneficial (i.e., if they reduce the number of sensitive receptors exposed to unacceptable noise levels), negligible (i.e., if the total area exposed to unacceptable noise levels is essentially unchanged), or adverse (i.e., if they result in increased exposure of sensitive receptors to unacceptable noise levels).

4.5.2 Impacts

4.5.2.1 Proposed Action

Vehicles and equipment involved in demolition, facility construction, and finishing work would generate the primary noise from the Proposed Action. Table 4-3 illustrates the anticipated noise levels at selected distances from typical equipment operating at a construction site. Noise levels at a distance of 50 feet range from 75 to 89 dBA and from 66 to 79 dBA at 200 feet. At 500 feet, this range decreases to 59 to 73 dBA.

Table 4-3. Heavy Equipment Noise Levels at Selected Distances

Equipment Type[1]	*Number Used*[1]	*Generated Noise Levels, L_p (dBA)*[1] *50 feet*	*Generated Noise Levels, L_p (dBA)*[1] *200 feet*	*Generated Noise Levels, L_p (dBA)*[1] *500 feet*
Bulldozer	1	88	76	68
Backhoe (rubber tire)	1	80	73	65
Front Loader (rubber tire)	1	80	72	64
Dump Truck	1	75	67	59
Concrete Truck	1	75	66	59
Concrete Finisher	1	80	71	64
Crane	1	75	67	59
Flat-bed Truck (18 Wheel)	1	75	66	59
Scraper	1	89	80	73
Trenching Machine	1	85	70	70

Note: 1. Estimated, based on typical construction scenario
Source: AIHA 1986

Residents within and surrounding the construction and demolition areas would be exposed to noise from redevelopment activities. Figure 4-1 shows that three schools fall within selected distances from the margins of the redevelopment area. Residents, students, and teachers may experience interruptions when talking and communicating while equipment is operating, since normal speech is about 65 dBA at a distance of 3 feet (see Figure 3-3). Noise levels for operating equipment in Table 4-3 are generally higher than 65 dBA within 200 feet, and would be louder than ordinary speech. The resulting noise may cause inconvenience or some annoyance, but it would be temporary and intermittent over the next 10 years. Construction activities would generally occur between 7:30 A.M. and 4:30 P.M., therefore, most individual's sleeping hours would not be affected.

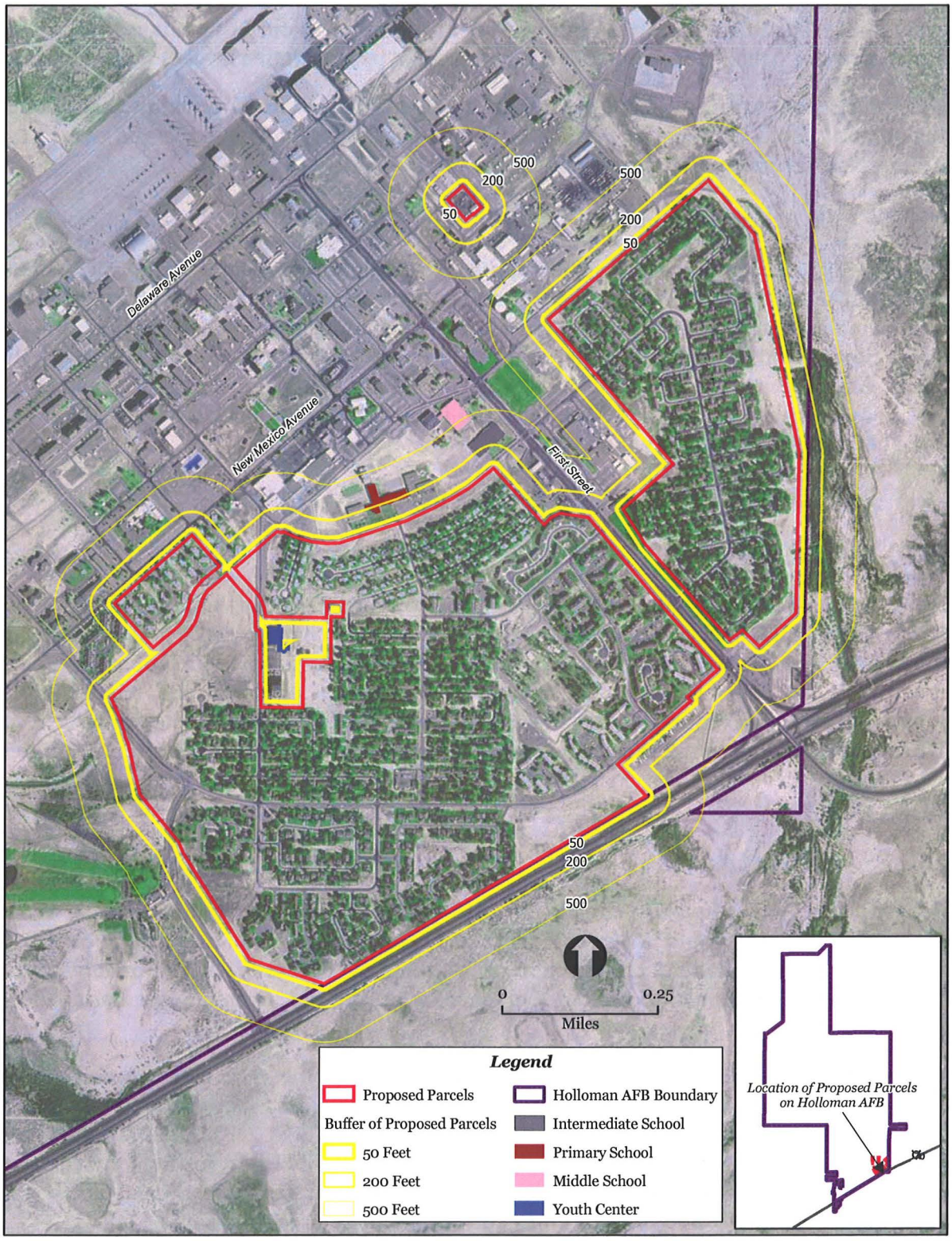

Figure 4-1. Locations around Proposed MFH Project Area Affected by Noise — Distance Zones (feet)

The proposed projects on Holloman AFB would be located in areas that are exposed to noise levels above 70 dBA. Aircraft operations are the primary contributing noise source. Noise reduction construction is recommended for residential uses with this level of noise exposure.

Noise levels from existing aircraft operations in the vicinity of the proposed projects would not change and would continue to dominate the average noise levels experienced over a typical 24-hour period surrounding the airfield.

4.5.2.2 No Action Alternative

Under the No Action Alternative, Holloman AFB would, at a minimum, demolish 133 housing units. Additionally, Holloman AFB could implement a MILCON action involving virtually the same demolition and construction actions as described under the Proposed Action, only over a longer time period. Therefore, the impacts to the acoustic environment associated with the No Action Alternative would be either less than or roughly equivalent to those of the Proposed Action, as described in Section 4.5.2.1. Potential impacts to the acoustic environment as a result of the No Action Alternative would be minor.

4.6 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

4.6.1 Methodology

To assess the potential socioeconomic and environmental justice impacts of the Proposed Action, employment, race, ethnicity, poverty status and age characteristics of populations in the ROI were analyzed, as presented in Section 3.6.2. Potential socioeconomic impacts are assessed in terms of the direct effects of the proposal on the local economy and related effects on population and socioeconomic attributes. With regard to environmental justice issues, county figures are compared to state and national demographics to determine proportional differences.

4.6.2 Impacts

4.6.2.1 Proposed Action

The Proposed Action involves conveying 1,413 existing housing units to a private developer. The overall project would include leaving 101 units "as-is," the demolition of 730 units, renovation of 582 units, and construction of 597 units over 10 years by the private developer. The units would be rented to military personnel with rent not exceeding the Basic Allowance for Housing.

It is unlikely that the construction employment and income that would result under the Proposed Action would substantially affect socioeconomic characteristics of the ROI. Construction accounted for 5 percent of total employment (BEA 2005a) and 4 percent of total earnings in 2003 (BEA 2005b). While there may be some slight benefit for the local construction job market, given the phased approach to the project and simultaneous other MILCON projects, this would not result in a significant impact on employment or earnings in the area.

Military members and their families would be displaced during the construction and demolition phases of the project; however, this displacement would be temporary, and they would be placed in new and or updated housing at the completion of each unit. On average,

about 230 families would be displaced each year, with as many as 400 families. Rental units would be available in the community with a 2003 rental supply of 7,526 units (USAF 2003), but this demand could use up all available vacancies, making it difficult to find suitable temporary rentals for affected families. Upon completion of the Proposed Action, Holloman AFB would have 133 fewer housing units. The remaining 1,280 units are expected to fulfill the minimum requirement as determined by the HRMA.

The Proposed Action would have no significant impact on minorities or low-income populations. The construction and demolition activities would be in the Holloman AFB housing area where all groups of people would be equally affected. Minorities and low-income populations would not bear a disproportionate share of the impacts.

