AFSOC Assets Beddown at Cannon Air Force Base, New Mexico Environmental Impact Statement

July 2007

AFSOC Assets Beddown at Cannon AFB, New Mexico, EIS

Our goal is to give you a reader-friendly document that provides an in-depth, accurate analysis of potential environmental consequences. The organization of this Final Environmental Impact Statement, or Final EIS, is shown below:

Acronyms and Abbreviations can be found on the inside back cover.

How to Use This Document

This Final EIS is prepared to help the reader understand the environmental consequences of the Proposed Action to beddown Air Force Special Operations Command (AFSOC) assets at Cannon AFB. Please review Chapter 1.0 and 2.0 to learn the purpose and details of the proposed beddown.

Chapter 3.0 explains the affected environment and environmental consequences of the alternative construction and renovation to accomplish the beddown at Cannon AFB. The No Action Alternative is also addressed.

Chapter 4.0 explains the affected environment and environmental consequences of two live fire alternatives at Melrose AFR.

Chapter 5.0 explains the affected environment and environmental consequences of aircraft training within the airspace.

Chapters 6.0 and 8.0 discuss cumulative and short and long term effects, contain references, list preparers, and provide a glossary.

Chapter 7.0 contains comments on the Draft EIS from federal, state, and local agencies, and the general public.

In addition to the main text, a series of appendices describe chaff and flares, public involvement, regulations, airspace operations, noise analysis, and provide guidelines for range management.

The box to the left summarizes the Final EIS contents.

Cover Sheet

ENVIRONMENTAL IMPACT STATEMENT FOR AFSOC ASSETS BEDDOWN AT CANNON AFB, NEW MEXICO

a. *Responsible Agency:* United States Air Force

b. *Cooperating Agency:* None

c. *Proposals and Actions:* This Final Environmental Impact Statement (EIS) analyzes a proposal to beddown, or locate, Air Force Special Operations Command (AFSOC) assets at Cannon Air Force Base (AFB) and Melrose Air Force Range (AFR) and to train these assets primarily in airspace scheduled by Cannon AFB. The Secretary of Defense designated the AFSOC mission to Cannon AFB pursuant to his duties under the recommendations of the Base Realignment and Closure Commission. The proposal assigns approximately 108 AFSOC aircraft to Cannon AFB, although 25 to 33 percent could be deployed at any given time. The 27th Fighter Wing 60 F-16 jets currently assigned to Cannon AFB would be replaced by AFSOC turboprop aircraft (C-130s with varying missions, CV-22s, Predator Unmanned Aerial Systems, and additional aircraft). The current flight operations at Cannon AFB would be reduced approximately 40 percent. The West Flightline Alternative would involve military construction (MILCON) and operations and maintenance (O&M) costs totaling $840 million across the six-year Future Years Defense Program (FYDP). The preferred East and West Airfield Alternative would involve MILCON and O&M costs of $965 million across the FYDP. However, of these amounts, only a portion would be unique to the AFSOC assets beddown at Cannon AFB. The majority of this money is already programmed for operations regardless of basing. Resources of this magnitude are going to be required regardless of where the AFSOC growth is based. The Proposed Action would include new equipment and personnel increases from 4,147 to 5,360 plus an estimated 320 contract personnel between 2005 and 2011. This would be comparable to personnel levels during the Cannon AFB F-111 mission through 1994. Training would occur within the 60,010 acre Melrose AFR using the preferred two live-fire target areas. A Three-Target Alternative is also evaluated. Live-fire targets would involve high-explosive (HE) and incendiary munitions from 30 up to 105 millimeter (mm) from AC-130 gunships. An estimated $30 million of MILCON projects on the range would relocate facilities, improve fire management, and build new target areas. An expanded small arms range for personnel training would be constructed at the existing small arms range. Landing zones (LZs) for aircraft and helicopters and approximately 50-acre drop zones (DZs) would be located on the range. Military training airspace would have an annual average of 40 percent of flights occurring during environmental night (between 10 p.m. and 7 a.m.). Military Training Route (MTR) training flights would normally be from 4 to 5 hours long with aircraft between 100 and 1,000 feet above ground level (AGL). Night flights on most MTRs could increase from effectively none to 1,000 or more per year. Overall, AFSOC would use less defensive chaff and flares. AFSOC proposes to utilize area lakes for water training and to identify additional off-range locations for LZ/DZ training. The No Action Alternative means that Cannon AFB would become an AFSOC installation with no beddown of AFSOC assets.

d. *Inquiries:* For further information on this Final EIS, contact Mr. Carl Hoffman, AFSOC Assets Beddown EIS Project Manager, 427 Cody Avenue, Suite 303, Hurlburt Field, FL 32544-5434. Telephone inquiries may be made to Denise Boyd, HQ AFSOC Public Affairs at (850) 884-5515. The Final EIS may be found at http://www2.afsoc.af.mil/fonsi. A Record of Decision (ROD) will be issued no earlier than 30 days following the publication of the Final EIS.

e. *Designation:* Final Environmental Impact Statement

f. *Abstract:* This Final EIS has been prepared in accordance with the National Environmental Policy Act. Public and agency scoping resulted in the analysis of the following environmental resources: airspace management and air traffic control, noise, safety, air quality, physical (including hazardous materials and waste), biological, cultural, land use, ranching, transportation, and recreation, socioeconomics and environmental justice. **Cannon AFB** economic activity would increase in Curry and Roosevelt counties. Noise, safety, and other resources around and on the base would not be impacted. An airspace transit area to permit UAS transit from Cannon AFB to Melrose AFR could inconvenience, but not significantly impact, some general aviation. **Melrose AFR** training would increase targets, exposed soils, munitions debris, noise, and safety requirements on the range. Munitions noise could impact some residences on the periphery of the range. Expansion of the Exclusive-Use area on the range would impact lessees who use range buffer areas for grazing and agriculture. Natural biological or cultural resources would not be significantly impacted by the change in training. **Airspace** Military Operations Area (MOA) and MTR training activity would increase. Noise levels on MTRs and under MOAs would noticeably increase and would be expected to result in some increased annoyance. Use of water areas for training would increase activity and noise. Water training would need to be scheduled to mitigate impacts on biological species or recreationalists. **Cumulative** federal and non-federal actions would not be expected to result in significant impacts.

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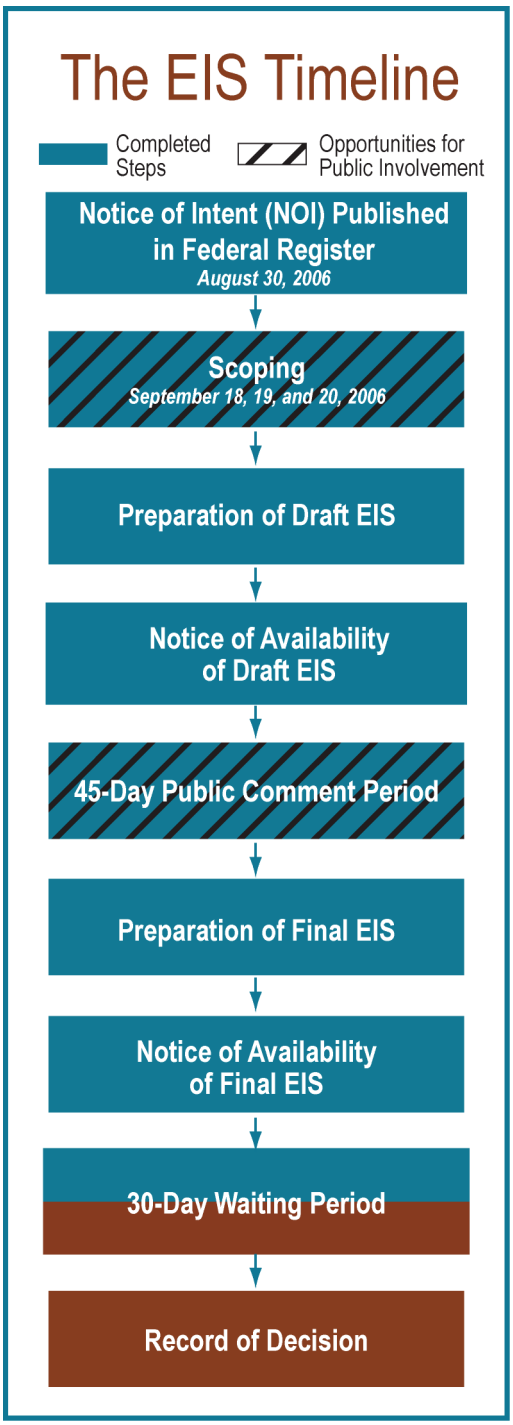
Environmental Impact Analysis Process

An Environmental Impact Statement (EIS) provides a full and fair discussion of a project's potential environmental consequences. This EIS considers alternative facilities at Cannon Air Force Base (AFB) and alternative targets at Melrose Air Force Range (AFR). The No Action Alternative means that AFSOC assets would not be located at Cannon AFB. Preparation of an EIS involves several steps.



1. *Announce that an EIS will be prepared.* A Notice of Intent was published in the *Federal Register*.
2. *Conduct scoping.* The Air Force initiated the Interagency and Intergovernmental Coordination for Environmental Planning (IICEP), submitted letters to local, state, tribal and federal agencies informing them of the Air Force's intent to prepare this EIS, and conducted public scoping meetings.
3. *Prepare and Distribute Draft EIS.* The Draft EIS was distributed to agencies, regional libraries, and members of the public who requested copies to ensure the widest dissemination possible.
4. *Public/Agency Review.* The 45-day review period began when the Notice of Availability (NOA) for this Draft EIS was filed in the *Federal Register*. Public hearings provided direct feedback to the Air Force. Comments were accepted throughout the public comment period.
5. *Prepare Final EIS.* The Final EIS includes all written comments, verbal testimony, and Air Force responses. An NOA was published in the *Federal Register* to announce availability of the Final EIS. The NOA begins a 30-day waiting period.
6. *Issue Record of Decision.* The Record of Decision (ROD) may be signed after the 30-day waiting period. The ROD identifies which action has been selected by the Air Force decisionmaker and what mitigation or other measures would be carried out to reduce, where appropriate, adverse impacts to the environment.

EXECUTIVE SUMMARY

The Secretary of Defense (SECDEF) designated the Air Force Special Operations Command (AFSOC) mission to Cannon Air Force Base (AFB) pursuant to his duties under the recommendations of the Base Realignment and Closure (BRAC) Commission approved by Congress and the President (Department of Defense [DoD] 2005). This Environmental Impact Statement (EIS) analyzes the potential environmental consequences of a proposal to beddown, or locate, AFSOC assets at Cannon AFB and Melrose Air Force Range (AFR), New Mexico, and to train these assets in special use airspace and Military Training Routes (MTRs) currently coordinated by the 27th Fighter Wing (27 FW) and to be scheduled by AFSOC personnel at Cannon AFB.

This EIS has been prepared in accordance with the National Environmental Policy Act (NEPA) and its implementing regulations. This EIS incorporates public and agency comments on the Draft EIS and identifies a preferred base and range alternative. This Final EIS with public and agency comments on the Draft EIS will be considered in decision making on the AFSOC proposal.

PURPOSE AND NEED

The proposed beddown of AFSOC assets at Cannon AFB would implement the SECDEF's designation by determining how to beddown AFSOC assets at Cannon AFB. Cannon AFB, Melrose AFR, and operations airspace provide locations to base AFSOC assets and to train to meet expanding mission requirements. These requirements include the types of terrain, aircraft, operating conditions, and targets currently and projected to be part of AFSOC operations. AFSOC provides United States Air Force (Air Force) Special Operations Forces (SOF) for worldwide deployment and assignment to regional unified commands. Training for Cannon AFB assets would involve all phases of the operational use of personnel, equipment, and munitions, including weapons and tactics test and evaluation. Operational training includes forward presence and engagement, information operations, precision employment and strike, and SOF mobility.

AFSOC needs facilities and training opportunities beyond those available at Hurlburt Field, Florida, to accommodate additional growth through 2013. Force structure increases and additional training requirements establish a need for Cannon AFB and Melrose AFR for the following reasons:

a. Quality of flying training in the southeast United States (U.S.) is not representative of on-going real-world deployments that support the War on Terrorism.

b. Increased competition for Eglin range time with the addition of the new F-35 Joint Strike Fighter and other BRAC actions would limit AFSOC training.

c. A one-base Major Command (MAJCOM) at Hurlburt Field makes it vulnerable to a catastrophic event (i.e., Hurricane Andrew or Katrina).

AFSOC requires additional facilities and training opportunities. The Proposed Action implements the SECDEF designation of AFSOC as the new mission for Cannon AFB and resolves AFSOC needs. The final BRAC report (2005) from the BRAC Commission to the President recommended Cannon AFB remain open until at least 31 December 2009. In the interim, the SECDEF was to seek other missions for assignment to Cannon AFB.

Missions for Cannon AFB were sought and evaluated consistent with the recommendations of the BRAC Commission. As a result of this search, AFSOC was designated as the new mission for Cannon AFB and Melrose AFR.

Proposed Action and Alternatives

The beddown proposal transfers approximately 108 AFSOC Primary Aircraft Inventory (PAI) to Cannon AFB over a period of approximately 6 years. Approximately 25 to 33 percent of the aircraft could be deployed off-station at any given time. Under BRAC, Air Combat Command (ACC) would deactivate the 27 FW at Cannon AFB and relocate the 60 F-16 PAI currently assigned to Cannon AFB.

AFSOC mission aircraft would be C-130 aircraft with varying mission requirements, CV-22 tilt-rotor aircraft, Predator Unmanned Aerial Systems (UAS), and miscellaneous additional aircraft. The AFSOC aircraft assets are turboprop aircraft, as compared to the F-16 jet aircraft.

Two alternatives are assessed for facilities at Cannon AFB: the West Flightline Alternative and the East and West Airfield Alternative. Under the West Flightline Alternative, construction and renovation would occur at Cannon AFB between 2008 and 2013 of approximately $310 million worth of military construction (MILCON) projects plus $530 million worth of operations and maintenance (O&M). However, of these amounts, only a portion would be unique to the AFSOC assets beddown at Cannon AFB. The majority of this money is already programmed for operations regardless of basing. Resources of this magnitude are going to be required regardless of where the AFSOC growth is based. These projects would occur within approximately 342 previously disturbed acres on the north side of the base.

The preferred alternative is the East and West Airfield alternative. Under the East and West Airfield Alternative, construction and renovation would occur at Cannon AFB between 2008 and 2013 of approximately $435 million worth of MILCON projects plus $530 million worth of O&M. Again, of these amounts, only a portion would be unique to the AFSOC assets beddown at Cannon AFB. The majority of this money is already programmed for operations regardless of basing. Any additional MILCON needed to support the Preferred Alternative will be pursued through future programming. Resources of this magnitude are going to be required regardless of where the AFSOC growth is based. Approximately 284 acres on the south side of the base (unimproved disturbed grasslands) would additionally be disturbed for facility construction.

Flight operations by AFSOC aircraft at Cannon AFB would be approximately 60 percent of the current approach/departure and closed pattern operations experienced during 27 FW training.

Mission personnel assigned to Cannon AFB and contractor personnel could increase from 4,467 personnel to 5,680 between Fiscal Year (FY) 2005 and FY 2011. A dip in personnel could occur in FY 2007 to 3,186 personnel assigned. Personnel assignments would be determined by annual federal budget appropriations. Ultimately the assigned AFSOC personnel are projected to be approximately the number of assigned personnel during the F-111 mission through 1994.

AFSOC training would generally occur within the 60,010 acres that constitute Melrose AFR. Responsibilities and procedures for the maintenance, operation, and use of Melrose AFR as defined in Air Force Instruction (AFI) 13-212, Volume 1, ACC Supplement 1, Cannon AFB Addendum A ("Cannon Addendum") would be replaced with a new supplement to reflect AFSOC's new role as range manager, subsequent to transfer of the range from ACC. The AFSOC Cannon Local Range Supplement will be developed to reflect the more substantive

range changes that are the subject of this EIS, subsequent to issuance of the Air Force's Record of Decision (ROD).

Two alternatives are assessed for the 60,010-acre Melrose AFR: a Two-Target and a Three-Target Alternative. The preferred alternative is the Two-Target Alternative. Under the Two-Target Alternative, two new live-fire target complexes would be established. The Three-Target Alternative would create three new live-fire target areas. Either alternative would involve live munitions from 30 up to 105 millimeter (mm) high-explosive (HE) and incendiary munitions from AC-130 gunships. The use of these munitions within Melrose AFR would affect management of the range and grazing allotments. Melrose AFR is currently divided into Exclusive-Use, Restricted Leasing for agriculture, and Unrestricted Leasing for agricultural categories. The Exclusive-Use area contains current targets available for military training by F-16, other aircraft, and AFSOC SOF training. Exclusive-Use areas would be expanded for safety around live-fire targets. An estimated $30 million of MILCON projects on the range would include new fire management capabilities, construction of new targets, and other improvements. An aircraft and helicopter prepared landing zone (LZ)/drop zone (DZ) affecting approximately 50 acres could be located on the range away from live-fire targets. Vertical landing aircraft such as the CV-22 could also land at unprepared locations on the range. The current small arms range would be enhanced to support SOF and Army National Guard.

Cannon AFB schedules the restricted airspace supporting Melrose AFR, Military Operations Areas (MOAs), and MTRs. AFSOC aircraft missions require an annual average of 40 percent of their flights to occur during "environmental night" (10:00 p.m. to 7:00 a.m.). The majority of the airspace currently has relatively few night training flights. Night flights on some MTRs could increase from effectively none to 1,000 or more per year. MTR training flights would normally be from 4 to 5 hours with aircraft between 100 and 1,000 feet above ground level (AGL) and usually at 250 feet AGL or higher. Air refueling locations would be coordinated with FAA as the existing aerial refueling (AR) track (AR-602) is at too high an altitude for some AFSOC aircraft.

Defensive chaff and flares would be used by AFSOC aircraft during training. The current chaff use is 48,617 bundles released by aircraft per year, and the current flare use is 32,230 bundles per year. AFSOC training is projected to reduce chaff and flare use to 36,000 chaff bundles and 24,000 flares released by aircraft annually. The distribution of chaff and flare use would change, with an estimated four times the current number of chaff bundles and flares used in restricted airspace over Melrose AFR and a proportionate decrease in chaff and flare use within the MOAs. M-206 or equivalent flares would be used in the assessed MOAs above 2,000 feet AGL and would be used above 5,000 feet AGL when the National Fire Danger Rating System indicates high fire conditions or above.

AFSOC proposes establishing a transit area between Cannon AFB and the restricted airspace associated with Melrose AFR. The Predator UAS is only authorized to fly in the National Airspace System under a Certificate of Waiver or Authorization (COA) issued by the Federal Aviation Administration (FAA). Compliance with the COA is mandatory and would be expected to establish an equivalent level of safety to the "see and avoid" requirements of FAR 91.113.

SOF missions include infiltration, exfiltration, re-supply, and refueling. Training activities could include additional LZs, DZs, and water training locations for infiltration and amphibious training outside of Cannon AFB or Melrose AFR. Operational and safety consideration require

that LZ, DZ, or water training be located in an area free from obstructions, be within a one to two-hour drive from Cannon AFB, avoid populated, noise-sensitive, or residential areas, and be located in a relatively flat area away from city lights. Identification of LZ, DZ, or water training locations would occur with agencies and/or property owners and involve evaluation of cultural, natural, hazardous, and other site environmental resources. All applicable environmental analyses and permitting would be followed in LZ, DZ, or water training site selection. This analysis would be completed once developmental CV-22 operational capabilities and requirements for LZs/DZs are determined. Some types of training, such as open water training or mountaineering, would be conducted while personnel are on assignment to existing training locations.

The No Action Alternative included in this EIS addresses the conversion of Cannon AFB with a SECDEF mission designation to AFSOC, but no action to transfer AFSOC assets to Cannon AFB. For the purposes of this analysis, No Action would result in no movement of AFSOC assets to Cannon AFB and AFSOC would maintain and operate the properties. With regards to Melrose AFR, no Cannon AFB assets would train at the range. New Mexico Air National Guard (NMANG) and transient aircraft would continue to use the airspace and Melrose AFR. No action would reduce personnel levels to approximately 150 between 2007 and 2009. These 150 personnel would support base infrastructure and range operations. Flight operations would consist of transient aircraft.

Environmental Consequences

Airspace Management and Air Traffic Control

Base. Other than adjustments made to reflect the transition from supersonic F-16 fighters to turboprop fixed-wing aircraft, airspace management and air traffic control procedures in the vicinity of Cannon AFB would not change with the beddown of AFSOC assets under either the West Flightline Alternative or East and West Airfield Alternative. Airfield operations would be reduced by approximately 40 percent annually.

Range. Management of Melrose AFR would be performed by AFSOC personnel at Cannon AFB. Other than adjustments made to reflect the transition from supersonic F-16 fighters to turboprop fixed-wing aircraft, airspace use and management would remain unchanged from current conditions. An LZ/DZ at Melrose AFR would be scheduled consistent with other Melrose AFR training activities. A 2-mile wide UAS transit area between Cannon AFB and Melrose AFR, parallel to and south of Highway 60 for a distance of about 20 miles, with an operating altitude between 10,000 and 16,000 feet above mean sea level (MSL), would permit the normal flow of civil aviation parallel to the proposed UAS transit area and traffic perpendicular to the transit area at an altitude above or below that proposed for UAS transit. A COA for this transit area would not be expected to significantly affect general aviation, but specific north-south flights may elect to avoid airspace potentially occupied by a UAS.

Airspace. Increased annual sortie operations in the MOAs would not be expected to affect airspace management. AFSOC training would involve a substantial increase in use of the MTRs including sorties of fixed-wing turboprop aircraft. Four- to five-hour training missions would fly between 100 and 1,000 feet AGL and usually at 250 feet AGL and higher. During night missions, these altitudes on MTRs would be below altitudes used by general aviation. During daylight missions, low-altitude general aviation aircraft such as agricultural aircraft could be encountered at training altitudes. The C-130 and CV-22 aircraft have a pilot and co-pilot that support see-and-avoid procedures during daylight and night operations. LZ, DZ, and water

training could involve landing at locations not currently used by aircraft. Coordination with FAA would be initiated as part of the identification of LZ, DZ, or water training. AR tracks would be coordinated with FAA when CV-22 operational capabilities are determined.

Noise

Base. Noise levels in the vicinity of Cannon AFB would generally be reduced in nearly all areas when compared with current conditions. The reduction in noise is primarily due to the quieter AFSOC aircraft and fewer operations when compared to current jet aircraft. The exception is one area to the northeast of Cannon AFB which would be exposed to additional 65 decibel (dB) noise contours. Short-term construction noise may also be anticipated. Base noise would be essentially the same under the West Flightline Alternative or the preferred East and West Airfield Alternative.

Range. Under the preferred Two-Target Alternative, noise would increase on Melrose AFR and on properties proximate to the range. Aircraft noise from AC-130 aircraft orbiting at an altitude of approximately 6,000 to 11,000 feet AGL, in combination with noise levels from existing NMANG and transient aircraft training, would increase noise levels under Restricted Airspace and the Taiban MOA to an annual Day-Night Average Sound Level (L_{dn}) 55 to 58 dB noise level. This increase in noise from of the existing L_{dn} 44 to 51 dB could be noticed and be annoying to or impact residents under the Restricted Airspace or the Taiban MOA. Impulse noise from AFSOC munitions use during training on Melrose AFR is projected to create a C-weighted Day-Night Average Sound Level (CDNL) 62 C-weighted decibel (dBC) contour primarily over the range. The 62 dBC (comparable to L_{dn} 65) contour is used as a contour for addressing the potential for significant impacts. No ranches are within the 62 dBC contour. Experience with HE munitions at Eglin AFB demonstrated that persons within approximately 6 miles of the targets could experience an impulse sound comparable to strong knocking on a door and feel a vibration comparable to distant thunder. Impulse noise would not be expected to cause damage to a structure or its contents, but when heard and felt, especially during night hours, such noise could cause annoyance to residents and be perceived by residents as a significant impact. Domestic or wild animals in areas subject to aircraft operations or impulse noise would be expected to avoid the specific impact area and habituate to noise levels. Penned cattle approximately 3 or more miles from the impact areas would not likely be affected by noise or vibration from HE rounds beyond those distances. Under the Three-Target Alternative, live munitions use would occur at three locations. Aircraft noise and impulse noise would affect a greater area as target usage would be spread out over three targets instead of two. Target construction noise would not be expected to extend beyond the boundaries of the 60,010-acre range under either the Two-Target or Three-Target Alternative. The proposed expanded small arms range would increase noise from various size weapons up to 50 caliber machine guns. This noise would be less than the noise from munitions usage on live-fire targets, but could still result in annoyance to residents in the periphery of the range.

Airspace. Average noise levels in Pecos (Day-Night Average Sound Level [L_{dn}] 45), Mt. Dora (L_{dn} 36), and Taiban (L_{dn} 55) MOAs would increase, however they would generally not be above L_{dn} 55 dB. MTRs would have substantially greater aircraft activity than at present, especially at night. Applying the night penalty of L_{dn} 10 dB to flights between 10:00 p.m. and 7:00 a.m. results in certain MTR segments having increased noise levels from ambient and No Action conditions in the L_{dn} 25 to 36 dB range to average noise levels in the 49 dB range. Some of the MTRs with combined routing or bi-directional routing could experience an average of four overflights per environmental night (between 10:00 p.m. and 7:00 a.m.). Although many of the

MTRs are up to 20 miles wide, and the training aircraft could be flying anywhere along the route, some segments of some routes will experience substantial changes from ambient conditions. This noise would not be at sustained levels that could damage human health, but the noise could result in annoyance and noise complaints from residents under the MTRs. AFSOC would coordinate with representatives of national forests and grasslands to address noise complaints from the public. LZ, DZ, and water training locations would be subjected to increased noise from C-130, CV-22, other aircraft, or group activities. LZ and DZ locations would be identified to avoid, to the extent possible, noise impacts upon local residents. The four water locations available for the four projected monthly training events could experience C-130, CV-22, and night training activity. Training could produce sufficient noise to be perceived as an intrusion and annoyance to residents and recreationalists.

Safety

Base. C-130 aircraft have an excellent safety record of less than one Class A accident per 100,000 flight hours. The current F-16 Class A accident rate is 3.6 per 100,000 flight hours. CV-22 aircraft are a new complex system. Class A mishap rates have not yet been calculated for CV-22 aircraft because they have not yet accumulated 100,000 flight hours. Normally the mishap rate for new aircraft is higher until the aircraft becomes operationally mature. The combined safety effect of the C-130 and CV-22 base operations plus other aircraft assigned to Cannon AFB is expected to be comparable to the F-16 safety at Cannon AFB. Airfields have safety zones at the ends of runways. Construction of new buildings or facilities would not take place in safety zones and would be consistent with the Base General Plan and safety procedures. Ground safety, aircraft safety, and bird aircraft strikes for either the West Flightline Alternative or East and West Airfield Alternative are not expected to be measurably different from baseline conditions. Under either alternative, base safety procedures would be developed to address changing munitions needs for Melrose AFR training.

Range. Melrose AFR live-fire and use of HE munitions training would increase the Exclusive-Use Areas where non-participating personnel and ranching operations would not be permitted. The 60,010-acre range currently has 8,800 acres of Exclusive-Use Area. Under the Preferred Two-Target Alternative, there would be an estimated 10,600 Exclusive-Use acres and under the Three-Target Alternative, there would be 12,700 Exclusive-Use acres. The Exclusive-Use acreage would come from current restricted and/or unrestricted grazing areas. The existing Melrose Range Management Plan would be updated to address the use and management of live ammunition and the range residue associated with this change in use. AFSOC has proposed adoption of continued and expanded fire management practices, including grading of firebreaks, clearing of vegetation around targets, and aggressive reduction of weedy plants. This would improve fire management on Melrose AFR. Training of SOF and other personnel on the expanded small arms range would include use of small arms, live explosives, and flares. This training on Melrose AFR would not be conducted in areas where unexploded ordnance (UXO) was known to be present. Aircraft flares used over the range would be treated as other munitions. Ground safety for the Two-Target and Three-Target Alternatives would be comparable, except an additional target area would require aggressive fire management.

Airspace. Within the MOAs and the MTRs, national forests, national monuments, and state parks would be avoided by 2,000 feet AGL. AFSOC would coordinate with representatives of national forests and grasslands to address noise complaints from the public. Aircraft safety is not expected to be measurably different from baseline conditions. Bird-aircraft strikes of small night-migrating songbirds could increase with the MTR low-level flights. Aircraft safety within

the training airspace would be enhanced by the improved situational awareness of the two-pilot C-130 and CV-22 aircraft. No safety consequences from continued and reduced chaff and flare use are anticipated in the MOAs. LZ, DZ, and water training would include safety procedures to protect nonparticipating personnel and vehicles.

Air Quality

Base. The air quality region that includes Cannon AFB is in attainment for all pollutants. Emissions associated with construction under the West Flightline Alternative or East and West Airfield Alternative would increase ambient air pollutant concentrations on a localized and short-term basis. These emissions would not result in any significant air quality impacts. Operational emissions from the West Flightline Alternative or East and West Airfield Alternative would be expected to decrease with new facilities and the different types of aircraft. Operational emissions would not produce any significant air quality impacts.

Range. Air emissions under the aircraft and munitions use of the Two-Target Alternative or Three-Target Alternative combined with soils disturbance for targets and fire management would increase particulates, but not be expected to exceed any emission significance thresholds. No significant air quality impacts are projected in or around Melrose AFR. Chaff and flare residue would not be expected to change air quality conditions.

Airspace. Air pollutant emissions associated with the AFSOC training would not have an effect upon ambient air conditions within the MOAs or MTRs.

Physical Resources (including Hazardous Materials and Waste)

Base. The generally flat terrain at Cannon AFB would support construction with relatively little cut and fill. Any effects upon soils would be localized and would not result in any significant impacts to water resources or other resources. Any stormwater runoff associated with additional impervious surface area would be addressed through management practices. All hazardous materials and construction debris generated by the construction projects would be handled, stored, and disposed of in accordance with federal, state, and local regulations. Facility demolition would generate solid wastes that would be deposited at the Cannon AFB Recycling Center or the Clovis Regional Landfill. The base Environmental Restoration Program (ERP) office would request a waiver from the state to construct on or near six ERP sites under the West Flightline Alternative or East and West Airfield Alternative.