Children would be potentially impacted by the Proposed Action. Three schools are located on Holloman AFB. Construction and demolition activities in the vicinity of the schools could present safety hazards to children. However, precautions would be taken to ensure that children could not access the construction sites. Also, construction traffic would be managed in accordance with a project-specific traffic and safety plan, such that impacts on children would be minimized. The impacts would be minor and temporary.

Overall, there would be no significant impacts to socioeconomics or environmental justice resulting from the implementation of the Proposed Action.

4.6.2.2 No Action Alternative

Under the No Action Alternative, 1,413 units would not be conveyed to a private developer. Holloman AFB would proceed with the demolition of 133 units to meet the minimum requirement of 1,280 units as determined by the HRMA. Other renovations and improvements would be implemented through the MILCON process over 25 to 30 years. This would result in the same potential impacts as under the Proposed Action. In that timeframe, the quality of military family housing would decline and may have an impact on morale and welfare of active duty personnel and their families.

There would be no significant impact from the implementation of the No Action Alternative.

4.7 SAFETY

4.7.1 Methodology

Impacts are assessed according to the potential to increase or decrease safety risks to personnel, the public, and property. Proposal-related activities are considered to determine if additional or unique safety risks are associated with their undertaking. If any proposal-related activity indicated a major variance from existing conditions, it would be considered a safety impact. For construction projects, a safety impact occurs if the action renders any existing activity or facility, or any future structure incompatible with safety criteria (e.g., CZs) or regulations. QD arcs, airfield CZs, and Accident Potential Zones were reviewed against the proposed new construction for compatibility determination.

This analysis assumes that OSHA regulations and standards would apply to all work performed. Therefore, worker safety is not assessed. It also assumes that construction sites would be fenced and would not be accessible to the public.

4.7.2 Impacts

4.7.2.1 Proposed Action

Coordination would be required between the construction contractors and the Base prior to the implementation of construction activities. All activities and workers at the construction site would comply with OSHA standards and requirements, and would be required to conduct construction activities in a manner that would not pose any risks to personnel at or near the construction site. All materials and equipment would be used in accordance with industry and regulatory standards. All construction areas would be fenced to preclude public access. Given these measures, risks to personnel and the public would be minimized.

During construction and demolition periods, truck traffic would increase on roads in the family housing areas and near three schools. This is potentially incompatible where pedestrian movement is commonplace, and where children may be walking or playing. Construction contractors would be required to develop a plan addressing traffic and safety concerns. The plan would identify haul routes through neighborhoods, set speed limits on construction-related vehicles, and define other protocols to ensure safety of residents and children. For example, construction traffic could avoid using roads that are school drop-off or crossing locations during the times when children arrive and leave from school. Alternate access roads (for residents and/or construction traffic) would be defined in the plan. Also, appropriate detour and exit routes would be clearly signed on residential roadways to ensure unhindered access for residents and emergency vehicles.

Several safety considerations are not an issue for this action. None of the proposed redevelopment overlaps within QD arcs or safety zones around the runway, as shown on Figure 3-5, therefore, no violations of safety zones would result. No explosives would be used or handled during construction activities, and the project would not result in any change to day-to-day use of hazardous materials at the Base. The projects would not introduce any new standing water bodies or light sources that could pose concerns for aviation safety. Aircraft operations and maintenance activities that would be subject to OSHA regulations are not components of the Proposed Action. Therefore, the Proposed Action would not affect aviation safety.

Federal and Base regulations would apply to any contractors and their workers that provide future services for the privatized housing on Base. Considering these conditions, there are no safety concerns for the proposed privatization. Overall, the Proposed Action would not impact safety on Holloman AFB.

4.7.2.2 No Action Alternative

Under the No Action Alternative, Holloman would, at a minimum, demolish 133 housing units. Additionally, in the near future, the Base could implement a MILCON action involving virtually the same demolition and construction as under the Proposed Action, only over a longer time period. Therefore, the impacts related to safety associated with the No Action

Alternative would be roughly equivalent to those of the Proposed Action, as described in Section 4.7.2.1. Over time, the condition of existing housing may deteriorate. Assuming that any unsafe equipment or fixtures are maintained adequately, safety incidents and risk of fires should not increase. Since projects may be executed beyond the current planning horizon for the Base, housing site plans would need to be coordinated with Base Civil Engineering for consistency with safety zones and safety requirements in the future.

4.8 SOLID AND HAZARDOUS MATERIALS AND WASTE

4.8.1 Methodology

This section addresses potential consequences for hazardous materials and solid and hazardous waste management from implementation of the Proposed Action. The assessment focuses on how and to what degree the alternatives affect hazardous materials usage and management and solid and hazardous waste generation and management.

The following criteria are considered.

- Generation of solid and hazardous waste types or quantities that could not be accommodated by the current management system
- An increased likelihood of an uncontrolled release of hazardous materials that could contaminate soil, surface water, groundwater, or air as a result of implementation of the Proposed Action
- Potential for adverse health and safety impacts from the presence of ACBM and LBP in housing units
- Potential for ground-disturbing activities to impact ERP sites, as well as the potential for residential exposure if housing areas are placed in close proximity to these sites

4.8.2 Impacts

4.8.2.1 Proposed Action

Hazardous Materials and Hazardous Waste Management

Developers would construct new Holloman AFB housing units utilizing normal residential construction methods, limiting the use of hazardous materials to the extent possible. Petroleum, oil, and lubricant (POL) products and other hazardous materials (e.g., paints) would be used during construction and renovation activities. Building contractors would store these materials in the proper containers, employing secondary containment as necessary to prevent/limit accidental spills. NMED notes that all parties involved in the project must respond to and report discharges in accordance with accordance with Section 20.6.2.1203 of New Mexico Administrative Code (NMED 2006). All spills and accidental discharges of POLs, hazardous materials, or hazardous waste would be reported immediately. The Base Fire Department provides emergency response in case of a hazardous materials spill. Procedures would be followed in accordance with applicable plans, including Holloman AFB's *Hazardous Waste Management Plan; Spill Prevention, Control and Countermeasures Plan;* and *Emergency Response Plan.*

Routine household hazardous waste, including batteries, fluorescent bulbs, pesticides, waste paint, pool chemicals, and used oil or other lubricants may be generated in the housing areas. Guidance information is provided on proper disposal of such wastes, which encourages residents to take their wastes to on-Base/off-Base collection centers for recycling and disposal. Hazardous wastes generated at the Housing Maintenance Facility or generated during construction activities would be managed according to established requirements and would be disposed through Defense Reutilization and Marketing Office (DRMO) or other approved means.

Unless otherwise exempted by the CERCLA regulations, RCRA Subtitle C (40 CFR 260–270), regulations are administered by the USEPA and NMED and are applicable to the management of hazardous wastes. Hazardous waste must be handled, stored, transported, disposed of, or recycled in accordance with these regulations. Impacts to hazardous waste management would be considered significant if the federal action resulted in noncompliance with applicable federal and New Mexico regulations or caused waste generation that could not be accommodated by current Holloman AFB waste management capacities.

The action would not change operations and maintenance functions at Holloman, although the private developer would be responsible for maintaining the housing areas. No impacts from hazardous materials and hazardous wastes are expected as a result of implementation of the Proposed Action, as developers would adhere to respective requirements. There would be no increase in the quantity of hazardous waste generated at Holloman AFB as a result of this action.

Environmental Restoration Program Sites

There are two ERP sites (SS-12 and SS-17) situated immediately adjacent or on the boundary of the housing areas (Parcels 2 and 4). As discussed in Section 3.8.2, SS-12 has been closed and presents no further concern. Site SS-17 is scheduled to close in 2005. Siting for the new housing would be coordinated through the Base Environmental Restoration office to ensure that ERP sites do not pose any human health risks. Should any unusual odor, soil, or groundwater coloring be encountered during activities in any other areas, the Holloman AFB Environmental Flight would be contacted immediately. No impacts related to ERP issues are anticipated as a result of the Proposed Action.

Asbestos

As discussed in Section 3.8.2, the older housing units at Holloman AFB have been identified as having ACBM. Materials containing ACBM include floor tile, adhesive, window caulk, and roofing material. AFI 32-1052, *Facilities Asbestos Management*, requires that when safety and budgetary considerations permit, complete removal of asbestos-containing material would be included in military construction program facility projects. NMED notes that demolition of the buildings containing asbestos is regulated under National Emission Standards for Hazardous Pollutants, 40 CFR Part 61, Subpart M, and removal of these products must comply with applicable regulations (NMED 2006). Asbestos surveys (taking samples and obtaining analysis by a state-certified laboratory) would be performed prior to demolition to locate all ACBM. Where asbestos is found, the demolition contractor would perform any and all asbestos work in accordance with applicable laws. Contractor personnel would be appropriately trained and certified, as necessary. Also, the contractor would submit an Asbestos Work/Disposal Plan for

the demolition. Transport and disposal documentation records, including signed manifests, would also be required. With these management requirements in effect, there would be no anticipated adverse impacts resulting from asbestos contamination from demolition of buildings. ACBM would not be employed for any new constructed units; therefore, there would be an overall beneficial result to residents upon the removal of potential exposure to ACBM.