Range. The potential impacts to physical resources, primarily soil and water, would be from residual munitions materials or from chaff and flare materials falling to the ground. There are no current live munitions used at Melrose AFR except the white phosphorus rocket and defensive flares. AFSOC training would reduce the total use of training chaff and flares when compared with 27 FW usage. The distribution of chaff and flare use would change. The amount of chaff or flare materials proposed for use over Melrose AFR would quadruple when compared with current conditions. Chaff rapidly breaks down to the common elements of silica and aluminum. Any fire in the arid east New Mexico environment has the potential to detrimentally affect soils, vegetation, and other resources. Improved fire management procedures would aid in protecting Melrose AFR and off-range resources from fire caused by munitions or other sources. Non-irrigated soils representative of those on the range are highly susceptible to erosion due to persistent winds of the plains. Exposed soils associated with targets or other range activities such as fire breaks could result in increased wind erosion.

Live-fire training would increase chemicals from munitions, lead, and other heavy metals and potentially affect soil and water chemistry on the range. Expanded explosive ordnance disposal (EOD) range clearance would be required in accordance with AFI 13-212. HE munitions use on the range could add approximately 250 acres (Two-Target) or 750 acres (Three-Target) requiring EOD clearance. Up to an additional 3,200 acres would have increasing lead munitions from the small arms range. Hazardous materials and chemical residues resulting from HE munitions would be managed through the Cannon AFB hazardous materials management program. Live-fire training would impact soils with HE chemical residues. Migration of HE residues into ground or surface waters is not expected due to the depth to groundwater under Melrose AFR. Enhanced fire management programs would apply to all target areas to reduce the potential for munitions-caused impacts.

Airspace. Overflight activities would not cause disturbances to the ground. LZ and DZ construction would occur on permitted or leased land in accordance with Best Management Practices (BMPs). Water training activities would occur within the four existing lakes as coordinated with lake management agencies. Water training and LZs supporting water training could increase the amount of fuel and other products near reservoirs. Procedures would be included in water training to ensure that no fuel spills or debris was deposited in the water bodies. Chaff and flare use would decrease in the airspace except under the restricted airspace. No significant impacts to physical resources are expected.

Biological Resources

Base. The West Flightline Alternative or East and West Airfield Alternative would be constructed on existing disturbed areas within Cannon AFB boundaries. No wetlands or other jurisdictional water bodies fall within the construction footprints of the West Flightline Alternative or East and West Airfield Alternative. Any construction disturbance would be minor and have no significant impact on species distribution or abundance.

Range. Operations would involve a mix of aircraft and ground-based activities over and on Melrose AFR. Changes associated with aircraft operations under the Two-Target Alternative or Three-Target Alternative would be related to lower overflights, landings, and takeoffs of C-130 and CV-22 aircraft on the range LZs, DZs, and live-firing exercises. These activities would exceed the current conditions. Target reconstruction, reconfiguration, and cleanup would create an increase in visual and noise disturbance caused by humans, with a minor impact on wildlife species occupying the adjacent habitat. No target areas would be located near surface water areas or seasonally active drainages on Melrose AFR. Direct mortality of individual organisms would be less than significant after development of the new target complexes. Target areas would be avoided by large nocturnally active species such as pronghorn and mule deer. The degree of habitat disturbance and the residual chemicals and materials from munitions use have the potential to impact wildlife within the area. Disturbance-related behavioral and ecological changes in wildlife could include changes in home range and abandonment of habitats. These changes will vary with wildlife species group and wildlife species. Physiological stress changes would be difficult to quantify.

Long-term effects of aircraft and ground training activities would include localized species loss, species displacement, and a modification of ecological community structure at Melrose AFR. Recent monitoring at Melrose AFR revealed the presence of lesser prairie-chickens (federal candidate, New Mexico state sensitive). Surveys are being conducted and a candidate species plan will be prepared. No other federal or state listed endangered, threatened, or candidate

species identified for Curry or Roosevelt counties have been observed at Melrose AFR. No critical habitat is present on the range. Aircraft and SOF training associated with the Two-Target Alternative or Three-Target Alternative is not expected to have an impact upon threatened or endangered species. The increased chaff and flare use over Melrose AFR would not be expected to impact biological systems. There would be no significant adverse effects of the military readiness activities described in this EIS on any population of resident or migratory birds.

Airspace. AFSOC aircraft produce less noise and fly at slower speeds, with a slower onset of the noise than jet aircraft currently operating in the airspace or on the MTRs. AFSOC aircraft would spend more time training at lower altitudes in MTRs than at current conditions. Although the total number of bird-aircraft strike hazard (BASH) incidents is not expected to be great and would not approach a measurable effect on bird populations, the number is expected to increase from that of 27 FW safety experience. Wildlife respond more to noise from helicopters than fixed-wing aircraft. This response is attributed to the noise of rotors, coupled with the response to the visual aspect of the helicopters. The CV-22 tiltrotor, when flying in the aircraft mode, does not produce the same noise signature as a helicopter. CV-22 training in support of LZ, DZ, or water activities, however, would be conducted in the helicopter mode. Increased night use could disturb nocturnal species. Water training would occur on existing lakes that are part of the migratory flyway and over-wintering areas for Bald Eagles. Water training would be expected to disturb water fowl similar to a disturbance from fast moving boats and result in wildlife nesting at less disturbed parts of the lake. The reduced use of chaff and flares within the MOAs, combined with the overall lack of effect of chaff or flare residual materials on species, would result in no significant impacts from chaff or flares on biological resources. Based on proposed training activities and projected species behavior, training overflights may affect, but are not likely to adversely affect, sensitive species including wintering Bald Eagles, Mexican spotted owls, or lesser prairie-chickens.

Cultural Resources

Base. Cannon AFB inventoried structures date from World War II and the Cold War era. Five World War II era buildings may be eligible for the National Register of Historic Places (NRHP). None of the buildings proposed to be directly affected by construction under the West Flightline Alternative or East and West Airfield Alternative is eligible for the NRHP. Previously unknown or unrecorded resources could be present under ground, and in the unlikely event that such unrecorded or unevaluated cultural resources are encountered during construction, Cannon AFB would manage these resources in accordance with the Cannon AFB Cultural Resources Management Plan (CRMP).

Range. No NRHP-eligible buildings are located on Melrose AFR. Sixty of the 240 archaeological sites within the 60,010-acre range -are eligible for the NRHP. Impacts to all NRHP-eligible archaeological resources within the Exclusive-Use area have been mitigated. Prior to construction of the targets, an archaeological review would be conducted to identify any archaeological sites within areas selected for target construction under the Two-Target Alternative or Three-Target Alternative.

Airspace. The proposed UAS corridor would not affect cultural resources. LZ, DZ, or water locations for training would be surveyed for cultural or paleontological resources prior to agreements for their use. Training activities on MTRs would not be expected to impact historical or cultural resources. State parks associated with lakes identified for water training

have documented cultural and paleontological resources. Use of existing boat ramps and already disturbed recreational beaches could avoid impacting such resources.

Land Use, Ranching, Transportation, and Recreation

Base. Under the West Flightline Alternative, on-base land uses would be consistent with the Cannon AFB Base General Plan. Under the preferred East and West Airfield Alternative, additional areas would be designated for flightline uses on the south side of the base. Highway access to this area would be by a new perimeter road on the base. An emergency access gate would be constructed on the south side of the base. Existing or projected land uses would be consistent with Cannon AFB development goals. 65 dB noise contours would be generally reduced and would not be expected to change the underlying use of the land. Under either alternative, additional traffic volumes may be expected but would be accommodated under the existing road structure. The projected traffic increase would continue to be met by existing roadways.

Range. Under the preferred Two-Target Alternative, modification to the existing Melrose AFR land use designations would occur. The Exclusive-Use area would increase in size to include the area where UXO could occur. Land use on Melrose AFR currently consists of approximately 8,800 acres of Exclusive-Use area, 18,710 acres of Restricted Leased Grazing, and 32,500 acres of Unrestricted Leased Grazing. Under the preferred Two-Target Alternative, the Exclusive-Use area would increase in size to an estimated 10,600 acres and the Restricted Leased Land would be reduced to 18,600 acres. The Unrestricted Leased Lands would decrease to 30,810 acres. Under the Three-Target Alternative, the Exclusive-Use impact area would increase in size to 12,700 acres, Restricted Leased Land would be reduced to 23,300 acres, and Unrestricted Leased Lands would decrease to 24,010 acres. New impulse noise and vibration effects would be heard and felt off the range. These effects would not be expected to change general land use patterns, land ownership, or land management, although individuals living within 6 miles of new range targets could be annoyed. Chaff would not be expected to cause a significant impact on land resources or land uses. Improved fire management would reduce the risk to property owners from fires on Melrose AFR.

Airspace. Land under Cannon AFB-scheduled airspace is predominantly agricultural, especially rangeland. Population density reflects the intensity of agricultural use. There are 11.8 persons per square mile under the Bronco MOA, 1.0 under the Mt. Dora MOA, and 0.7 under the Pecos MOA. Population densities under the MTRs are between those of the Pecos and Mt. Dora MOAs. Land is primarily private, with some state and federal parcels and land uses. The proposed training would not be expected to affect land access or place restrictions on any property outside of the Melrose AFR. Such economic activities as the building of wind farms, radio or cellular phone transmission towers, or similar structures would be required to meet FAA standards and would be identified as avoidance areas for training AFSOC aircraft. Cannon AFB would continue to work with federal, state, and local agencies to identify the impacts caused by the development of tall structures to Cannon AFB operations and training. Recreational hunting currently occurs in areas under MOAs with low-level overflight to 500 feet. Additional noise in MTRs could result in increased annoyance, although the noise is not at the level that would damage human health. Training LZ and DZ sites would be selected to avoid noise effects on nearby land uses. The limited number of reservoirs for water training would mean that water training could affect recreational and other lands along the banks of reservoirs. This noise could result in increased annoyance, although the noise would not be at a level that would damage human health. Coordination with reservoir land use managers will be

initiated by AFSOC. Amendments to park management plans would be anticipated to permit low-altitude overflights, CV-22 landings, and other water training activities. Neither chaff nor flares would be used in conjunction with water training. The three to four pieces of residual plastic or aluminum-coated material from each flare and the plastic pieces and chaff particles from each chaff bundle used in assessed training airspace would not result in impacts to range cattle or other native or non-native species. Fuel loss during in-flight refueling missions would be minimal, estimated to be one gallon per refueling exercise, and would normally vaporize before reaching the ground. Fuel would not be jettisoned by AFSOC aircraft except in an emergency situation. AFSOC training activities within the airspace could result in annoyance to individuals who experience noise, vibration, low-level night overflights, or find pieces of chaff or flare residual materials. None of these events would be expected to significantly affect overall land use or land ownership within the area.

SOCIOECONOMICS

Base. The AFSOC beddown would change economic activity, especially in Curry and Roosevelt counties. AFSOC personnel and expenditures for facility construction and operation and maintenance would result in a one-year dip in employment followed by rapid growth to a peak of 13,533 direct, indirect, and induced jobs in 2011 and a long-term direct, indirect, and induced employment of 8,724 jobs by 2014. These personnel numbers are based upon Congressional budget authorizations and would be comparable to those experienced during the F-111 mission at Cannon AFB through 1994. Although initial housing demand could be met with available housing vacancies, the expected housing demand could be over 5,000 units between 2008 and 2014. In addition, there would be an estimated replacement project of over 1,000 existing older military housing with private housing during the period of the AFSOC beddown. An estimated 2,253 additional students would need educational facilities and personnel, primarily within Clovis and Portales school districts. Population, employment, housing, and education needs would be essentially the same under the West Flightline Alternative or East and West Airfield Alternative. Under the Preferred East and West Airfield Alternative, additional construction would be required to extend utilities and add additional facilities. This construction could somewhat increase the magnitude or duration of direct and secondary employment, but would not be expected to substantially change the projected long-term economic effects.

The No Action Alternative would mean that Cannon AFB would become an AFSOC installation, but no beddown of AFSOC assets would occur at Cannon AFB in accordance with the BRAC 2005 recommendation. After 2006, the loss of an estimated 6,800 direct, secondary, and induced jobs in Curry and Roosevelt counties could increase the unemployment rate from 4.3 percent to 12.3 percent. Relocation of military families to base housing would depress the housing market and reduce the value of the existing housing stock. Schools would face a decline in enrollment and budgets would pressure districts to reduce the number of schools with increased commute distances for the remaining students.

Range. Under the Two-Target Alternative, live-fire training would affect the grazing and agriculture on portions of the range. The Exclusive-Use area would increase and Restricted Leased Grazing Lands and Unrestricted Leased Grazing Lands would be changed. The approximately 2.8 sections of rangeland removed from Restricted or Unrestricted grazing leases to become Exclusive-Use area could reduce stock grazing on Melrose AFR by approximately 45 Animal Units (AUs) (a cow plus a calf). Such a reduction would not significantly affect regional cattle operations, although it could detrimentally affect ranching or agricultural operations of

the affected lessees. Under the Three-Target Alternative, 6.1 sections of the rangeland removed from Restricted or Unrestricted grazing leases to become Exclusive-Use areas could reduce stock grazing by approximately 98 AUs. Such a reduction would also not significantly affect regional cattle operations, although it could detrimentally affect ranching operations of the affected lessees. Portions of two of the leases are developed in irrigated crop land, one lease being designated as organically grown. The preferred Two-Target Alternative without 25 mm munitions would not be expected to affect irrigated crop land on the range.

Residents within 6 miles of the Melrose AFR target impact areas would be subject to increased impulse noise from munitions and increased night overflight by training AFSOC aircraft. These training activities do not result in any residences within noise levels in excess of 62 dBC (comparable to L_{dn} 65 dB), which is the noise contour used as a basis for addressing the potential for significant impacts. Residents on the periphery of Melrose AFR who would be outside the 62 dBC contour could be annoyed by the increased impulse noise and vibration from cannons and other munitions. Ranching functions would not be expected to be affected as cattle become habituated to training activities. The exception could be during a round-up within 3 miles of a live-fire target, where especially sudden night firing could startle penned animals.

Airspace. Changes in MOA or MTR use would not affect the regional agricultural economy or general aviation. AFSOC training aircraft fly generally lower and at slower speeds than F-16 fighters. During night missions, training aircraft would be below general aviation altitudes. During daylight missions, C-130 and CV-22 pilots and co-pilots would increase the number of eyes available to support see-and-avoid procedures for UAS. Multi-hour aircraft refueling patterns would be identified for civil aviation. The width of the MTRs, AFSOC's goal to avoid populated areas, and avoidance of airfields would reduce the risk for AFSOC aircraft and general aviation interaction. Oil and gas development, as well as wind energy development, would not be affected by overflights from AFSOC aircraft. Existing or new wind turbines under MOAs or MTRs would be mapped and avoided by AFSOC aircraft. Cannon AFB would continue to work with federal, state, and local agencies to identify the impacts caused by the development of tall structures to Cannon AFB operations and training. No significant socioeconomic impacts are expected to airspace use.