Lead-Based Paint

Materials containing LBP have been found in older housing units. Materials identified as containing LBP include interior baseboards, windowsills, metal doorframes, window frames, exterior wood trims, and soffits. LBP-containing materials do not have to be treated as hazardous waste as long as these materials are not removed from a structure prior to demolition. Prior to any renovation and demolition activities, the Environmental Flight would review all construction project programming documents, designs, and contracts. Projects requiring alteration or demolition of an existing housing structure would require LBP surveys. Project designs would stipulate the appropriate abatement and disposal requirements for LBP. With these management requirements met, there would be no anticipated adverse impacts as a result of implementation of the Proposed Action from LBP. LBP would not be employed for any new constructed units; therefore, there would be an overall beneficial impact to housing residents upon the removal of potential exposure to LBP.

PCBs

Electric power transformers located on power poles in Holloman AFB housing areas are currently PCB-free. PCBs may be contained within the ballasts of older fluorescent light fixtures installed in Holloman AFB housing units. In the event PCBs are discovered, they are turned in to the DRMO for proper disposal. Holloman AFB policy also specifies that housing contractors properly dispose of all hazardous materials, including fluorescent light ballasts, in accordance with 40 CFR 261. No PCB-containing materials would be utilized during construction. Therefore, no adverse impacts associated with PCBs would occur as a result of implementation of the Proposed Action.

Solid Waste

Solid waste would be generated during demolition and construction of the proposed housing units. Non-hazardous solid waste includes construction and demolition debris such as removed building materials and land clearing debris. Materials such as wood and scrap metal and wiring must be disposed of at a Class III landfill (construction and demolition debris and yard waste) designated for this type of material. The developer would be responsible for hauling and disposal of vegetation waste from construction and demolition activities. Construction and demolition debris from Holloman AFB is typically disposed of at the Lincoln/Otero County Regional landfill.

The demolition of 1,755,564 square feet of housing would generate about 111,500 tons of debris, or about 22,400 tons in a heavy year (Deconstruction Institute 2005). A portion of construction and demolition waste would be recycled (as is standard practice at Holloman), especially wood and scrap metal/wiring, to the maximum extent possible. The estimated volume of debris during an average heavy demolition year is about 60 tons per day. If all of this were sent to the regional landfill (and none recycled), this would represent an increase of about 20 to 25 percent

of the current average daily landfill intake of 275 tons. This volume of demolition debris may shorten the lifespan of the regional landfill by about one to two years, based on its current status. It would also provide up to $2.5 million in tipping fees to Lincoln and Otero Counties. Coordination of developers with all local county and private landfill operators prior to demolition or construction would minimize any potential impacts associated with disposal of construction and demolition debris.

4.8.2.2 No Action Alternative

Under the No Action Alternative, Holloman AFB would, at a minimum, demolish 133 housing units. Additionally, in the near future, Holloman AFB could implement a MILCON action involving virtually the same demolition and construction as under the Proposed Action, only over a longer time period. Therefore, the impacts as a result of hazardous materials and hazardous and solid wastes associated with the No Action Alternative would be either less than or roughly equivalent to those of the Proposed Action, as described in Section 4.8.2.1. Potential impacts from hazardous materials and hazardous and solid wastes as a result of the No Action Alternative would be minor.

4.9 INFRASTRUCTURE

4.9.1 Methodology

System capacity and capability is the primary issue for transportation networks and utility services. Criteria for evaluating impacts to transportation and utility service include the potential to disrupt, overload, and/or to permanently degrade the resource, and consequently the level of service.

4.9.2 Impacts

4.9.2.1 Proposed Action

Transportation

Implementation of the Proposed Action would not alter traffic circulation on most of the Base. Haul routes for proposed demolition and construction have not been established, but would be routed on the primary roads in and out of the Base and through family housing areas, to the extent possible. Access and circulation would be maintained through use of appropriate detours and signage. Construction truck traffic and construction workers commuting to the project sites would generate minor increases in vehicle trips per day on Base roadways and increase congestion at the gates at peak commuting times. The increased trips and additional heavy truck traffic mixed with smaller passenger vehicles may interrupt the flow of traffic on primary access roads, such as First Street, and collector streets such as Arnold Avenue, particularly during drop-off times for the schools.

At project sites, temporary lane closures may be necessary during demolition and construction activities. These impacts would be short-term and temporary, occurring only for the duration of the construction and demolition periods.

Truck traffic could lead to degradation of road surfaces over an extended period of use, particularly on residential roads that are not designed for high volume and heavy truck traffic.

If left unrepaired, degraded road surfaces may slow traffic and/or cause wear on government- and privately owned vehicles. Although inconvenient, these impacts are relatively minor.

To minimize impacts described above, the contractor would be required to develop a Traffic/Safety plan. The plan would identify measures to ensure safety and access, and to maintain adequate circulation. Examples include establishing haul routes, speed limits, procedures to minimize peak hour traffic congestion, and any special procedures related to safety of residents in the housing areas and around the three schools.

During and upon completion of the projects, Base personnel who currently live on base would commute to work instead. These trips would be distributed on several roadways in the local area with negligible effect on traffic flow. These personnel would use both the Main and La Luz access gates to the Base. Congestion at the Main gate is a current concern and additional traffic could slightly increase congestion at peak hours. On Base, personnel use of the road system would not change. These additional trips to work would be somewhat offset by a reduction in trips within the immediate local area around the Base for non-work related travel by these families. As they relocate within the City of Alamogordo and local area, non-work trips, although not fewer, would be dispersed over a wider service area, causing no appreciable impact on the transportation network.

Utilities

Potable Water. Some water would be used during construction and demolition to control dust. Both reclaimed and hauled water could be used to reduce the demand on potable water supplies.

At completion of the Proposed Action, there would be about 9 percent fewer family housing units on the Base. Given that family housing currently consumes about 16 percent of the Base's potable water, implementing the proposal could lower the Base's water consumption by about 1.4 percent (or, an estimated 28,500 gallons per day). However, since reduction in Base personnel is not proposed, the total household demand is not expected to decrease. Some of this demand may be supplied by the City of Alamogordo to military families that live off-post. The overall effect on withdrawals on regional water sources would not change.

Wastewater. Under the Proposed Action, wastewater generated at Holloman may decrease by about 1.4 percent, based on the likely reduction in domestic water use due to fewer housing units on Base. This would have no appreciable impact on wastewater treatment facilities. No adverse impacts to wastewater facilities are anticipated. According to correspondence from NMED, wastewater service lines associated with demolished units that will no longer be used should be removed or properly abandoned (NMED 2006).

Storm Drainage System. Demolition and construction of housing units and other surfaces (roads, parking lots, and concrete pads) are not expected to result in an increase in paved or impervious surface on the Base. Therefore, the overall volume of storm water would not increase. Site design would need to address flow of storm water in the redeveloped areas into the existing storm water system. The Base-wide SWPPP would be revised, if necessary, to address any physical modifications to the system. No impacts are expected to the storm drainage system as a result of the Proposed Action.

Electrical System. Under the Proposed Action, a slight decrease in electrical use is anticipated due to fewer housing units. New facility construction would use energy-conserving equipment to reduce impacts to the existing electrical infrastructure and therefore, no significant impacts are expected. It is possible that electrical service could be interrupted when new lines are connected into the existing distribution system. Localized outages may be a few hours in duration when new lines are being connected. To the extent possible, these outages should be timed to occur during hours when schools are closed so that heating and cooling systems are not affected. The overall demand for power would not increase, and system capacity would not be affected. There would be no impacts on the Base's electrical system.

Heating and Cooling Systems. With the Proposed Action, there should be no increase in heating and cooling demands, and possible decreases from fewer housing units and installation of more efficient, new equipment. No adverse impacts are anticipated to this utility.

4.9.2.2 No Action Alternative

Under the No Action Alternative, Holloman would, at a minimum, demolish 133 housing units. Additionally, in the near future, Holloman AFB could implement a MILCON action involving virtually the same demolition and construction as under the Proposed Action, only over a longer time period. Therefore, the impacts to infrastructure associated with the No Action Alternative would be similar to those of the Proposed Action, as described in Section 4.9.2.1. Over time, infrastructure would deteriorate and would need to be maintained and replaced. Overall, potential impacts to infrastructure as a result of the No Action Alternative would be minor.

5.0 SUMMARY OF CUMULATIVE CONSEQUENCES

5.1 CUMULATIVE IMPACTS

Cumulative impacts to environmental resources result from incremental effects of proposed actions when combined with other past, present, and reasonably foreseeable future projects in the ROI. Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies (federal, state, and local) or individuals. In accordance with NEPA, a discussion of cumulative impacts resulting from projects that are proposed (or anticipated over the foreseeable future) is required.

Holloman AFB updates facilities on a continual basis, as necessary. While it is not practical to catalog all minor projects that could occur over the short-term, a list of the major projects in the ROI has been analyzed for the potential to create cumulative environmental impacts. Planning efforts in the ROI include the actions described within this EA, as well as others that are either ongoing or planned over the short-term. Additional projects within the ROI are described in Section 2.4.

5.2 ANALYSIS OF CUMULATIVE IMPACTS

Earth Resources. In addition to the approximately 280 acres of surface disturbance anticipated over the course of the 10-year construction program associated with the redevelopment of the MFH area, an additional amount of surface disturbance could result from recently completed, on-going, and future construction at Holloman AFB. The grading of existing soil and placement of structural fill for new facilities would not substantially alter existing soil conditions at the Base, because to a large extent, the construction described above is planned for areas where surface disturbance has previously occurred. BMPs would be used to limit soil movement, stabilize runoff, and control sedimentation. Cumulative impacts to earth resources would be expected to be minimal.

Water Resources. While there would not be a net decrease of impervious surface at Holloman AFB as a result of the military family housing project, there would be an overall slight increase in impervious surface as a result of the projects described in Section 2.4. To a large extent, the construction described above is planned for areas that are largely developed already. The Base would update their SWPPP to include all these projects and has obtained or would obtain, as appropriate, coverage under the Base's NPDES permit for storm water. Adherence to the requirements of the permit would include implementation of BMPs to minimize the potential for exposed soils or other contaminants from construction activities to reach nearby surface waters. Cumulative impacts to water resources would be expected to be minimal. This project does not involve disturbance in wetlands; therefore, no cumulative impacts would result.

Biological Resources. In general, the Proposed Action and the projects listed in Section 2.4 are at sites that are highly altered by man. There are no sensitive plant species known to occur on Base, and animal species that would be found in specific project areas are well adapted to the human environment. The Base would coordinate with USFWS and New Mexico Department of Game and Fish regarding threatened, endangered, and sensitive species, should there be a need. Cumulative impacts to biological resources would be expected to be minimal.

Air Quality. In general, combustive and fugitive dust emissions from the proposed military family housing project, as well as those activities described in Section 2.4, would produce localized, elevated air pollutant concentrations that would occur for a short duration and would not result in any long-term impacts on the air quality of Otero County (AQCR 153). Cumulative impacts to air quality in the County would be expected to be minimal.

Noise. Construction noise emanating off-site as a result of the military family housing proposal and the activities described in Section 2.4 would probably be noticeable in the immediate site vicinity, but would not be expected to create adverse impacts. The acoustic environment on and near Holloman AFB is expected to remain relatively unchanged from existing conditions. Cumulative impacts from noise would be expected to be minimal.

Socioeconomics/Environmental Justice. There would be a minor decrease in Base population as a result of implementation of the military family housing proposal. Any decrease in Base population would be offset in the ROI by a relational increase in those residing off-Base in the neighboring Tucson community. The combined construction activity from this project and those identified in Section 2.4 continues to provide a strong economic base for construction industries and jobs in the Alamogordo area. These projects are not expected to create adverse environmental or health effects; therefore, no disproportionately high or adverse impacts to minority, low-income, or youth populations are expected. Cumulative impacts to socioeconomics and environmental justice would be expected to be minimal.

Safety. Implementation of the military family housing project and the activities described in Section 2.4 involve ground activities that may expose workers performing the required site preparation, grading, and building construction to some risk. Strict adherence to all applicable occupational safety requirements would minimize the relatively low risk associated with these construction activities. All construction sites would be appropriately secured to ensure that children could not access the sites. All projects have been sited outside any QD arcs, as appropriate. Additionally, the proposed projects would include measures to enhance and correct AT/FP shortfalls as part of the facility designs. Large construction projects would require a Traffic/Safety plan to lay out specific measures to ensure safety for workers and other persons in and around worksites. Cumulative impacts to safety would be expected to be minimal.

Solid and Hazardous Materials and Waste Management. The proposed construction and demolition projects associated with the military family housing project, as well as those described in Section 2.4 would generate construction and demolition waste that would be recycled and/or taken to the local landfill, as appropriate. The Otero/Lincoln Regional Landfill has ample capacity to receive solid waste from Holloman AFB. Holloman will also continue to minimize its waste generation by recycling. Hazardous materials and wastes would be handled, stored, and disposed of in accordance with applicable regulations. Any ACBM, LBP, or PCBs would be removed and disposed of per applicable regulations. Cumulative impacts to hazardous materials and waste management would be expected to be minimal. No cumulative impacts related to ERP sites are anticipated.

Infrastructure. The proposed construction and demolition projects associated with the military family housing project as well as those described in Section 2.4 would result in some temporary interruption of utility services and minor hindrance of transportation and circulation during construction activities. These impacts would be temporary, occurring only for the duration of

the construction period. In general, infrastructure at Holloman AFB would improve under various ongoing impending actions. There would be some upgrades and extensions to existing utilities over time. Cumulative impacts to infrastructure would be expected to be minimal.

5.3 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OFRESOURCES

NEPA CEQ regulations require environmental analyses to identify "...any irreversible and irretrievable commitments of resources that would be involved in the Proposed Action should it be implemented" (40 CFR 1502.16). Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects the uses of these resources have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. Building construction material such as gravel and gasoline usage for construction equipment would constitute the consumption of non-renewable resources.

The Proposed Action would not have irreversible impacts because future options for using this site would remain possible. The vast majority of Holloman AFB is undeveloped, and the Proposed Action would not substantially alter the amount of developed land on Base. The site could be used for alternative uses in the future, ranging from open space to urban development. No loss of future options would occur.

The primary irretrievable impacts of the Proposed Action would involve the use of energy, labor, materials, and funds. Irretrievable impacts would occur as a result of construction, facility operation and maintenance activities. Direct losses of irretrievable resources from these activities would be inconsequential.

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APPENDIX A
AGENCY COORDINATION/ PUBLIC INVOLVEMENT

Through the process of Interagency and Intergovernmental Coordination for Environmental Planning (IICEP), outlined in Air Force Instruction (AFI) 32-7060, federal, state and local agencies are notified and allowed sufficient time to evaluate potential environmental impacts of a proposed action. This is accomplished by coordinating with regulatory agencies throughout the Environmental Impact Analysis Process. The Air Force determined conducting IICEP with the agencies in Table A-1 on the following page was appropriate for the Military Family Housing (MFH) privatization initiative at Holloman AFB: IICEP was conducted with the agencies listed above during the review process of the Draft EA in order to identify any concerns associated with the project. The only agencies to respond were the New Mexico Environment Department (NMED) and New Mexico Department of Game and Fish (NMDG&F). Comments and information provided by these agencies were incorporated into this Final EA. A summary of regulatory review comments associated with the Draft EA is provided below.

- NMED
  - Wastewater service lines associated with demolished units that will no longer be used should be removed or properly abandoned.
  - Fugitive dust control measure should be implemented, and disturbed areas should be replanted with vegetation to minimize the potential for long-term erosion and fugitive dust impacts.
  - NMED notes that all parties involved in the project must respond to and report discharges in accordance with accordance with Section 20.6.2.1203 of New Mexico Administrative Code.
  - Any asphalt, concrete, quarrying, crushing, and screening facilities contracted in conjunction with the proposed project must have current and proper air quality permits.
    - **Note**: use of asphalt, concrete, quarrying, crushing, and screening facilities on the installation for this project are not anticipated.
  - Demolition of the buildings containing asbestos is regulated under National Emission Standards for Hazardous Pollutants, 40 CFR Part 61, Subpart M, and removal of these products must comply with applicable regulations.
- NMDG&F
  - NMDG&F does not anticipate any significant impacts to wildlife or sensitive habitats from the proposed project.

NEPA and the Air Force implementing regulations require the action agency (in this case, the Air Force) to seek public participation throughout the conduct of the environmental impact analysis process. The Air Force published a Notice of Availability for the Draft version of this EA in the Alamogordo Daily News on 1 January 2006 and the Holloman AFB Sunburst newspaper on 13 January 2006. The notice solicited public review and comment, provided the time, date, and place of a public meeting, invited attendance, and indicated that the Draft EA was available for public review at the Holloman Public Library, the Alamogordo Public Library, and the Holloman AFB website from 31 December 2005 through 2 February 2006. The public meeting was held on Thursday, 19 January 2006. No members of the public attended the meeting, and no public comments on the Proposed Action were received during the public review period. Copies of the correspondence between the Air Force and public agencies, as well as the newspaper display advertisement, are provided in the following pages.