The increased MTR and Pecos, Mt. Dora, and Taiban MOA noise levels could be expected to increase human annoyance. Concern was expressed at public meetings that increased noise may negatively affect livestock, as well as people. Five cases of loss or injury to penned livestock under the Pecos MOA have been attributed to low-flying jet aircraft between 1994 and 2005. Cattle are also sensitive to helicopters because ranchers frequently use helicopters to herd cattle. Although AFSOC aircraft are quieter and slower than the existing F-16 jets, low-level overflights on MTRs could still startle individual penned livestock. AFSOC training would not be expected to impair overall wild animal populations, and wildlife and livestock have demonstrated habituation to regular noises from military training. Despite habituation, low-altitude overflights could result in short-term negative impacts to wildlife or livestock that could include increased heart rate, flight, or potential injury. The Air Force has an established procedure for damage claims that begins by contacting Cannon AFB Public Affairs.

The complex nature of property evaluation factors makes any estimate of the potential effects of changes in airspace use on land values highly speculative. Other economic factors such as business activity, employment, interest rates, and land scarcity or availability are much more likely to affect property values than an increase in MTR use. Ranching operations,

communities, and private airports all exist and function under the existing Pecos 500-foot AGL airspace and under existing low-level MTRs. Noise associated with increased low-altitude training, particularly night training, could be viewed as a significant impact by residents under the MTRs or near reservoirs used for water training. Ranching operations, wind energy operations, oil and gas exploration and production, and other economic pursuits are not expected to experience any negative effects as a result of AFSOC training.

Environmental Justice

Base. Changes in noise levels with the West Flightline Alternative or East and West Airfield Alternative are not expected to disproportionately affect minority or low-income populations north of the base. Regional economic stimulation associated with the AFSOC beddown would be expected to benefit all residents within the regional economy. Some classroom crowding could exist in advance of growth in school capacity.

The No Action Alternative could result in a substantial economic downturn in Curry County and to a lesser extent in Roosevelt County. During times of economic downturn, minority and low-income populations may be disproportionately affected due to greater competition for jobs. Children may be impacted by the loss of family income and a reduction in basic services associated with a declining economic area.

Range. No permanent residents are on the 60,010-acre Melrose AFR. Residents under the restricted airspace associated with Melrose AFR or in areas immediately adjacent to the range under the Taiban MOA are representative of the minority, low-income, and youth in adjacent counties. No disproportionate impacts are expected to minority or low-income populations and no impacts are expected to children.

Airspace. No disproportionately high or adverse impacts to minority or low-income populations are expected and there would be no expected impacts to children.

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1.0 PURPOSE AND NEED FOR PROPOSED BEDDOWN OF AFSOC ASSETS AT CANNON AFB AND MELROSE AFR

The Base Realignment and Closure (BRAC) Commission received and considered a May 2005 recommendation from the Secretary of Defense (SECDEF) to close Cannon Air Force Base (AFB). Subsequently, a final report (September 2005) from the Commission to the President recommended Cannon AFB remain open as an enclave until at least 31 December 2009 and that the 27th Fighter Wing (27 FW) be disestablished. In the interim, the SECDEF was to seek other missions for assignment to Cannon AFB. As a result of this search, the Air Force Special Operations Command (AFSOC) was designated as the new mission for Cannon AFB. AFSOC is conducting this environmental analysis to identify and evaluate the potential environmental consequences of bedding down AFSOC assets.

The SECDEF designated the AFSOC mission to Cannon AFB pursuant to his duties under the recommendations of the BRAC Commission, approved by Congress and the President (Department of Defense [DoD] 2005).

To carry out the SECDEF mission designation, the United States Air Force (Air Force) proposes to transfer aircraft and personnel from Hurlburt Field, Florida, and/or other existing operational locations, to Cannon AFB. Potential AFSOC assets to be transferred include aircraft, personnel, weapons systems, and equipment. This action would involve construction and modifications to facilities at Cannon AFB and Melrose Air Force Range (AFR) through Fiscal Year (FY) 2013. AFSOC also proposes to begin utilizing the 60,010-acre Melrose AFR, existing military training airspace, existing Military Training Routes (MTRs), and other locations for personnel training. Scheduling authority for Special Use Airspace and MTRs currently coordinated by the 27 FW would be transferred to an AFSOC Special Operations Wing (SOW) at Cannon AFB.

This Environmental Impact Statement (EIS) addresses alternative ways to implement the AFSOC mission designation under the BRAC recommendation. The purpose of this action is to implement the SECDEF's designation by determining how to beddown AFSOC assets at Cannon AFB. Training would include use of airspace scheduled by Cannon AFB, including restricted airspace associated with Melrose AFR, MTRs, and the Pecos Military Operations Areas (MOAs), the Mt. Dora MOA, the Taiban MOA, and the Bronco MOA. Alternatives identify different ways to beddown the assets at Cannon AFB and to train on Melrose AFR. The No Action Alternative included in this EIS addresses the conversion of Cannon AFB with a SECDEF mission designation to AFSOC, but no action to beddown AFSOC assets to Cannon AFB. For the purposes of this analysis, No Action would result in no movement of AFSOC assets to Cannon AFB and AFSOC would maintain and operate the properties. With regards to Melrose AFR, no Cannon AFB assets would train at the range. New Mexico Air National Guard (NMANG) and transient aircraft would continue to use the airspace and Melrose AFR. No action would reduce personnel levels to approximately 150 between 2007 and 2009. These 150 personnel would support base infrastructure and range operations. Flight operations would consist of transient aircraft.

1.1 BACKGROUND

1.1.1 CURRENT MISSION AT CANNON AFB AND MELROSE AFR

Cannon AFB is located in eastern New Mexico approximately 7 miles west of the city of Clovis. The base comprises approximately 3,500 acres and administers Melrose AFR, which is located approximately 37 miles west of Cannon AFB (Figure 1.1-1). Cannon AFB-scheduled military training airspace is depicted on Figure 1.1-2.

CANNON AFB IS PROPOSED FOR THE BEDDOWN OF AFSOC PERSONNEL AND AIRCRAFT

Cannon AFB has trained aircrews with an air-to-ground mission since 1943. Initially, the 16th Bombardment Operational Wing trained crews of the B-17, B-24, and B-29 heavy bombers. Inactivated in 1947, the base was reactivated in 1951 as a Tactical Air Command (TAC) base with the 140th Fighter-Bomber Wing, flying F-86 Sabrejets. By 1959, the base's 27th Tactical Fighter Wing had been established and was flying F-100 supersonic jet fighters. Ten years later, the 27th was re-equipped with the supersonic F-111E, and in 1971 with the supersonic F-111D. The F-111s trained at high speeds and low altitudes using Cannon AFB-scheduled MTRs, both Instrument Routes (IRs) and Visual Routes (VRs) (see Figure 1.1-2).

F-16 AIRCRAFT HAVE BEEN BASED AT CANNON AFB FROM 1995 THROUGH 2007.

In 1995, all F-111 aircraft were replaced by supersonic F-16s with a combined air-to-air and air-to-ground role. The F-16s normally trained at higher altitudes than the F-111s. Cannon AFB has also historically hosted cooperative programs designed to standardize flight training among allied nations. For example, until 2004, the 428th Fighter Squadron was a combined United States Air Force/Republic of Singapore Air Force F-16 squadron that was established at Cannon AFB as part of this cooperative program.

Melrose AFR consists of two principal activities: a Bombing and Gunnery Range and an Electronic Combat (EC) Range. Cannon AFB provides a fire department at Melrose AFR and Cannon-based Explosive Ordnance Disposal (EOD) personnel provide decontamination support. Melrose is a Class "A" range operated through 27th Operations Support Squadron (27 OSS/OSR) elements in the Weapons and Training Flight of the 27 OSS. F-16 pilots have used the range to demonstrate proficiency in a variety of missions and tactics including, but not limited to, Basic Surface Attack, Tactical Weapons Delivery, Suppression of Enemy Air Defenses (SEAD), Destruction of Enemy Air Defense (DEAD), and Combat Search and Rescue (CSAR).

THE 60,010-ACRE MELROSE AFR CURRENTLY HAS 8,800 ACRES DESIGNATED FOR TARGETS AND RANGE SUPPORT.

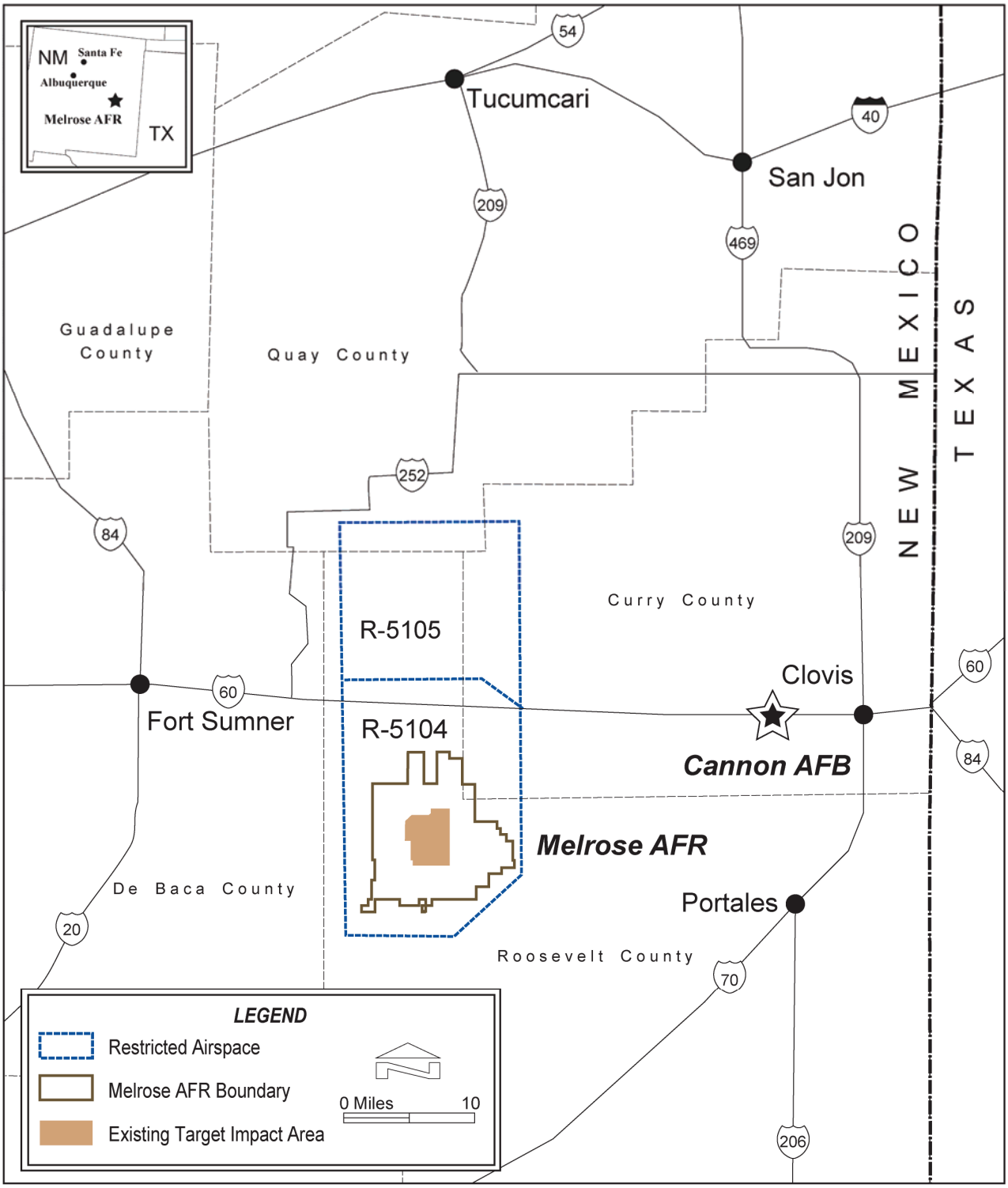

FIGURE 1.1-1. LOCATION OF CANNON AFB AND MELROSE AFR

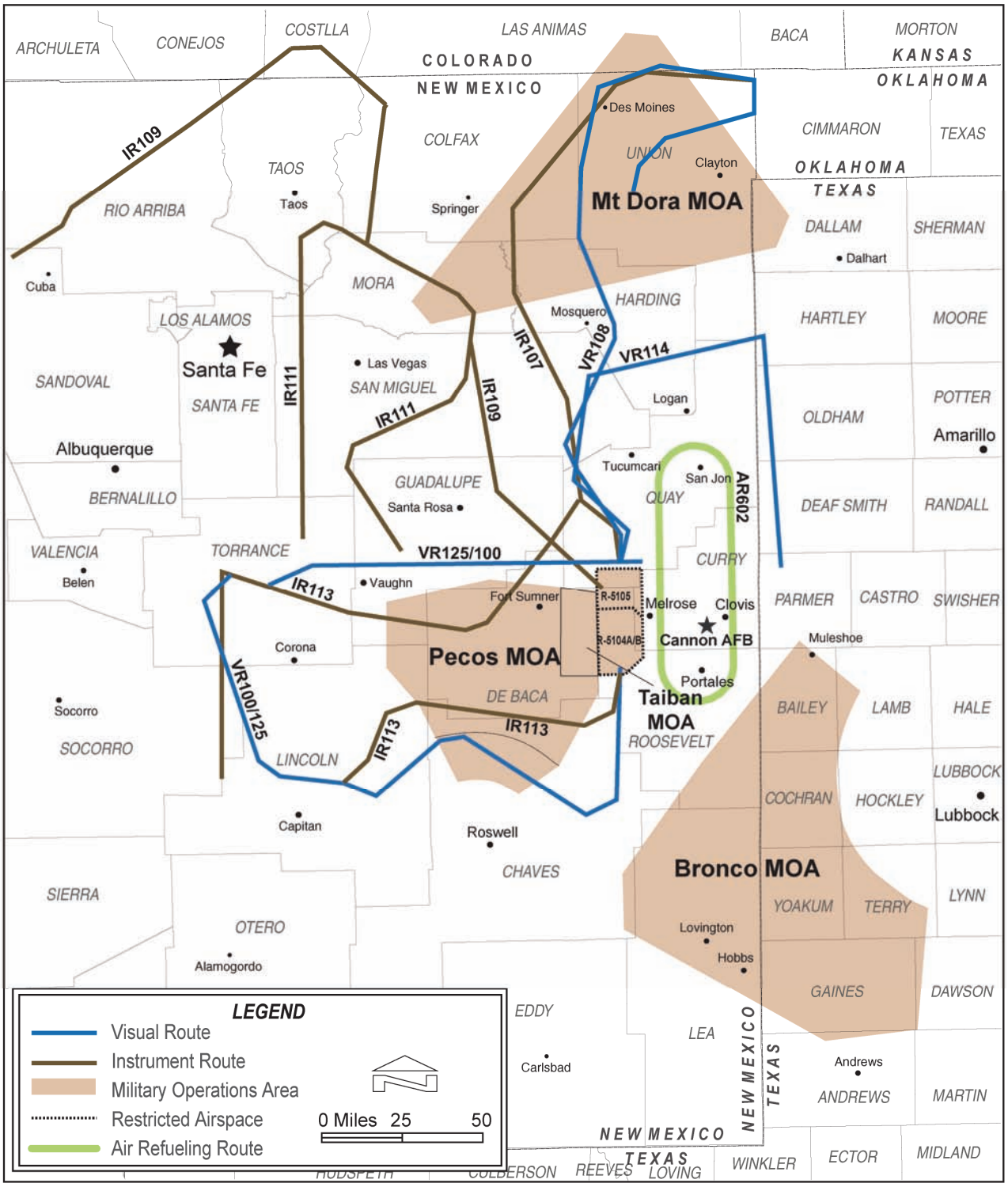

Figure 1.1-2. Existing Military Training Airspace Scheduled by Cannon AFB, New Mexico

1.1.2 Mission of AFSOC

AFSOC provides Air Force Special Operations Forces (SOF) for worldwide deployment and assignment to regional unified commands. AFSOC's core tasks have been grouped into four mission areas: forward presence and engagement, information operations, precision employment and strike, and SOF mobility.