TABLE A-1. HOLLOMAN MFH EA IICEP MAILING LIST

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 49TH FIGHTER WING (ACC)
HOLLOMAN AIR FORCE BASE, NEW MEXICO

MEMORANDUM FOR DISTRIBUTION

FROM: 49 FW/CC
490 First Street, Suite 1700
Holloman AFB NM 88330-8277

SUBJECT: Military Family Housing (MFH) Privatization Initiative Environmental Assessment

1. The United States Air Force, Air Combat Command (ACC), proposes to privatize its MFH at Holloman Air Force Base (AFB), located near Alamogordo, New Mexico. An Environmental Assessment (EA) is being prepared to evaluate the potential environmental impacts resulting from associated leasing, demolition, construction, and renovation at the Base.

2. The privatization initiative provides a mechanism for making needed improvements to military housing without relying on traditional military construction funding. In this case, private sector developers would take ownership of the existing 1,413 MFH units at Holloman AFB. Of these, 101 are relatively new and would be used "as is". Redevelopment would involve demolition of 730 older units, construction of 597 new units, and renovation of 582 existing units. This work would take place over the next ten years. Upon completion, the total MFH on Holloman AFB would consist of 1,280 housing units. The Draft MFH Privatization Public Draft EA (Attachment 2) shows the location of the housing areas on the Base where redevelopment would occur. All proposed redevelopment is located within areas already used for family housing.

3. We are interested in any comments you may have on this Draft EA that should be considered in the final EA. We would appreciate receiving your input by January 25, 2006. Written comments may be sent to 49 FW/PA, 490 First Street, Suite 2800, Holloman AFB NM 88330-8277 or to 49fw.pa@holloman.af.mil. You may also respond via telephone to (505) 572-5406. Thank you for your assistance in this matter.

Kurt A. Chchowski

KURT A. CHCHOWSKI
Brigadier General, USAF
Commander

Attachments:
1. Distribution List
2. MFH Privatization Public Draft EA

Global Power for America

Distribution - MFH Privatization Public Draft EA

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Estelle Bulka
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Office of Planning and Coordination (6EN-XP)
1445 Ross Avenue
Dallas, TX 75202-2733

Regional Director
Bureau of Indian Affairs Intermountain Region
P.O. Box 1086
Albuquerque, NM 87125

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 49TH FIGHTER WING (ACC)
HOLLOMAN AIR FORCE BASE, NEW MEXICO

Brigadier General Kurt A. Cichowski
Commander
490 First Street, Suite 1700
Holloman AFB NM 88330-8277

The Honorable Pete V. Domenici
Loretto Towne Centre, Suite 118
505 South Main
Las Cruces NM 88001

Dear Senator Domenici

The United States Air Force, Air Combat Command, proposes to privatize its Military Family Housing (MFH) at Holloman AFB, NM. An Environmental Assessment (EA) is being prepared to evaluate the potential environmental impacts resulting from associated leasing, demolition, construction and renovation at the base.

The privatization initiative provides a mechanism for making needed improvements to military housing without relying on traditional military construction funding. In this case, private sector developers would take ownership of the existing 1,413 MFH units at Holloman AFB. Of these, 101 are relatively new and would be used "as is." Redevelopment would involve demolition of 730 older units, construction of 597 new units and renovation of 582 existing units. This work would take place over the next 10 years. Upon completion, the total MFH on Holloman AFB would consist of 1,280 housing units. The location of the housing areas on the base where redevelopment would occur is shown in the attached Draft MFH Privatization Initiative EA. All proposed redevelopment is located within areas already used for family housing.

We are interested in any comments you may have on this Draft EA that should be considered in the final EA. We would appreciate receiving your input by January 25, 2006. Written comments may be sent to 49 FW/PA, 490 First Street, Suite 2800, Holloman AFB NM 88330-8277 or to 49fw.pa@holloman.af.mil. You may also respond via telephone to (505) 572-5406. Thank you for your assistance in this matter.

Sincerely

Kurt A. Cichowski

KURT A. CICHOWSKI
Brigadier General, USAF
Commander

Attachment:
MFH Privatization Public Draft EA

Global Power for America

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 49TH FIGHTER WING (ACC)
HOLLOMAN AIR FORCE BASE, NEW MEXICO

Brigadier General Kurt A. Cichowski
Commander
490 First Street, Suite 1700
Holloman AFB NM 88330-8277

The Honorable Jeff Bingaman
148 Loretto Towne Centre
505 South Main
Las Cruces NM 88001

Dear Senator Bingaman

The United States Air Force, Air Combat Command, proposes to privatize its Military Family Housing (MFH) at Holloman AFB, NM. An Environmental Assessment (EA) is being prepared to evaluate the potential environmental impacts resulting from associated leasing, demolition, construction and renovation at the base.

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Sincerely

Kurt A. Cichowski

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Brigadier General, USAF
Commander

Attachment:
MFH Privatization Public Draft EA

Global Power for America

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 49TH FIGHTER WING (ACC)
HOLLOMAN AIR FORCE BASE, NEW MEXICO

Brigadier General Kurt A. Cichowski
Commander
490 First Street, Suite 1700
Holloman AFB NM 88330-8277

The Honorable Steve Pearce
400 North Telshor, Suite E
Las Cruces NM 88011

Dear Mr. Pearce

The United States Air Force, Air Combat Command, proposes to privatize its Military Family Housing (MFH) at Holloman AFB, NM. An Environmental Assessment (EA) is being prepared to evaluate the potential environmental impacts resulting from associated leasing, demolition, construction and renovation at the base.

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Sincerely

Kurt A. Cichowski

KURT A. CICHOWSKI
Brigadier General, USAF
Commander

Attachment:
MFH Privatization Public Draft EA

Global Power for America

State of New Mexico
ENVIRONMENT DEPARTMENT
Office of the Secretary
Harold Runnels Building
1190 St. Francis Drive, P.O. Box 26110
Santa Fe, New Mexico 87502-6110
Telephone (505) 827-2855

BILL RICHARDSON
GOVERNOR

RON CURRY
SECRETARY

DERRITH WATCHMAN-MOORE
DEPUTY SECRETARY

February 9, 2006

Kurt A. Chchowski
49 FW/PA
490 1st Street, Suite 2800
Holloman AFB
N.M. 88330-8277

Dear Mr. Chchowski:

RE: HOLLOMAN AFB, MILITARY FAMILY HOUSING (MFH) ENVIRONMENTAL ASSESSMENT

This transmits New Mexico Environment Department (NMED) staff comments concerning the above-referenced Environmental Assessment (EA).

Ground Water Quality

The proposed project at HAFB will involve the demolition of 730 existing housing units, construction of 597 new housing units, and renovation of 582 existing housing units over a period of 10 years.

Domestic wastewater generated at HAFB is treated in an aeration-activated sludge wastewater treatment plant. This treatment plant operates under a NPDES permit (NM0029971) and a ground water discharge permit (Discharge Permit 1127) issued by the NMED's GWQB. Wastewater generated by new and renovated housing units will be sent to the wastewater treatment plant. The volume of wastewater generated is expected to decrease by approximately 1.4 percent due to fewer family housing units at the base after completion of the project, and is not expected to have an adverse impact on the wastewater treatment facility. Wastewater service lines associated with demolished units that will no longer be used should be removed or properly abandoned.

Demolition and construction activities associated with the proposed project will involve the use of heavy equipment, thereby leading to the possibility of contaminant releases (e.g., fuel, hydraulic fluid, etc.) associated with equipment malfunctions. The GWQB advises all parties involved in the project to be aware of discharge notification requirements contained in Section 20.6.2.1203 NMAC. Compliance with the notification and response requirements will ensure the protection of ground water quality in the vicinity of the project.

Kurt A. Chchowski
February 9, 2006
Page 2

Air Quality

The Military Family Housing (MFH) Demolition, Construction, Renovation and Leasing Program is located on Holloman Air Force Base, Alamogordo, New Mexico. Holloman Air Force Base is located in Otero County, which is currently considered to be in attainment with all National Ambient Air Quality Standards.

The project as proposed should have no long-term significant impacts to ambient air quality. During construction activities, dust control measures should be taken to minimize the release of particulates. Areas disturbed by the construction activities, within and adjacent to the project area should be reclaimed to avoid long-term problems with erosion and fugitive dust.

All asphalt, concrete, quarrying, crushing and screening facilities contracted in conjunction with the proposed project must have current and proper air quality permits. For more information on air quality permitting and modeling requirements, please refer to 20.2.72 NMAC.

Please be advised that older buildings may contain asbestos. Demolition of these buildings is regulated through the National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61, Subpart M. If you have any questions concerning asbestos please call (505) 827-1494 and ask for Ronald Duffy or Royce Wyrick or visit the New Mexico Environment Department website at http://www.nmenv.state.nm.us/aqb/index.html and click on the Asbestos link for more information. We appreciate the opportunity to comment on this project.

We appreciate the opportunity to comment on this document.

Sincerely,

Gedi Cibas, Ph.D.
Environmental Impact Review Coordinator

NMED File No. 2226ER

GOVERNOR
Bill Richardson

DIRECTOR AND SECRETARY
TO THE COMMISSION
Bruce C. Thompson

STATE OF NEW MEXICO
DEPARTMENT OF GAME & FISH
One Wildlife Way
Post Office Box 25112
Santa Fe, NM 87504
Phone: (505) 476-8101
Fax: (505) 476-8128

Visit our website at www.wildlife.state.nm.us
For basic information or to order free publications: 1-800-862-9310.

STATE GAME COMMISSION

Leo V. Sims, II, Chairman
Hobbs, NM

Dr. Tom Arvas, Vice-Chairman
Albuquerque, NM

David Henderson, Commissioner
Santa Fe, NM

Alfredo Montoya, Commissioner
Alcalde, NM

Peter Pino, Commissioner
Zia Pueblo, NM

Guy Riordan, Commissioner
Albuquerque, NM

M. H. "Dutch" Salmon, Commissioner
Silver City, NM

January 3, 2006

Kurt A. Chchowski
Department of the Air Force
49 FW/PA
490 First Street Suite 2800
Holloman AFB, 88330-8277

Re: Military Family Housing (MFH) Privatization Initiative Environmental Assessment
NMGF No. 10564

Dear Mr. Chchowski,

In response to your letter dated December 30, 2005, regarding the above referenced project, the Department of Game and Fish (Department) does not anticipate significant impacts to wildlife or sensitive habitats. For your information, we have enclosed a list of sensitive, threatened and endangered species that occur in Otero County.

For more information on listed and other species of concern, contact the following sources:

1. Species Accounts: http://fwie.fw.vt.edu/states/nm.htm
2. Species Searches: http://nmnhp.unm.edu/bisonm/bisonquery.php
3. New Mexico Wildlife of Concern by Counties List: http://www.wildlife.state.nm.us/conservation/share_with_wildlife/documents/speciesofconcern.pdf
4. Habitat Handbook Project Guidelines: http://wildlife.state.nm.us/conservation/habitat_handbook/index.htm
5. For custom, site-specific database searches on plants and wildlife. Go to Data then to Free On-Line Data and follow the directions go to: http://nmnhp.unm.edu
6. New Mexico State Forestry Division (505-827-5830) or http://nmrareplants.unm.edu/index.html for state-listed plants
7. For the most current listing of federally listed species **always** check the U.S. Fish and Wildlife Service at (505-346-2525) or http://ifw2es.fws.gov/EndangeredSpecies/lists/ .

Thank you for the opportunity to review and comment on your project. If you have any questions, please contact Mark Watson, Habitat Specialist, at (505) 476-8101 or mark.watson@state.nm.us.

Sincerely,

Janell Ward

Janell Ward, Assistant Chief
Conservation Services Division

JW/ttd
xc: Susan MacMullin, New Mexico Ecological Services, USFWS
Roy Hayes, SE Area Operations Chief, NMGF
George Farmer, SE Area Habitat Specialist, NMGF

NEW MEXICO WILDLIFE OF CONCERN
OTERO COUNTY

For complete up-dated information on federal-listed species, including plants, see the US Fish & Wildlife Service NM Ecological Services Field Office website at http://ifw2es.fws.gov/New Mexico/SBC_intro.cfm. For information on state-listed plants, contact the NM Energy, Minerals and Natural Resources Department, Division of Forestry, or go to http://nmrareplants.unm.edu/. If your project is on Bureau of Land Management, contact the local BLM Field Office for information on species of particular concern. If your project is on a National Forest, contact the Forest Supervisor's office for species information.

Common Name	Scientific Name	NMGF	US FWS	critical habitat
Rio Grande Cutthroat Trout	Oncorhynchus clarki	s	SOC	
Rio Grande Chub	Gila pandora	s		
White Sands Pupfish	Cyprinodon tularosa	T	SOC	
Sacramento Mountain Salamander	Aneides hardii	T	SOC	
Bleached Earless Lizard	Holbrookia maculata ruthveni	s		
Southwestern Fence Lizard	Sceloporus cowlesi	s		
Little White Whiptail	Aspidoscelis gypsi	s		
Mottled Rock Rattlesnake	Crotalus lepidus lepidus	T		
Brown Pelican	Pelecanus occidentalis	E		
Neotropic Cormorant	Phalacrocorax brasilianus	T		
Bald Eagle	Haliaeetus leucocephalus	T	T	
Northern Goshawk	Accipiter gentilis	s	SOC	
Common Black-Hawk	Buteogallus anthracinus	T	SOC	
Aplomado Falcon	Falco femoralis	E	E	
Peregrine Falcon	Falco peregrinus	T	SOC	
Mountain Plover	Charadrius montanus	s	SOC	
Least Tern	Sterna antillarum	E	E	
Black Tern	Chlidonias niger surinamensis		SOC	
Common Ground-Dove	Columbina passerina	E		
Yellow-billed Cuckoo	Coccyzus americanus	s	SOC	
Mexican Spotted Owl	Strix occidentalis lucida	s	T	Y
Burrowing Owl	Athene cunicularia		SOC	
Black Swift	Cypseloides niger	s		
Broad-billed Hummingbird	Cynanthus latirostris	T		
White-eared Hummingbird	Hylocharis leucotis	T		
Elegant Trogon	Trogon elegans	E		
Southwestern Willow Flycatcher	Empidonax traillii extimus	E	E	Y
Loggerhead Shrike	Lanius ludovicianus	s		
Bell's Vireo	Vireo bellii	T	SOC	
Gray Vireo	Vireo vicinior	T		
Baird's Sparrow	Ammodramus bairdii	T	SOC	
Varied Bunting	Passerina versicolor	T		
Western Small-footed Myotis Bat	Myotis ciliolabrum melanorhinus	s		
Occult Little Brown Myotis Bat	Myotis lucifugus occultus	s		
Cave Myotis Bat	Myotis velifer	s		
Long-legged Myotis Bat	Myotis volans interior	s		
Fringed Myotis Bat	Myotis thysanodes thysanodes	s		
Spotted Bat	Euderma maculatum	T		
Pale Townsend's Big-eared Bat	Corynorhinus townsendii pallescens	s	SOC	

Big Free-tailed Bat	Nyctinomops macrotis	s	
Penasco Least Chipmunk	Neotamias minimus atristriatus	E	SOC
Gray-footed Chipmunk	Neotamias canipes sacramentoensis	s	
Black-tailed Prairie Dog	Cynomys ludovicianus ludovicianus	s	SOC
Red Squirrel	Tamiasciurus hudsonicus lychnuchus	s	
Desert Pocket Gopher	Geomys arenarius	s	SOC
South Plains Wood Rat	Neotoma micropus leucophaea		SOC
New Mexican Jumping Mouse	Zapus hudsonius luteus	T	SOC
Western Spotted Skunk	Spilogale gracilis	s	
Common Hog-nosed Skunk	Conepatus leuconotus	s	
Socorro Mountainsnail	Oreohelix neomexicana	s	
Cloudcroft Checkerspot Butterfly	Euphydryas anicia cloudcrofti	s	

BRIEFS

Science fair

Science fair season for the base schools is approaching. Check out the variety of science project books available at the Holloman Base Library. Call 572-3939 for more information.

Alamogordo science fair

The Alamogordo Public Schools are in need of volunteers to help judge science fair projects for the city science fair on Feb. 4. Volunteers will be judging projects ranging from grades K-5. For more information, please call Ms. Tammy Reed at 491-9683 or by e-mail at *bigdogweb@msn.com*.

MLK day bowling

Bowl from noon to 5 p.m. Monday for $1.50 a game at Desert Lanes Bowling Center. Call 572-7378 for more information.

Environmental assessment

The Draft Environmental Assessment for the Military Family Housing Privatization is available for review at the Holloman Public Library and the Alamogordo Public Library. The public is invited to attend a meeting at 7 p.m. Thursday at the Alamogordo Civic Center, 800 East 1st Street, to hear more about this proposal and to provide comments. Doors will open at 6:30 pm. All comments should be directed to the Public Affairs Office at 572-5406.

JROTC teaching

Air Force Junior Reserve Officer Training Corps is opening 75 new units at the beginning of the 2006-2007 school year. There will be 150 positions open for retired or soon-to-be retired officers and NCOs in high schools throughout the nation. All applicants must be retired from active duty less than five years from the effective date of employment. This may be waived in exceptional cases. If still on active duty, applicants must have applied for retirement to be effective within six months.

Instructors must meet Air Force weight/body fat standards and have high standards of military bearing, appearance and moral character. Officers must have a baccalaureate degree or higher from an accredited institution. NCOs must have a high school diploma or equivalent, and a minimum of an associate's degree will be required in the near future.

Instructors wear Air Force uniforms and are expected to maintain appearance standards. In addition, they receive, at a minimum, a salary equal to the difference between their retirement pay and their active-duty pay and allowances.