AFSOC was established May 22, 1990, with headquarters at Hurlburt Field, Florida. AFSOC is a Major Command (MAJCOM) and the Air Force component of United States Special Operations Command (USSOCOM), a unified command located at MacDill AFB, Florida. AFSOC is responsible to USSOCOM for the readiness of Air Force SOF for worldwide deployment. AFSOC is composed of highly trained, rapidly deployable airmen who are equipped with highly specialized aircraft. These forces provide global ability to conduct special operations missions ranging from precision application of firepower, to infiltration, exfiltration, resupply, and refueling of SOF operational elements.

AFSOC's unique capabilities include airborne radio and television broadcast for psychological operations, as well as combat aviation advisors to provide other governments military expertise for their internal development. The command's special tactics squadrons combine combat control, special operations weather, and pararescuemen to ensure air power is integrated and operable with special operations and conventional forces.

The 1st Special Operations Wing (1 SOW), at Hurlburt Field, is the Air Force's only active-duty SOW and maintains world–wide response responsibility.

AFSOC TRAINS WITH A VARIETY OF TURBOPROP AIRCRAFT, INCLUDING THE AC-130 PICTURED ABOVE.

AFSOC anticipates additional growth from now through FY 2014. Force structure increases and additional training requirements require new base and range facilities. AFSOC needs another base for the following reasons:

a. Quality of flying training in southeast United States (U.S.) is not representative of on-going real-world deployments that support the War on Terrorism.
b. Increased competition for Eglin range time with the addition of new F-35 Joint Strike Fighter and other BRAC actions would limit AFSOC training.
c. Locating a MAJCOM at a single base -- Hurlburt Field -- makes it vulnerable to a catastrophic event (i.e., Hurricane Andrew or Katrina).

1.2 Purpose and Need of Proposed Action

The Proposed Action meets the SECDEF designation of AFSOC as the new mission for Cannon AFB and resolves many of AFSOC's needs. The final BRAC report (2005) from the BRAC Commission to the President recommended Cannon AFB remain open until at least 31 December 2009. In the interim, the SECDEF was to seek other missions for assignment to Cannon AFB. Missions for Cannon AFB were sought and evaluated consistent with the recommendations of the BRAC Commission. As a result of this search, AFSOC was designated as the new mission for Cannon AFB. AFSOC would benefit from additional facilities and training opportunities. The SECDEF designation of AFSOC assets to Cannon AFB addresses the 2005 BRAC Commission's recommendation and effectively utilizes an existing base, and in addition nearby Melrose AFR provides training for AFSOC assets.

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2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

The Proposed Action is to establish Air Force Special Operations Command (AFSOC) assets at Cannon Air Force Base (AFB). This chapter describes two alternative facility layouts for areas of Cannon AFB. This chapter also describes two alternative target array locations at Melrose Air Force Range (AFR) and proposed AFSOC training activities. The No Action Alternative, which would not beddown AFSOC assets at Cannon AFB at this time, is also discussed.

The Air Force Preferred Alternative is the East and West Airfield Alternative at Cannon AFB combined with the Two-Target Alternative at Melrose AFR and projected training in Cannon AFB-managed airspace.

Beddown of AFSOC assets at Cannon AFB is proposed to take place over a period of approximately 6 years beginning in Fiscal Year (FY) 2008. It would involve construction of facilities to support the aircraft and training personnel needed to operate and maintain the aircraft and associated facilities.

AFSOC needs a dedicated installation, range facilities, and training airspace for special operations forces (SOF) to achieve and maintain skills. Cannon AFB has unused capacity with the disestablishment of the 27th Fighter Wing (27 FW). Melrose AFR provides proximal capabilities for the various SOF training needs. New Mexico military training airspace is anticipated to meet AFSOC training needs with a proposed Federal Aviation Administration (FAA) Certificate of Waiver or Authorization (COA) to allow unmanned aerial system (UAS) transit below 18,000 feet above mean sea level (MSL) between Cannon AFB airspace with Melrose AFR airspace.

The proposed beddown of AFSOC assets would involve several activities at Cannon AFB, Melrose AFR, and in the associated training airspace. This chapter presents proposed activities at Cannon AFB, use of Melrose AFR, training use of Special Use Airspace (SUA) and Military Training Routes (MTRs), and other training associated with the AFSOC beddown. The No Action Alternative is described in conformance with the Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations [CFR] 1502.14(d) and 32 CFR Part 989). Alternatives considered but not carried forward for detailed analysis are discussed in Section 2.4.2.

2.1 Elements Affecting Cannon AFB

2.1.1 Proposed Beddown Aircraft

The beddown proposal transfers AFSOC Primary Aircraft Inventory (PAI) and Backup Aircraft Inventory (BAI) aircraft to Cannon AFB (Table 2.1-1). The number of aircraft to be transferred is estimated to be 108. Approximately 25 to 33 percent of the aircraft would be deployed at locations other than Cannon AFB at any given time. Currently, 60 F-16 PAI aircraft are assigned to the 27 FW at Cannon AFB. Pursuant to the requirements of the recommendations of the Base Realignment and Closure (BRAC) Commission, Air Combat Command (ACC) will deactivate the 27 FW and relocate the aircraft. Air National Guard F-16s, transient active-duty F-16s, and other aircraft

Primary Aircraft Inventory (PAI) are aircraft assigned for operational missions. Backup Aircraft Inventory (BAI) are aircraft available to back up operational requirements when a PAI aircraft is unavailable for a mission.

would continue to use Melrose AFR for training. An annual estimate of 200 F-16 airfield operations (i.e., a landing or takeoff) at Cannon AFB are projected to continue in support of F-16 training after an AFSOC beddown.

Aircraft proposed for normal training in Cannon AFB-managed airspace and their training missions are described below.

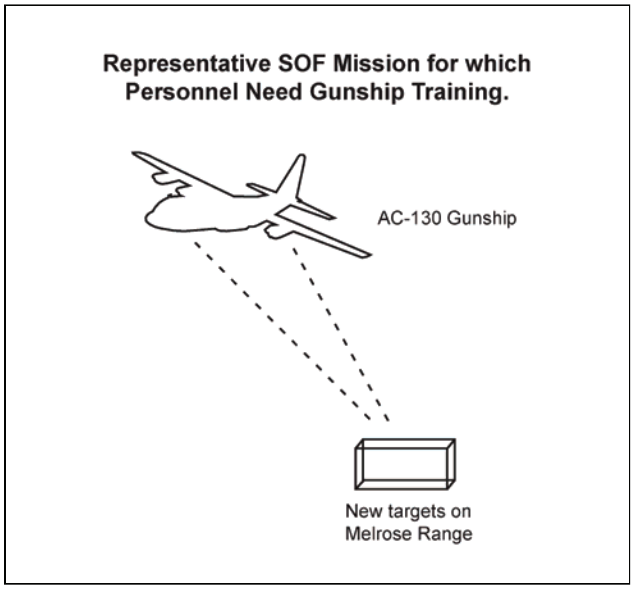
Table 2.1-1. Proposed Aircraft to be Transferred under the Proposed Action

Aircraft Type	*Number*[1]	*Fiscal Year*[2]
AC-130H	8	2009/10
MC-130H	8	2008/9
MC-130P	10	2008/9
MC-130W	12	2008
C-130E[3]	2	2008/9
CV-22[4]	22	2010
C-47 Type Aircraft[5]	2	TBD
UH-1 Huey Helicopters[5]	2	TBD
Non-Standard Aircraft (NSA)[6]	18	2008
Unmanned Aerial System (UAS)[7] (some assembled)	24	2008

Notes:
1. Includes PAI, BAI, and training aircraft.
2. Projected beddown year; actual schedule is governed by Congressional budgeting.
3. Used for lower cost transport or training.
4. The first squadron of 13 due in 2010; remainder anticipated in 2014.
5. Alternative types of aircraft could be used for special operations use
6. NSA would arrive around the year 2008. NSA could be a mix of small to medium size single- or multi-turboprop-engined aircraft.
7. The squadron would move its temporary home at Creech AFB, Nevada to Cannon AFB. Most of this unit's 24 aircraft would remain deployed in support of global commitments.

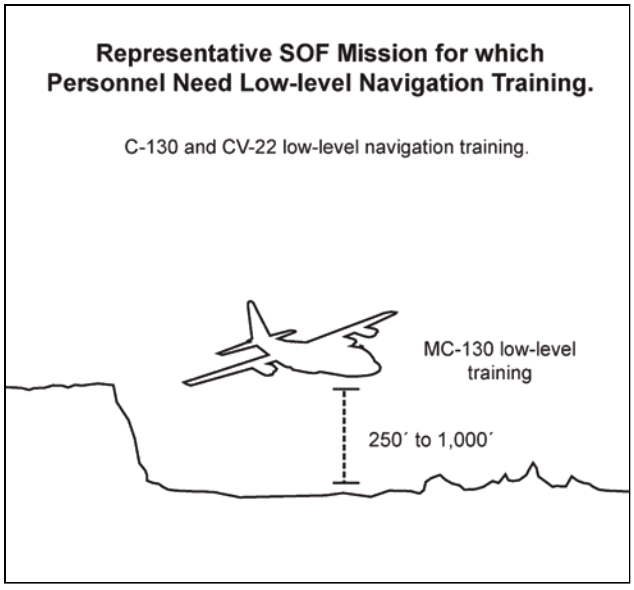
AC-130 Gunships

The four-engine turboprop AC-130H gunship's primary missions are close air support, air interdiction, and force protection. Missions in close air support are troops in contact, convoy escort, and urban operations. Air interdiction missions are conducted against preplanned targets or targets of opportunity. Force protection missions include air base defense and facilities defense.



These heavily armed aircraft incorporate side-firing weapons integrated with sophisticated sensor, navigation, and fire control systems to provide surgical firepower or area saturation during extended loiter periods, at night and in adverse weather. The sensor suite consists of a television sensor, infrared sensor, and radar. These sensors allow the gunship to visually or electronically identify friendly ground forces and targets any place, any time. The AC-130U employs synthetic aperture strike radar for long-range target detection and identification. The gunship's navigational devices include inertial navigation systems and global positioning system (GPS). The AC-130U employs the latest technologies, can attack two targets simultaneously, and has twice the munitions capacity of the AC-130H. Gunships must train for daylight and, especially, after dark missions. For noise management purposes, "environmental night" occurs from 10:00 p.m. to 7:00 a.m. During an average year, 25 percent of Melrose AFR training would occur during environmental night.

MC-130H



The MC-130H Combat Talon II provides infiltration, exfiltration, and resupply of SOF and equipment in hostile or denied territory. Secondary missions include psychological operations and helicopter air refueling.

The MC-130H features terrain-following and terrain-avoidance radars capable of operations as low as 250 feet above ground level (AGL) in adverse weather conditions. Structural changes to a basic C-130 include the addition of an in-flight refueling receptacle and strengthening of the tail to allow high-speed/low-signature airdrop. Their navigation suite includes dual ring-laser gyros, mission computers, and integrated GPS. They can locate, and either land or airdrop, on small, unmarked zones with pinpoint accuracy day or night.

To mitigate potential impacts during environmental night, low-level night flights would begin as early after dark as possible (6:00 p.m. to 9:00 p.m., depending on the season) and last for four to five hours. This mitigation action would reduce the estimated annual after-dark training to an average of 40 percent during environmental night.

An extensive electronic warfare suite enables the aircrew to detect and avoid potential threats. If engaged, the system protects the aircraft from both radar and infrared-guided threats, and includes the deployment of defensive chaff and flares. The MC-130H is equipped with aerial refueling (AR) pods to provide in-flight refueling of SOF and Combat Search and Rescue (CSAR) helicopters.

MC-130P AND MC-130W

The Combat Shadow and Combat Knife fly clandestine or low visibility, single- or multi-ship low-level missions intruding politically sensitive or hostile territory to provide air refueling for special operations aircraft. The MC-130P/W primarily fly missions during darkness to reduce probability of visual acquisition and intercept by airborne threats.

MC-130P AIRCRAFT DEPLOY DROGUES TO REFUEL ROTARY WING OR TILT-ROTOR AIRCRAFT.

Secondary mission capabilities may include airdrop of leaflets, small special operations teams, bundles and combat rubber raiding craft, as well as night vision goggle (NVG) use, takeoff and landing procedures, and in-flight refueling as a receiver. No leaflet-drop training would occur in Cannon-scheduled airspace.

The MC-130P/W features improved navigation, communication, threat detection, and countermeasures systems. Both aircraft have a fully-integrated inertial navigation and GPS, and NVG compatible interior and exterior lighting. They also have forward looking infrared, radar and missile warning receivers, chaff and flare dispensers, NVG compatible heads-up display, satellite and data-burst communications, as well as in-flight refueling capability as a receiver.

MC-130P/W aircraft can fly in the day against a low threat. The crews fly night low-level, air refueling and formation operations using NVGs. To enhance the probability of mission success and survivability near populated areas, employment tactics include blacked-out flights with no external lighting and no communications to avoid radar and weapons detection. The proportion of training flights during environmental night would be comparable to those of the MC-130H training.

C-130E

The C-130E is similar to other C-130 variants and is used for activity such as material or personnel transport or for some training that does not require a higher cost mission aircraft. C-130E flights are used in training and/or transport and do not add to the flight operations.

NON-STANDARD AIRCRAFT

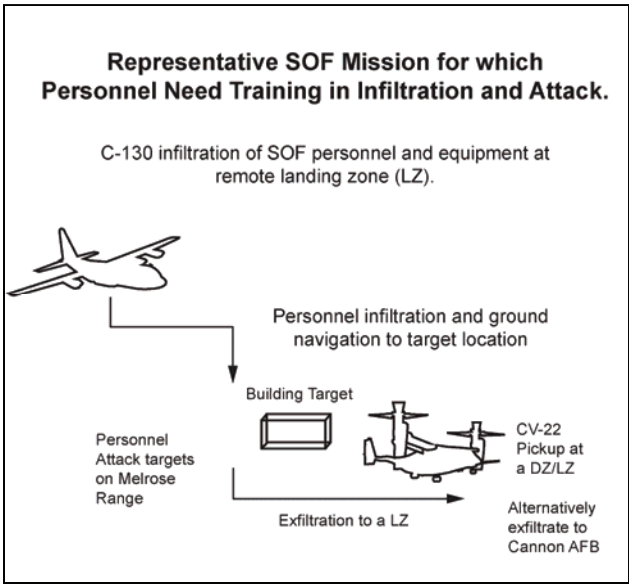
The Non-Standard Aircraft (NSA) are light cargo single or dual turboprop engine utility aircraft that provide intra-theater support for special operations forces.