For more information, call 1-866-235-7682, ext. 35275 or 35300. The DSN is 493-5275 or 493-5300. For a list of current openings, go to *www.afoats.af.mil/AFJROTC/instructors.asp*. Positions at new units will be posted by Wednesday.

Tree recycling

Christmas trees may be plac in roll-off collection units at a of the three locations in base hou ing: near the officers' quarters t the golf course, next to the Hou ing Self Help Store and off San Fe Avenue next to the park.

Roll-off units will be in hou ing until Sunday. Please do n deposit any other materials in t roll-offs.

Trees may also be droppe off in the wood yard, behind t recycle yard, at any time.

Trees will be made into fr compost available at buildi 1266 off Vandergrift Road.

For more information, ca 572-3931.

Scholarships

The Holloman Officers' Spou es Club will award $12,000 scholarships to local studen attending colleges or universiti during the 2006-2007 academ year. Scholarship amounts va from $1,000 to $3,000.

Civic Center Permit2

Printed: 12-Jan-06, 03:26 PM
User: ruiz

Contract #: 5032 **Date: 12-Jan-06** **Status: Firm**

Alamogordo Family Recreation Center hereby grants HAFB (hereinafter called the "Licensee") represented by Kelly Livingston, permission to use the Facilities as outlined, subject to the Terms and Conditions of this Agreement contained herein and attached hereto all of which form part of this Agreement.

I) Purpose of Use Meeting
Public Meeting

II) Conditions of Use

III) Date and Times of Use Starting: 19-Jan-06 6:00PM Ending: Jan 19, 06 8:30PM # of Bookings: 1 Expected: 30

Facility	Day	Start Date	End Date	Start Time	End Time	Weeks
Civic Center - Conference Rm A/B	Thu	19-Jan-06	19-Jan-06	06:00 PM	08:30 PM	1

IV) Additional Fees

V) Payment Method

Rental Fees	Extra Fees	Tax	Rental Total	Damage Deposit	Total Applied	Balance	Current
$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

Balance of rental due and payable immediately

VI) Other Information

Prompt	Answer
Attendence	30
Equipment	theater seating

The undersigned has read and on behalf of the Licensee agrees to be bound by this Permit/License and the Terms and Conditions contained herein and attached hereto, and hereby warrants and represents that he/she executes this Permit/License on behalf of the Licensee and has sufficient power, authority and capacity to bind the Licensee with his/her signature. The undersigned understands that the City of Alamogordo reserves the right to change the terms of this agreement or of use of the facility.
The undersigned acknowledges being informed and provided with a copy of the policies of the City of Alamogordo Civic Center for use of the designated area. The undersigned agrees to abide by all such policies. The undersigned hereby releases the City of Alamogordo, its governing body and any/or all of its employees from any claims, demands, rights and causes of action of whatever kind and nature arising from any activities listed herein.
The undersigned agrees to be financially responsible for any and all damage(s) to include cleaning which may result from thier use of the facility, and will be liable for any costs over and above the damage deposit.

X: _____ **Date:**

Kelly Livingston
550 Tabosa Ave.
HAFB NM 88330
Home #:
Fax #: 572-7929 Business #: 572-3931

X: _____ **Date:**

Staff Signature
Alamogordo Civic Center
800 East First Street
Alamogordo, NM 88310
(505)439-4142

Mail To:
Alamogordo Recreation Center
C/O Raul Ruiz
1100 Oregon Avenue
Alamogordo, NM 88310

APPENDIX B
BEST MANAGEMENT PRACTICES

BEST MANAGEMENT PRACTICES (BMPS)

Any CWA permitting will require implementation of certain construction BMPs to reduce water quality impacts. BMPs include standard erosion and sediment controls (silt fence, rock check dams, and/or sediment traps are preferred for our highly erosive silty loam soils). Protection of downstream-designated waters may be best accomplished by use of rock check dams and run-downs, which can also remain as permanent stabilization. Equipment storage should be in an area or method to preclude leaking fuels or oils being conveyed to designated waters of the U.S. (e.g. bermed area, use of drip pans or absorbent pads, secondary containment for fuel/oil tanks, etc.). BMP methods are summarized below.

- Culverts and/or rip-rap at drainage crossings - The use of culverts and/or rip-rap at these crossings is recommended to manage or reduce erosive forces. This will protect water quality reduce undercutting and sinkholes, thus ensuring improvements are not damaged by storm events. Any rock, shaping, or culverts recommended as a construction period measure should be left in place as a permanent erosion control feature.
- Scheduling - Completion of soil disturbing activities during the mid-September to early June time period will avoid peak rainfall periods. Light rains in the dry seasons typically do not create the erosive runoff conditions seen in the summer monsoon season.
- Silt Fence - USACE specification section 01356, "Storm Water Pollution Prevention Measures" is a good guide for silt fence construction. Properly installed with a backwire, tight stretch, proper material, and proper burial depth, it can be a very effective erosion control. Bench intervals with a 'V' configuration opening upstream should be limited to 300-ft along shallow slopes, less along steeper slopes.
- Gravel mulch and Rock Check Dams - Rock is a preferred BMP for erosion protection on HAFB soils. Gravel mulch, or a seeded mix of ¾-inch minus crushed gravel is recommended as both a construction period and permanent erosion control measure. Rock check dams of angular 4-inch to 6-inch material spanning small devegetated swales and ditches with a minimum 1-ft depth can be surprisingly effective at retaining eroded material and retaining or re-establishing hydrology.
- Sedimentation pond(s) and Drainage Improvements - For this project it may be advantageous to provide long term drainage improvements as part of the short-term construction BMPs. These could in fact be performed in lieu of area-specific construction-period controls in some cases.
- Hay bales are not recommended.

Although fugitive dust is not regulated by current air quality laws, BMPs will need to be employed due to the project location. Large amounts of airborne dust or smoke from construction activities would impact airfield operations on Runway 16/34. Disturbed soil, particularly dirt and/or gravel roads need to be regularly maintained by water trucks. Impacts of open burning of noxious weeds will be minimized by employing the BMPs in the New Mexico Environment Department's (NMED) Smoke Management Program. Prior to construction or demolition at any site, a construction lay down area and haul route would be established and coordinated with 49 FW civil engineering personnel.

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APPENDIX C
LAND COMPATIBILITY GUIDELINES

LAND USE COMPATIBILITY

LAND USE		ACCIDENT POTENTIAL ZONES			NOISE ZONES			
SLUCM NO.	NAME	CZ	APZ I	APZ II	65-70	70-75	75-80	80+
10	Residential							
11	Household units							
11.11	Single units; detached	N	N	Y[1]	A[11]	B[11]	N	N
11.12	Single units; semidetached	N	N	N	A[11]	B[11]	N	N
11.13	Single units; attached row	N	N	N	A[11]	B[11]	N	N
11.21	Two units; side-by-side	N	N	N	A[11]	B[11]	N	N
11.22	Two units; one above the other	N	N	N	A[11]	B[11]	N	N
11.31	Apartments; walk up	N	N	N	A[11]	B[11]	N	N
11.32	Apartments; elevator	N	N	N	A[11]	B[11]	N	N
12	Group quarters	N	N	N	A[11]	B[11]	N	N
13	Residential hotels	N	N	N	A[11]	B[11]	N	N
14	Mobile home parks or courts	N	N	N	N	N	N	N
15	Transient lodgings	N	N	N	A[11]	B[11]	C[11]	N
16	Other residential	N	N	N[1]	A[11]	B[11]	N	N
20	Manufacturing							
21	Food & kindred products; manufacturing	N	N[2]	Y	Y	Y[12]	Y[13]	Y[14]
22	Textile mill products; manufacturing	N	N[2]	Y	Y	Y[12]	Y[13]	Y[14]
23	Apparel and other finished products made from fabrics, leather, and similar materials; manufacturing	N	N	N[2]	Y	Y[12]	Y[13]	Y[14]
24	Lumber and wood products (except furniture); manufacturing	N	Y[2]	Y	Y	Y[12]	Y[13]	Y[14]
25	Furniture and fixtures; manufacturing	N	Y[2]	Y	Y	Y[12]	Y[13]	Y[14]
26	Paper & allied products; manufacturing	N	Y[2]	Y	Y	Y[12]	Y[13]	Y[14]
27	Printing, publishing, and allied industries	N	Y[2]	Y	Y	Y[12]	Y[13]	Y[14]
28	Chemicals and allied products; manufacturing	N	N	N[2]	Y	Y[12]	Y[13]	Y[14]
29	Petroleum refining and related industries	N	N	Y	Y	Y[12]	Y[13]	Y[14]
30	Manufacturing							
31	Rubber and misc. plastic products, manufacturing	N	N[2]	N[2]	Y	Y[12]	Y[13]	Y[14]
32	Stone, clay and glass products manufacturing	N	N[2]	Y	Y	Y[12]	Y[13]	Y[14]
33	Primary metal industries	N	N[2]	Y	Y	Y[12]	Y[13]	Y[14]
34	Fabricated metal products; manufacturing	N	N[2]	Y	Y	Y[12]	Y[13]	Y[14]