C-47 Type Aircraft and Helicopters

The 6th Special Operations Squadron (6 SOS) operates fixed and rotary-wing aircraft that are common mobility platforms used by partner nations. Aircraft currently used are similar to the C-47 and BT-67. As with the C-47, UH-1 Huey helicopters are common airlift and gunship platforms in the countries where AFSOC personnel operate. Two UH-1 Hueys are proposed for beddown at Cannon AFB. Personnel using UH-1 helicopters can support theater combatant commanders in search and rescue, low-level operations, and to assess, train, advise, and assist foreign forces. The proportion of environmental night flights would be comparable to the MC-130H training.

CV-22

The CV-22 Osprey is a tiltrotor twin-engine aircraft that combines the vertical takeoff, hover, and vertical landing qualities of a helicopter with the long-range, fuel efficiency, and speed characteristics of a turboprop aircraft. The Osprey adds new capability and fills a long-standing United States Special Operations Command (USSOCOM) requirement to conduct long-range infiltration, exfiltration, and resupply missions during night operations.



The CV-22 can take off vertically and, once airborne, the nacelles (engine and prop-rotor group) on each wing can rotate into a forward position. The cover of this Environmental Impact Statement (EIS) shows two CV-22 aircraft with engines in a forward position. This versatile, self-deployable aircraft offers increased speed and range over other rotary-wing aircraft, and can perform missions that normally would require both fixed-wing and rotary-wing aircraft. The Osprey can cruise at 220 knots indicated airspeed (KIAS). The proportion of training during environmental night is comparable to that of the MC-130H training.

The CV-22 has an advanced electronic warfare suite, a multi-mode radar that permits flight at very low altitude in zero visibility, a retractable AR probe, and four crew positions in the cockpit. The CV-22 will also be equipped with defensive weapons.

Predator

The MQ-1 Predator is a UAS. As a single-engine, medium-altitude, long-endurance, remotely piloted aircraft, the Predator's primary mission is interdiction and conducting armed reconnaissance against critical, perishable targets. When the Predator is not actively pursuing its primary mission, it acts as the Joint Forces Air Component Commander-owned theater asset for reconnaissance, surveillance, and target acquisition in support of the Joint Forces commander.

A fully operational Predator system consists of four aircraft (with sensors), a ground control station (GCS), a Predator Primary Satellite Link (PPSL), and approximately 55 personnel for deployed 24-hour operations.

The Predator is an unmanned system that can be operated through line-of-sight or satellite.

The basic crew for the Predator is one pilot, one sensor operator, and a mission coordinator. They fly the aircraft from inside the GCS via a C-Band line-of-sight data link or a Ku-Band satellite data link for beyond line-of-sight flight. The aircraft is equipped with a color nose camera (generally used by the pilot for flight control), a day variable-aperture television camera, a variable-aperture infrared camera (for low light/night), and a synthetic aperture radar (SAR) for looking through smoke, clouds, or haze. The cameras produce full motion video while the SAR produces still frame radar images. The Predator MQ-1 can be armed with air-to-ground weapons. Predators are not proposed to be flown from Cannon AFB with live munitions or to train on Melrose AFR with live munitions. Training with live munitions would be conducted on ranges where such training is authorized.

The system is composed of four major components that can be deployed for worldwide operations. The GCS is transportable in a C-130 (or larger) transport aircraft. The Predator can operate on a 5,000 feet by 75 feet (1,524 meters by 23 meters), hard surface runway with clear line-of-sight. The ground data terminal antenna provides line-of-sight communications for takeoff and landing. The PPSL provides over-the-horizon communications for the aircraft.

An alternate method of MQ-1 Predator employment, Remote Split Operations, employs a smaller version of the GCS called the Launch and Recovery GCS (LRGCS). The LRGCS conducts takeoff and landing operations at the forward deployed location while the Continental United States (U.S.)-based GCS conducts the mission via extended communications links. If PPSL communication is lost, the Predator is designed to orbit in a circle and climb to an altitude from which direct GCS contact can be reestablished. For communication and safety, the Predator includes an ARC-210 radio, an APX-100 IFF/SIF with Mode 4, an upgraded turbo-charged engine and glycol-weeping "wet wings" for ice mitigation. The latest upgrade includes fuel injection, longer wings, dual alternators, and other improvements.

2.1.2 Projected Aircraft Operations at Cannon AFB

The Special Operations Wing (SOW) could employ a variety of aircraft, weapons systems, and equipment from their current locations at Hurlburt Field, Florida, and worldwide. AFSOC mission aircraft are all propeller-driven with one to four engines. The nature and potential locations of future AFSOC operations could include training with miscellaneous other aircraft for special missions. Proposed airfield operations associated with the AFSOC beddown are presented in Table 2.1-2.

Base and airspace use is described in this Environmental Impact Statement (EIS) using these terms:

- Sortie: an aircraft leaving and returning to the base.
- Operation: One landing or takeoff action. Thus, one sortie that consists of a takeoff (1), two touch and go approaches to the airfield (2) (3), and one landing (4) would result in four operations.
- Sortie-operation: The use of a defined airspace unit by one aircraft. This means that a sortie that flies in one of the Melrose AFR airspaces, the Taiban Military Operations Area (MOA) and the Pecos Low MOA, would result in three sortie-operations.

TABLE 2.1-2. CURRENT AND PROPOSED ANNUAL AIRFIELD OPERATIONS[1]

Aircraft[2]	CURRENT CONDITION[2]		PROPOSED ACTION[3]	
	A/D	*CP*[4]	*A/D*	*CP*[4]
AC-130H/U	0	0	4,452	2,968
MC-130H	0	0	3,944	3,944
MC-130P	0	0	3,944	3,944
MC-130W	0	0	3,944	3,944
CV-22	0	0	5,000	5,000
C-47	0	0	912	1,824
UH-1	0	0	600	1,200
Predator UAS	0	0	360	360
NSA (Non-Standard Aircraft) FY 2009	0	0	3,648	3,648
F-16 (Cannon AFB-based)	33,549	14,139	0	0
Other Transient Aircraft	660	0	660	0
Total	34,209	14,139	27,664	28,032

Notes: 1. Proposed Action Based on PAI.
2. FY 2005 data.
3. Thirty-five percent of average sorties between 10:00 p.m. and 7:00 a.m.
4. Closed Patterns counted as one event.

A/D = Approaches and Departures
CP = Closed Patterns

2.1.3 FACILITIES

AFSOC proposes to use Cannon AFB facilities and equipment to the extent possible for AFSOC assets. Because Cannon AFB has been home to jet fighter aircraft for the past 55 years (see Section 1.1.1), extensive construction and renovation will be required to support the larger turboprop aircraft used by AFSOC. Base Master Plans would be updated to reflect AFSOC requirements. This section describes two alternatives to meet facilities and equipment requirements for the AFSOC beddown. These two alternatives are the West Flightline Alternative and the East and West Airfield Alternative.

2.1.3.1 West Flightline Alternative

Under the West Flightline Alternative, most new facilities to house and maintain the AFSOC aircraft would be constructed in the existing mission support area. Figure 2.1-1 presents the West Flightline Alternative. This alternative would include the construction and renovation projects presented in Table 2.1-3 to be implemented between FY 2008 and 2013. The estimated annual expenditures for AFSOC construction, renovation, and operations and maintenance (O&M) costs in FY 2007 dollars is projected in Table 2.1-4. Table 2.1-4 also includes military construction (MILCON) projects scheduled for Cannon AFB in addition to AFSOC specific projects.

FIGURE 2.1-1. WEST FLIGHTLINE FACILITY DEVELOPMENT AT CANNON AFB, NEW MEXICO

Table 2.1-3. Proposed Facilities for West Flightline Alternative

FY	*Project #*	*Title*	*Scope (square feet)*
2008	CZQZ073006	Add/Alter Hangar 109 for C-130	22,185
2008	CZQZ 063015	SOF Flight Simulator Facility	15,070
2009	CZQZ2063010	SOF Aircraft Maintenance Hangar	38,298
2010	CZQZ063002	Consolidated Communications Facility	51,850
2011	CZQZ063019	C-130 Fuel Cell Hangar & Corrosion Control Hangar	Fuel Cell – 31,000 Corrosion Control – 59,000
2011	CZQZ063027	SOF CV-22 Simulator Facility	15,070
2011	CZQZ063052	SOF Construct UAV Squadron Operations/Ground Control Stations	43,690
2011	CZQZ063028	SOF Construct MC-130 Squadron Operations	26,996
2011	CZQZ063026	SOF Alter Building 198 for Talon II (MC-130H)	26,017
2011	CZQZ063021	SOF C-130 2-Bay Hangar/Aircraft Maintenance Unit (AMU)	65,004
2011	CZQZ063029	SOF Construct Special Tactics Squadron (STS) Squadron Operations	62,990
2011	CZQZ073005	Dormitory (96 rooms)	34,100
2011	CZQZ093002	Child Development Center	17,007
2011	CZQZ063023	SOF CV-22 Squadron Operations Facility	26,006
2011	CZQZ063022	SOF Construct Taxiway Shoulders for C-130s	753,480
2011	CZQZ063027	SOF Construct Simulator Facility	15,070
2011	CZQZ133001	Add/Alter Waste Water Treatment Plant	5,382
2011	CZQZ063053	SOF Add/Alter Hangar for UAV AMU	43,895
2012	CZQZ123001	96-Person Dormitory	34,100
2012	CZQZ063024	SOF CV-22 Taxiway Expansion	75,003
2012	CZQZ043001	Library Education Center	38,643
2012	CZQZ063033	SOF Construct Tiltrotor Maintenance Squadron Operations Facility	16,996
2012	CZQZ063032	SOF Construct Mission Readiness Supply Storage Facility	49,998
2012	CZQZ063034	SOF Construct Addition CV-22 Squadron Operations	13,593
2012	CZQZ063035	SOF Construct CV-22 AMU Addition	5,005
2013	CZQZ063030	SOF Construct C-130 Hangar/AMU	31,991
2013	CZQZ053003	Add/Alter Fitness Center	58,180
2013	CZQZ063051	SOF Construct MC-130 Parking Apron	1,540,016
2013	CZQZ063049	SOF MC-130 2-bay Hangar/AMU	65,004
2013	CZQZ063050	SOF MC-130 Squadron Operations	35,004
2014	CZQZ073015	SOF Hot Cargo Pad/Relocate Combat Arms Training and Maintenance Range	344,448
2014	PXLY073001	SOF Landing Strip at Melrose AFR	1,237,860
2014	PXLY073002	SOF Relocate Current Melrose AFR Compound	50,052
2014	CZQZ073019	SOF Mobility Aerial Delivery Facility	50,052

Many of the costs presented in Table 2.1-4 are associated with the planned growth of AFSOC units in response to operational requirements. MILCON and O&M resources of this magnitude would be required to support AFSOC operations wherever they would be located. The six-year Future Years Defense Program (FYDP) represents costs previously programmed for AFSOC and costs required to support Cannon AFB base operating support under either ACC or AFSOC. Table 2.4-1 aggregates the realignment of programmed costs for planned AFSOC growth at various locations, the base operating costs at Cannon AFB, and projected AFSOC beddown costs at Cannon AFB.

Table 2.1-4. West Flightline Projected Annual Construction, Renovation, and O&M Expenditures for AFSOC Beddown ($ Million)[1]

Fiscal Year	*AFSOC Mission Construction/ Renovation[1]*	*AFSOC Mission O&M[2] (Request)*	*Cannon Other*	*Additional Utilities*
2008	9	146	0	1
2009	9	92	0	3
2010	15	73	20	5
2011	163	70	34	0
2012	41	77	30	0
2013	73	72	12	0

Notes: 1. FY 2007 dollars.
2. Program Year subject to Congressional Authorization. Any unfunded requirements would roll over to the next year.

The West Flightline Alternative construction would occur within approximately 342 acres of previously disturbed area. Affected acres represent the area covered by the construction footprints of the proposed facilities from Table 2.1-3 plus the surrounding lands where construction-related clearing and grading would occur. No construction is expected outside the existing property limits of the base. The West Flightline Alternative would include operations or maintenance to support the AFSOC mission. Table 2.1-4 shows O&M FY 2008 through FY 2013 estimated costs to support the relocation of personnel and aircraft at Cannon AFB to meet AFSOC requirements. O&M construction would take place within or adjacent to existing facilities. As beddown of AFSOC facilities progressed over time (see Table 2.1-1), some temporary facilities, including temporary hangars, a temporary wash rack and runoff capture, modular units, and other temporary facilities would be in place on previously disturbed areas of Cannon AFB until military construction programs for the facilities were complete.

Representative Tent structures, depicted in color, and other temporary facilities would be erected to support aircraft and personnel while permanent facilities are under construction.

2.1.3.2 East and West Airfield Preferred Alternative

The East and West Airfield Alternative is the preferred alternative for Cannon AFB. This alternative would renovate and construct facilities on the north side of the runway and construct new facilities for large aircraft south side of the runway. Figure 2.1-2 depicts project locations for the East and West Airfield Alternative.

The East and West Airfield Alternative would involve approximately 284 acres of additional unimproved disturbed grassland. Infrastructure upgrades, such as connecting new facilities to water and power systems, would also count in the affected area. Affected acres represent the area covered by the construction footprints of the proposed facilities from Table 2.1-5 plus the surrounding lands where construction-related clearing and grading would occur. No construction is expected outside the existing property limits of the base. Table 2.1-6 presents estimated annual costs by year. As noted in Section 2.1.3.1, annual construction is dependent upon Congressional appropriations.

East and West Airfield Alternative O&M construction would be essentially the same as those for the West Flightline Alternative. Table 2.1-6 includes FY 2007 estimated O&M dollars to support the relocation of aircraft, personnel, and equipment to meet beddown requirements. As with the West Flightline Alternative, temporary facilities would be in place while permanent facilities were constructed.

2.1.4 Equipment

Under either the West Flightline or the East and West Airfield Alternative, AFSOC would require approximately 141 vehicles above the 27 FW's current 492 vehicles, for a total of 633 vehicles. The proposed additional vehicles would consist of the same type and design of vehicles currently at Cannon AFB and Melrose AFR. However, the United States Air Force (Air Force)-wide directive for utilization of low speed vehicles (LSV) across all commands may effect the overall fleet composition. The proposed 30 percent conversion of selective fleet vehicles to LSVs by FY 2007 may effect approximately 19 vehicle authorizations.

2.1.5 Mission Personnel

Military personnel assignments would be the same under either the West Flightline or the East and West Airfield Alternative. AFSOC personnel would train to perform a variety of missions. AFSOC proposes to transfer a number of personnel to Cannon AFB. Most personnel currently assigned to the 27th Medical Group and 27th Mission Support Group will remain at Cannon AFB and transfer to AFSOC. The Cannon AFB population would begin to increase starting FY 2008. Most of the population growth will occur during the FY 2008 to FY 2010 period. The projected change in manpower authorizations and support personnel is shown in Table 2.1-7. No Action is also presented in the table.

Cannon AFB personnel assignments with the AFSOC beddown would be approximately the same personnel numbers as those which existed with the F-111 missions in the mid-1990s.

FIGURE 2.1-2. PREFERRED EAST AND WEST AIRFIELD FACILITY DEVELOPMENT AT CANNON AFB, NEW MEXICO

Table 2.1-5. Proposed Facilities for East and West Airfield Alternative (Page 1 of 2)

FY	*Project #*	*Title*	*Scope (square feet)*
2008	CZQZ073006	Add/Alter Hangar C-130 Hangar	22,185
2008	CZQZ063015	SOF Flight Simulator Facility	15,070
2009	CZQZ2063010	SOF Aircraft Maintenance Hangar	38,298
2010	CZQZ063002	Consolidated Communications Facility	51,850
2010	CZQZ063037	SOF Squadron Operations and Maintenance Facilities	43,000
2011	CZQZ063019	SOF C-130 Fuel Cell and Corrosion Control Hangars	Fuel Cell – 31,000 Corrosion Control – 59,000
2011	CZQZ063027	SOF CV-22 Simulator Facility	15,070
2011	CZQZ063052	SOF UAV Squadron Operations/Ground Control Stations	43,690
2011	CZQZ063028	SOF MC-130 Squadron Operations Facility	26,996
2011	CZQZ063026	SOF Add/Alter Building 198 for Talon II Squadron Operations	26,017
2011	CZQZ063021	SOF C-130 2-Bay Hangar/Aircraft Maintenance Unit (AMU)	65,004
2011	CZQZ063029	SOF Special Tactics Squadron (STS) Squadron Operations	62,990
2011	CZQZ073005	Dormitory (96 rooms)	34,100
2011	CZQZ093002	Child Development Center	17,007
2011	CZQZ063023	SOF CV-22 Squadron Operations Facility	26,006
2011	CZQZ063022	SOF Taxiway Shoulders for C-130s	753,480
2011	CZQZ133001	Add/Alter Wastewater Treatment Plant (WWTP)	5,382
2011	CZQZ063053	SOF UAV Hangar/AMU Facility	43,895
2011	CZQZ073026	SOF Fuselage Trainer Facility	13,993
2012	CZQZ123001	96-Person Dormitory	34,100
2012	CZQZ063024	SOF CV-22 Taxiway Expansion	75,003
2012	CZQZ043001	Library Education Center	38,643
2012	CZQZ063033	SOF Tiltrotor Maintenance Squadron Operations Facility	16,996
2012	CZQZ063032	SOF Mission Readiness Supply Storage Facility	49,998
2012	CZQZ063034	SOF Add/Alter CV-22 Squadron Operations	13,993
2012	CZQZ063035	SOF CV-22 AMU Addition	5,005
2013	CZQZ063030	SOF C-130 Hangar/AMU	32,000
2013	CZQZ053003	Add/Alter Fitness Center	58,180
2013	CZQZ063051	SOF MC-130 Parking Apron	1,540,016
2013	CZQZ063049	SOF MC-130 2-Bay Hangar/AMU	65,004
2013	CZQZ063050	SOF MC-130 Squadron Operations	35,004

Table 2.1-5. Proposed Facilities for East and West Airfield Alternative (Page 2 of 2)

FY	*Project #*	*Title*	*Scope (square feet)*
2010	CZQZ073010	SOF Add/Alter Simulator Facility for CV-22	15,070
2012	CZQZ073011	SOF Add/Alter Simulator Facility for MC-130	15,070
2014	CZQZ073012	SOF Add/Alter Simulator Facility for MC-130	15,070
2014	CZQZ073014	SOF AC-130 Squadron Operations Facility	32,000
2014	CZQZ073015	SOF Hot Cargo Pad and Relocate Combat Arms Training and Maintenance	344,448
2014	CZQZ073016	SOF MC-130 Parking Apron	1,539,252
2014	PXLY073001	SOF Landing Strip – Melrose AFR	1,237,860
2014	PXLY073002	SOF Relocate Melrose AFR Compound	50,052
2014	CZQZ073017	SOF MC-130 Squadron Operations Facility	26,996
2014	CZQZ073018	SOF C-130 Wash Rack/Hangar	25,026
2014	CZQZ073019	SOF Mobility Aerial Delivery Facility	50,052
2014	CZQZ073020	SOF Forward Area Rearm/Refuel Point Facility	26,996
2014	CZQZ073021	SOF Aviation Maintenance Facility	16,996
2014	CZQZ073022	SOF Resurface Roads	197,000
2014	CZQZ073023	Satellite Dining Facility	30,010
2014	CZQZ073024	Satellite Fitness Facility	30,010
2014	CZQZ073025	Satellite Fire Station	25,026
2016	CZQZ073013	SOF Add/Alter Simulator Facility for Non-Standard Aircraft	15,070

Table 2.1-6. East and West Airfield Projected Annual Construction, Renovation, and O&M Expenditures for AFSOC Beddown ($ Million)

Fiscal Year	*AFSOC Mission Construction/ Renovation*[1]	*AFSOC Mission O&M*[2] *(Request)*	*Cannon Other*	*Additional Utilities*
2008	9	146	0	1
2009	9	92	0	3
2010	40	73	20	5
2011	213	70	34	0
2012	66	77	30	0
2013	98	72	12	0

1. Program Year subject to Congressional Authorization.
2. Any unfunded requirements would roll over to the next year.

Table 2.1-7. Current and Proposed Personnel Authorizations[1]

	No Action	*FY 2006*	*FY 2007*	*FY 2008*[2]	*FY 2009*[2]	*FY 2010*[2]
Officer	11	275	190	439	702	755
Enlisted	105	3,142	2,171	2,743	4,020	4,185
Civilian	34	730	505	407	417	420
Contractor	0	320	320	320	320	320
Cumulative Total	150	4,467	3,186	3,909	5,459	5,680

Note: 1. CV-22, NSA, Foreign Internal Defense (FID) missions are future growth and should be in place by FY 2010.
2. These numbers apply to both action alternatives.

The timing of personnel change was noted as a concern during public scoping meetings. The estimated timing of the drawdown of the 27 FW would be from January 2007 through March 2008. The build-up of AFSOC personnel is proposed to be approximately 25 percent of the AFSOC mission and AFSOC Base Operating Support per year from October 2007 through October 2011. Annual construction and personnel build-up are subject to Congressional appropriations.

2.1.6 No Action Alternative at Cannon AFB

Section 1502.14(d) of the CEQ National Environmental Policy Act (NEPA) regulations requires an EIS to include analysis of a no action alternative. No Action for this EIS means that Cannon AFB becomes an AFSOC installation but no beddown of AFSOC assets would occur at Cannon AFB at this time. Analysis of the No Action Alternative provides a benchmark and enables decision-makers to compare the magnitude of the environmental effects of the proposal.

No Action personnel numbers are identified in Table 2.1-7. The MILCON, other Cannon MILCON, or the O&M expenditures associated with the AFSOC beddown in Tables 2.1-4 and 2.1-6 would not occur under No Action.

2.2 Elements Affecting Melrose AFR

Melrose AFR is primarily an air-to-ground and electronic combat training range with diverse target arrays for training Air Force personnel. The range also includes a small arms range, as well as laser targeting capabilities for training ground forces, and has been used to train operations of small UAS.

Two alternatives are under consideration at Melrose AFR, the Two-Target Alternative and the Three-Target Alternative. Both alternatives would include gunships and other live fire directed at specific targets on Melrose AFR. Melrose AFR does not currently support live-fire munitions. This action would change the type of munitions permitted on the range allowing aircrews to train more effectively. The live-fire targets and training would affect existing grazing leases. A No Action Alternative is also evaluated that does not include training from AFSOC assets at Cannon AFB.

AFSOC training would generally occur within the 60,010 acres that constitute Melrose AFR. Responsibilities and procedures for the maintenance, operation, and use of Melrose AFR as defined in Air Force Instruction (AFI) 13-212, Volume 1, ACC Supplement 1, Cannon AFB Addendum A ("Cannon Addendum") would be replaced with a new supplement to reflect AFSOC's new role as range manager, subsequent to transfer of the range from ACC. The AFSOC Cannon Local Range Supplement will be developed to reflect the more substantive range changes that are the subject of this EIS, subsequent to issuance of the Air Force's Record of Decision (ROD).

Melrose AFR is comprised of 60,010 acres divided into three main areas: Exclusive Air Force Use, Restricted Leased, and Unrestricted Leased Land. Figure 2.2-1 presents a portion of Melrose AFR.

The leased area is both farm and ranch land of short grass prairie. Portions of two leases have been developed in irrigated agriculture.

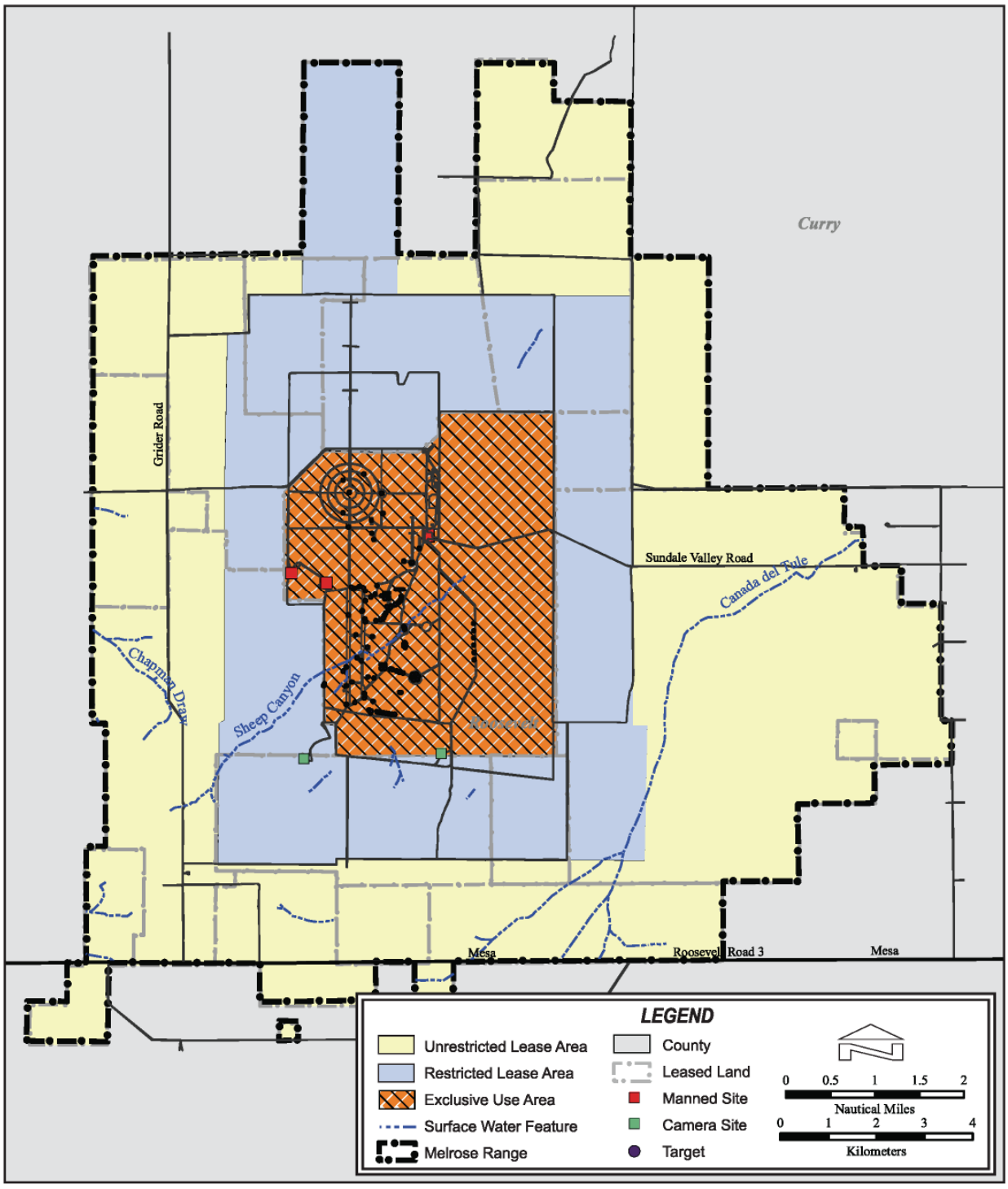


FIGURE 2.2-1. MELROSE AFR TARGETS

The Exclusive-Use land includes manned areas, targets, and impact areas. Restricted Leased Land restrictions include prohibiting human access to specific days and times. Unrestricted Leased Land can be used for human access 24 hours a day. No permanent structures, or structures over 50 feet tall, are permitted on any leased land. Development rights have been acquired to ranch lands on the periphery of the range to reduce the risk of encroachment and improve safety.

Melrose AFR soils are sandy in nature, predominately flat, with a rocky 200-foot-tall mesa bounding the impact area on the west and south. The range supported prairie dog communities, and currently supports hawks, golden eagles, owls, many other birds, porcupines, badgers, several kinds of snakes, antelope, deer, rabbits, and coyotes.

SANDY SOILS ARE GRADED AROUND MELROSE AFR TARGETS.

There is an average annual rainfall of 16 inches and winds of varying speed throughout the year. There are no permanent surface water bodies on Melrose AFR. There are two wells used for supplying water for the target area and numerous government-owned irrigation wells. The government uses these wells for firefighting, to provide water for wildlife habitats, and for agriculture.

2.2.1 MELROSE AFR TARGETS AND FACILITIES

Melrose AFR has a variety of conventional and non-conventional targets (see Figure 2.2-1) used for laser targeting and inert bombing runs. The range is capable of Weapons Impact Scoring System (WISS) scoring on 101 targets day and night. Tactical targets include a complete airfield; anti-aircraft artillery sites; an SA-3 missile site; bridge; train; dam; tunnel; convoys;, ground control intercept site; petroleum, oils, and lubricants (POLs) storage area; munitions storage area; and revetted surface-to-surface missiles.

REPRESENTATIVE EXISTING BUILDINGS AND VEHICLE TARGETS. AREAS AROUND TARGETS ARE GRADED TO REDUCE THE RISK OF FIRE.

Melrose AFR also includes permanent structures, which support personnel and range activities. These are listed in Table 2.2-1.

TABLE 2.2-1. PERMANENT STRUCTURES ON MELROSE AFR

Main Towers	Main Building and Patio	UPPD Facility
Flank Tower	Fire Department	EW Admin
Generator Shed	EW Support (2)	EW Interconnect
Wind Meter	Antenna Towers (4)	EOD Facility

2.2.2 Melrose AFR Restricted Airspace

R-5104 and R-5105 constitute the restricted airspace associated with Melrose AFR (see Figure 1.1-1). R-5104 is divided into two altitude blocks. The restricted area airspace is R-5104A from the surface to, but not including Flight Level (FL) 180 and R-5104B from FL180 to FL230. When not in use, control of the restricted airspace is turned over to Cannon AFB Command Post, who normally returns it to Albuquerque Air Route Traffic Control Center (ARTCC).

FL180 (Flight Level 180) refers to the Flight Level and is effectively 18,000 feet above mean sea level (MSL) for the purposes of this EIS. Most AFSOC aircraft never fly above FL180.

R-5105 comprises the restricted airspace (surface to 10,000 feet MSL) north of the range. When not in use, control is turned over to Cannon AFB Command Post, who normally returns it to Albuquerque ARTCC.