LAND USE		ACCIDENT POTENTIAL ZONES			NOISE ZONES			
SLUCM NO.	NAME	CZ	APZ I	APZ II	65-70	70-75	75-80	80+
35	Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks manufacturing	N	N	N[2]	Y	A	B	N
39	Miscellaneous manufacturing	N	Y[2]	Y[2]	Y	Y[12]	Y[13]	Y[14]
40	Transportation, communications and utilities							
41	Railroad, rapid rail transit and street railroad transportation	N[3]	Y[4]	Y	Y	Y[12]	Y[13]	Y[14]
42	Motor vehicle transportation	N[3]	Y	Y	Y	Y[12]	Y[13]	Y[14]
43	Aircraft transportation	N[3]	Y[4]	Y	Y	Y[12]	Y[13]	Y[14]
44	Marine craft transportation	N[3]	Y[4]	Y	Y	Y[12]	Y[13]	Y[14]
45	Highway & street right-of-way	N[3]	Y	Y	Y	Y[12]	Y[13]	Y[14]
46	Automobile parking	N[3]	Y[4]	Y	Y	Y[12]	Y[13]	Y[14]
47	Communications	N[3]	Y[4]	Y	Y	A[15]	B[15]	N
48	Utilities	N[3]	Y[4]	Y	Y	Y	Y[12]	Y[13]
49	Other transportation communications and utilities	N[3]	Y[4]	Y	Y	A[15]	B[15]	N
50	Trade							
51	Wholesale trade	N	Y[2]	Y	Y	Y[12]	Y[13]	Y[14]
52	Retail trade-building materials, hardware and farm equipment	N	Y[2]	Y	Y	Y[12]	Y[13]	Y[14]
53	Retail trade-general merchandise	N	N[2]	Y[2]	Y	A	B	N
54	Retail trade-food	N	N[2]	Y[2]	Y	A	B	N
55	Retail trade-automotive, marine craft, aircraft and accessories	N	Y[2]	Y[2]	Y	A	B	N
56	Retail trade-apparel and accessories	N	N[2]	Y[2]	Y	A	B	N
57	Retail trade-furniture, home furnishings and equipment	N	N[2]	Y[2]	Y	A	B	N
58	Retail trade-eating and drinking establishments	N	N	N[2]	Y	A	B	N
59	Other retail trade	N	N[2]	Y[2]	Y	A	B	N
60	Services							
61	Finance, insurance and real estate services	N	N	Y[6]	Y	A	B	N
62	Personal services	N	N	Y[6]	Y	A	B	N
62.4	Cemeteries	N	Y[7]	Y[7]	Y	Y[12]	Y[13]	Y[14,21]
63	Business services	N	Y[8]	Y[8]	Y	A	B	N
64	Repair services	N	Y[2]	Y	Y	Y[12]	Y[13]	Y[14]
65	Professional services	N	N	Y[6]	Y	A	B	N
65.1	Hospitals, nursing homes	N	N	N	A*	B*	N	N
65.1	Other medical facilities	N	N	N	Y	A	B	N

LAND USE		ACCIDENT POTENTIAL ZONES			NOISE ZONES			
SLUCM NO.	NAME	CZ	APZ I	APZ II	65-70	70-75	75-80	80+
66	Contract construction services	N	Y[6]	Y	Y	A	B	N
67	Governmental services	N	N	Y[6]	Y*	A*	B*	N
68	Educational services	N	N	N	A*	B*	N	N
69	Miscellaneous services	N	N[2]	Y[2]	Y	A	B	N
70	Cultural, entertainment and recreational							
71	Cultural activities (including churches)	N	N	N[2]	A*	B*	N	N
71.2	Nature exhibits	N	Y[2]	Y	Y*	N	N	N
72	Public assembly	N	N	N	Y	N	N	N
72.1	Auditoriums, concert halls	N	N	N	A	B	N	N
72.11	Outdoor music shell, amphitheaters	N	N	N	N	N	N	N
72.2	Outdoor sports arenas, spectator sports	N	N	N	Y[17]	Y[17]	N	N
73	Amusements	N	N	Y[8]	Y	Y	N	N
74	Recreational activities (including golf courses, riding stables, water recreation)	N	Y[8,9,10]	Y	Y*	A*	B*	N
75	Resorts and group camps	N	N	N	Y*	Y*	N	N
76	Parks	N	Y[8]	Y[8]	Y*	Y*	N	N
79	Other cultural, entertainment and recreation	N	Y[9]	Y[9]	Y*	Y*	N	N
80	Resources production and extraction							
81	Agriculture (except livestock)	Y[16]	Y	Y	Y[18]	Y[19]	Y[20]	Y[20,21]
81.5 to 81.7	Livestock farming and animal breeding	N	Y	Y	Y[18]	Y[19]	Y[20]	Y[20,21]
82	Agricultural related activities	N	Y[5]	Y	Y[18]	Y[19]	N	N
83	Forestry activities and related services	N[5]	Y	Y	Y[18]	Y[19]	Y[20]	Y[20,21]
84	Fishing activities and related services	N[5]	Y[5]	Y	Y	Y	Y	Y
85	Mining activities and related services	N	Y[5]	Y	Y	Y	Y	Y
89	Other resources production and extraction	N	Y[5]	Y	Y	Y	Y	Y

SLUCM - Standard Land Use Coding Manual, U.S. Department of Transportation.
Y - (Yes) - Land use and related structures are compatible without restriction.
N - (No) - Land use and related structures are not compatible and should be prohibited.

Y^X - (yes with restrictions) - Land use and related structures generally compatible; see notes 1 through 21.

N^X - (no with exceptions) - See notes 1 through 21.

NLR - (Noise Level Reduction) - NLR (outdoor to indoor) to be achieved through incorporation of noise attenuation measures into the design and construction of the structures. See Appendix E, Vol II.

A, B, or C - Land use and related structures generally compatible; measures to achieve NLR for A(DNL 66-70), B(DNL 71-75), C(DNL 76-80), need to be incorporated into the design and construction of structures. See Appendix E, Vol II.

A*, B*, and C* - Land use generally compatible with NLR. However, measures to achieve an overall noise level reduction do not necessarily solve noise difficulties and additional evaluation is warranted. See appropriate footnotes.

* - The designation of these uses as "compatible" in this zone reflects individual federal agencies' and program considerations of general cost and feasibility factors, as well as past community experiences and program objectives. Localities, when evaluating the application of these guidelines to specific situations, may have different concerns or goals to consider.

NOTES

1. Suggested maximum density of 1-2 dwelling units per acre, possibly increased under a Planned Unit Development (PUD) where maximum lot coverage is less than 20 percent.
2. Within each land use category, uses exist where further definition may be needed due to the variation of densities in people and structures (See Vol 2, Appendix F).
3. The placing of structures, buildings, or aboveground utility lines in the clear zone (CZ) is subject to severe restrictions. In a majority of the CZs, these items are prohibited. See DODI.4165.7 for specific guidance.
4. No passenger terminals and no major aboveground transmission lines in APZ I.
5. Factors to be considered: labor intensity, structural coverage, explosive characteristics, and air pollution.
6. Low-intensity office uses only. Meeting places, auditoriums, etc., are not recommended.
7. Excludes chapels.
8. Facilities must be low intensity.
9. Clubhouse not recommended.
10. Areas for gatherings of people are not recommended.
11. a. Although local conditions may require residential use, it is discouraged in DNL 65-70 dB and strongly discouraged in DNL 70-75 dB. An evaluation should be conducted prior to approvals, indicating that a demonstrated community need for residential use would not be met if development were prohibited in these zones, and that there are no viable alternative locations.
    b. Where the community determines the residential uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) for DNL 65-70 dB and DNL 70-75 dB should be incorporated into building codes and considered in individual approvals. See Appendix E for a reference to updated NLR procedures.
    c. NLR criteria will not eliminate outdoor noise problems. However, building location and site planning, and design and use of berms and barriers can help mitigate outdoor exposure, particularly from near ground level sources. Measures that reduce outdoor noise should be used whenever practical in preference to measures which only protect interior spaces.
12. Measures to achieve the same NLR as required for facilities in DNL 65-70 dB range must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
13. Measures to achieve the same NLR as required for facilities in DNL 70-75 dB range must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
14. Measures to achieve the same NLR as required for facilities in DNL 75-80 dB range must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
15. If noise sensitive, use indicated NLR; if not, the use is compatible.
16. No buildings.
17. Land use is compatible provided special sound reinforcement systems are installed.
18. Residential buildings require the same NLR as required for facilities in DNL 65-70 dB range.
19. Residential buildings require the same NLR as required for facilities in DNL 70-75 dB range.
20. Residential buildings are not permitted.
21. Land use is not recommended. If the community decides the use is necessary, personnel should wear hearing protection devices.

Source: Holloman AFB, AICUZ Volume I Report, n.d.