AFSOC proposes an array of aircraft utilizing Melrose AFR and associated Restricted Areas as presented in Table 2.2-2. Ground level in the vicinity of Melrose AFR is from 4,500 to 5,000 feet MSL. Due to normal operating altitudes, realistic Predator training in restricted airspace over the range would primarily occur in R-5104A and B. Airspace over the base and range is restricted, although transit between the base and range is in FAA Class E controlled airspace. AFSOC would request a COA for an airspace corridor extending from the Class D Cannon Airport Traffic area through existing Class E Controlled Airspace to the Restricted Areas that overlap the Class E airspace around Cannon AFB. This COA could permit UAS transit (see Section 3.1.2 for airspace discussion).

Table 2.2-2. Proposed Annual Aircraft Sortie-Operations for Melrose AFR and Restricted Areas

	R-5104A[1]		R-5104B[2]		R-5105[3]	
Aircraft	*Day*[4]	*Night*[5]	*Day*[4]	*Night*[5]	*Day*[4]	*Night*[5]
AC-130H	936	312	9	3	936	312
MC-130H	468	312	60	39	468	312
MC-130P	468	312	60	39	468	312
CV-22	750	500	0	0	750	500
C-47 Type	137	91	0	0	137	91
UH-1	113	38	0	0	113	38
NSA	456	456	0	0	456	456
UAS	90	90	90	90	90	90
MC-130W	468	312	60	39	468	312
Transient	1,170	300	1,170	300	1,170	300

Notes: 1. To 18,000 feet
2. 18,000 feet to 23,000 feet
3. To 10,000 feet
4. Day operations would be from 7:00 a.m. to 10:00 p.m.
5. Night operation is considered 10:00 p.m. to 7:00 a.m.

The Pecos and Taiban Military Operations Areas (MOAs) bound range airspace on the west (see Figure 1.1-2). Primary attack headings on range targets are from the north or south, with a secondary attack heading from the west.

The following Cannon-scheduled MTRs offer entry to the range: Instrument Route (IR)-107 (the only Cannon assigned route B-1s and B-52 bombers can use), IR-111, IR-113, Visual Route

(VR)-100, VR-108, VR-114, and VR-125. They comprise day/night, all weather (IR only), and varied-altitude range entry capabilities. Albuquerque ARTCC controls all routes. 27th Operations Support Squadron (27 OSS/OSOS) currently schedules all of the routes, the Pecos MOAs, and other airspace pictured in Figure 1.1-2. This responsibility would transfer to the SOW.

2.2.3 Ordnance Use at Melrose AFR

Melrose AFR currently has two strafe pits, which take up to 30 millimeter (mm) munitions and are scored by Improved Remote Strafe Scoring System (IRSSS). Targets support MK-106, BDU-33, and BDU-48 practice bombs, inert ordnance up to MK-82s, 84s, BDU-38s, and inert GBU-10s and GBU-12s.

The range currently supports the F-16 Targeting Pod (Laser), F-117 lasing system, PAVE TACK, PAVE SPIKE, the GLLD, the MULE, and the LTD-1 lasing systems. The range includes a Smokey Sam (ground-to-air missile simulator) and Laser Detector Scoring systems.

American and Allied personnel currently practice lasing targets from ground positions. Personnel would continue to train with laser systems.

Chaff and flare use is approved in Restricted Airspace associated with the range. Melrose AFR also includes a small arms (9mm, M-16, M-60, etc.) range. This small arms range is located to the east of the range facilities and between the manned facilities and east entrance road (see Figure 2.2-1). The small arms range is used by 27 FW personnel. When in use, small arms ranges are conducted under the strict control of the Range Control Officer (RCO).

2.2.4 Proposed Change in Ordnance Use

AFSOC training would increase the annual ordnance use at Melrose AFR as shown in Table 2.2-3. Table 2.2-3 lists aircraft delivered ordnance used at Melrose AFR currently by the 27 FW and proposed for AFSOC training. The Draft EIS included proposed C-130 use of 25 mm munitions for training on Melrose AFR. These munitions extended the safety footprint and Exclusive-Use area around the target area. During the public comment period on the Draft EIS, several commenters expressed concern with the size of the Exclusive-Use area driven by the 25 mm safety footprint. To reduce the safety footprint, 25 mm munitions are not proposed for use on Melrose AFR as part of this Final EIS.

Training is defined throughout this EIS to include all phases of the operational use of munitions including weapons and tactics test and evaluation.

Table 2.2-4 lists proposed ground ordnance expended by ground personnel that include Special Tactics Squadron, Security Forces (Security Police), Survival, Evasion, Resistance, and Escape (SERE) personnel, other SOF components, and New Mexico Army National Guard (NMARNG) personnel.

2.2.5 Alternative Air-to-Ground Target Areas

Two alternatives are under consideration to meet AFSOC training requirements for air-to-ground gunnery training.

2.2.5.1 MELROSE AFR TWO-TARGET ALTERNATIVE

The Two-Target Alternative adds two new target areas on Melrose AFR for AFSOC training with the capability to operate two AC-130 gunships simultaneously on the range. The two new live-fire target areas are shown in Figure 2.2-2. A minimum of two target areas are needed for live-fire training. Two target areas permit training by two aircraft and, if for any reason, such as clean-up or target maintenance, one target is inoperable, there would be at least one target for minimally required training.

Typical targets within the impact area would include tank hulks (approximately 30) and four 15-feet-by-15-feet sheets of steel armor. During an average year, approximately 25 percent of the Melrose AFR training activity would occur during environmental night (after 10:00 p.m. and before 7:00 a.m.).

TABLE 2.2-3. CURRENT AND PROPOSED ANNUAL ORDNANCE USE WITHIN MELROSE AFR

Aircraft Ordnance[2]	MELROSE AFR	
	Current Conditions	*Proposed Action*[3]
BDU-33	15,720	2,000
BDU-50HD	419	40
BDU-50LD	419	40
GBU-12	35	5
GBU-10	42	5
20 mm	51,200	3,500[1]
30 mm Target Practice Rounds (AC-130)	0	600
30 mm High Explosive Incendiary (AC-130)	0	50,000
40 mm (AC-130)	0	50,000
105 mm Target Practice Rounds (AC-130)	0	12,500
105 mm High Explosive Incendiary (AC-130)	0	2,500
105 mm High Frag (AC-130)	0	280
2.75 Rockets -M151	73	73[1]
2.75 Rockets -Other	24	24[1]

Notes: 1. Ordnance expended by transient users.
2. See Section 2.3.2 for chaff and flare discussion.
3. CV-22 ordnance has not yet been determined.

Table 2.2-4. Proposed Annual Ground Use Ordnance on Melrose AFR (Page 1 of 2)

Ground User Ordnance	Melrose AFR	
	Current Conditions	*Proposed Action*[1]
40 mm Smoke	0	504
40 mm Practice M781	0	26,250
40 mm FXD Mult Proj xm 576	0	<10
40 mm White Star Para M583	0	<10
40 mm HEDP M433 Sngl Rd	0	<10
Fragmentation Grenade	0	<10
Hand Smoke M18	0	389
Mine Anti Personnel M18A1	0	<10
A/P25S-5A Sig Kit Personl Distress	0	18
MK124-0 Sig Smoke Illum Marine	0	<10
MK125A1 Sig Illum Ground	0	<10
M49A1 Surface Trip Flare	0	<10
MK25 Marker	0	<10
M115A2 Sim Proj Ground Burst	0	<10
M118 Sim Booby Trap	0	<10
M119 Sim Explosive Booby Trap	0	<10
M116A1 Sim Hand Grenade	0	<10
M60 Igniter Time Blast Fuze	0	100
M112 Comp 4, 1.25lb Demo Charge	0	100
1LB TNT Demo Charge	0	<10
M7 Non Electric Blasting Cap	0	77
M2A2 15LB Comp B Demo Charge	0	<10
Detonating Cord Assembly	0	1,475
M700 Time Blast Fuse	0	1,500
7.62 Ball 4-1 Linked	0	1,030,000
7.62 Blank, M82 Linked	0	3,200
9mm (sub cal)	0	1,960,000
.50 cal ball/Tracer Linked	120	425,000
40mm TP M918 Linked	0	16,000
40mm HEDP M430AI Linked	0	8,832
84 MM AT4 HE Rocket	0	410
Hand Smoke White HC	0	32
Hand Incendary	0	16
35mm Practice F/ M190 LAU Rocket	0	1,058
Inter Tube Assy Fit F/LAU M190	0	1,058
66 mm LAU Rocket	0	23
66 mm M72A3 HE rocket	0	<10
Practice Launcher	0	<10
Smoke Grenades (Ground)	0	60
Training Flares (Ground)	0	600
5.45 mm	0	26,000
5.56 mm	1,035	2,430,000
12 gauge	0	33,000

Table 2.2-4. Proposed Annual Ground Use Ordnance on Melrose AFR (Page 2 of 2)

Ground User Ordnance	Melrose AFR	
	Current Conditions	*Proposed Action*[1]
60 mm	0	7,000
81 mm	0	5,100
Mines	0	2,200
Grenades	0	7,600
Flares	0	2,100
66 mm LAW	0	60
84 mm AT-4	0	60

Note: 1. Includes NMARNG and Special Forces Group use.

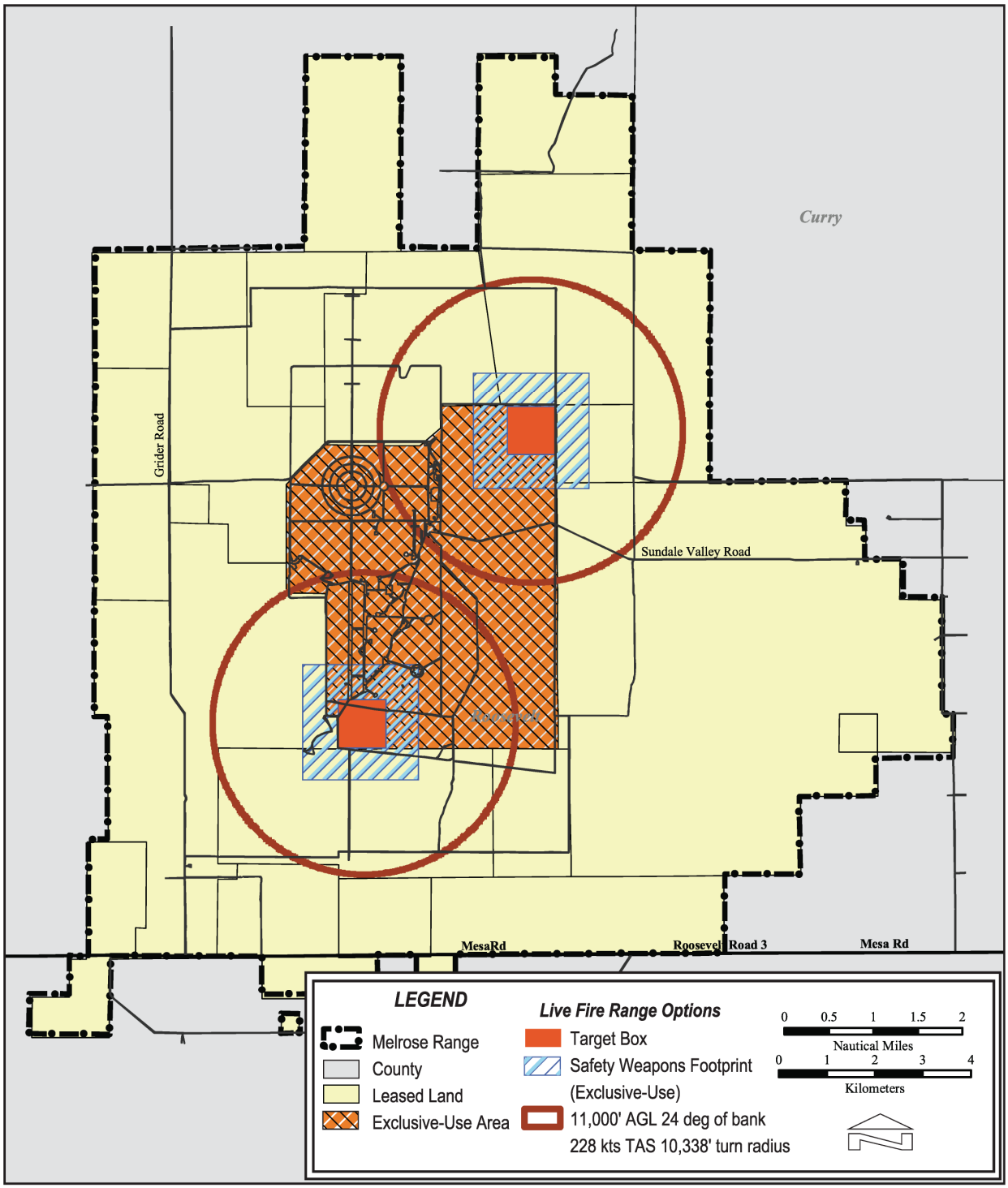


FIGURE 2.2-2. MELROSE AFR PREFERRED TWO-TARGET ALTERNATIVE

A variety of targets would be constructed within each approximately 1 kilometer by 1 kilometer target area. One target set could include approximately 271 SEALAND containers placed on Melrose AFR to simulate an urban setting. The SEALAND containers are depicted in Figure 2.2-3 with a variety of targets. The SEALAND containers would not be used specifically as targets; rather targets would be located among the containers. These containers would be located within the live-fire exclusive-use area. There is an estimated expenditure of $30 million split between FY 2008 and FY 2009 for targets, a defense access roads project, and improved range and fire safety improvements.

Table 2.2-5 presents the estimated acreage in each of the Exclusive-Use, Restricted Leased, and Unrestricted Leased categories within the 60,010-acre Melrose AFR.

TABLE 2.2-5. ACRES OF LAND USE[1]

Land Use	*Existing Conditions*	TWO-TARGET ALTERNATIVE		THREE-TARGET ALTERNATIVE	
		Draft EIS	*Final EIS[2]*	*Draft EIS*	*Final EIS*
Exclusive-Use	8,800	16,613	10,600	23,275	12,700
Restricted Grazing[1]	18,710	12,247	18,600	12,615	23,300
Unrestricted Grazing[1]	32,500	31,150	30,810	24,120	24,010
Total	**60,010**	**60,010**	**60,010**	**60,010**	**60,010**

Note: 1. Acres summarized from Geographic Information System; survey acreage may vary.
2. Preferred Alternative.

2.2.5.2 MELROSE AFR THREE-TARGET ALTERNATIVE

The Three-Target Alternative would better meet operational training requirements for all AFSOC assets proposed to be located at Cannon AFB. Training personnel would regularly require two targets, and experience has demonstrated that target maintenance and cleanup would render at least one target unavailable for training use approximately one and one-half months per year. This means that a two-target alternative would be reduced to one useable target approximately three months of the year. A three-target alternative would permit rotation of target use so that at least two targets would be available for required training throughout the year.

The Melrose Three-Target Alternative has three live-fire target areas on Melrose AFR as depicted in Figure 2.2-4. Table 2.2-5 includes the land management areas for Melrose AFR under the Three-Target Alternative. The Three-Target Alternative would include all mission training described in Section 2.2.1 for the Two-Target Alternative. This includes the munitions and chaff and flare use identified in Section 2.2.1. The day/night proportion of training would also apply to the Three-Target Alternative. As described for the Proposed Action, there would be one Landing Zone (LZ) and Drop Zone (DZ) and several Helicopter Landing Zones (HLZs) on Melrose AFR.

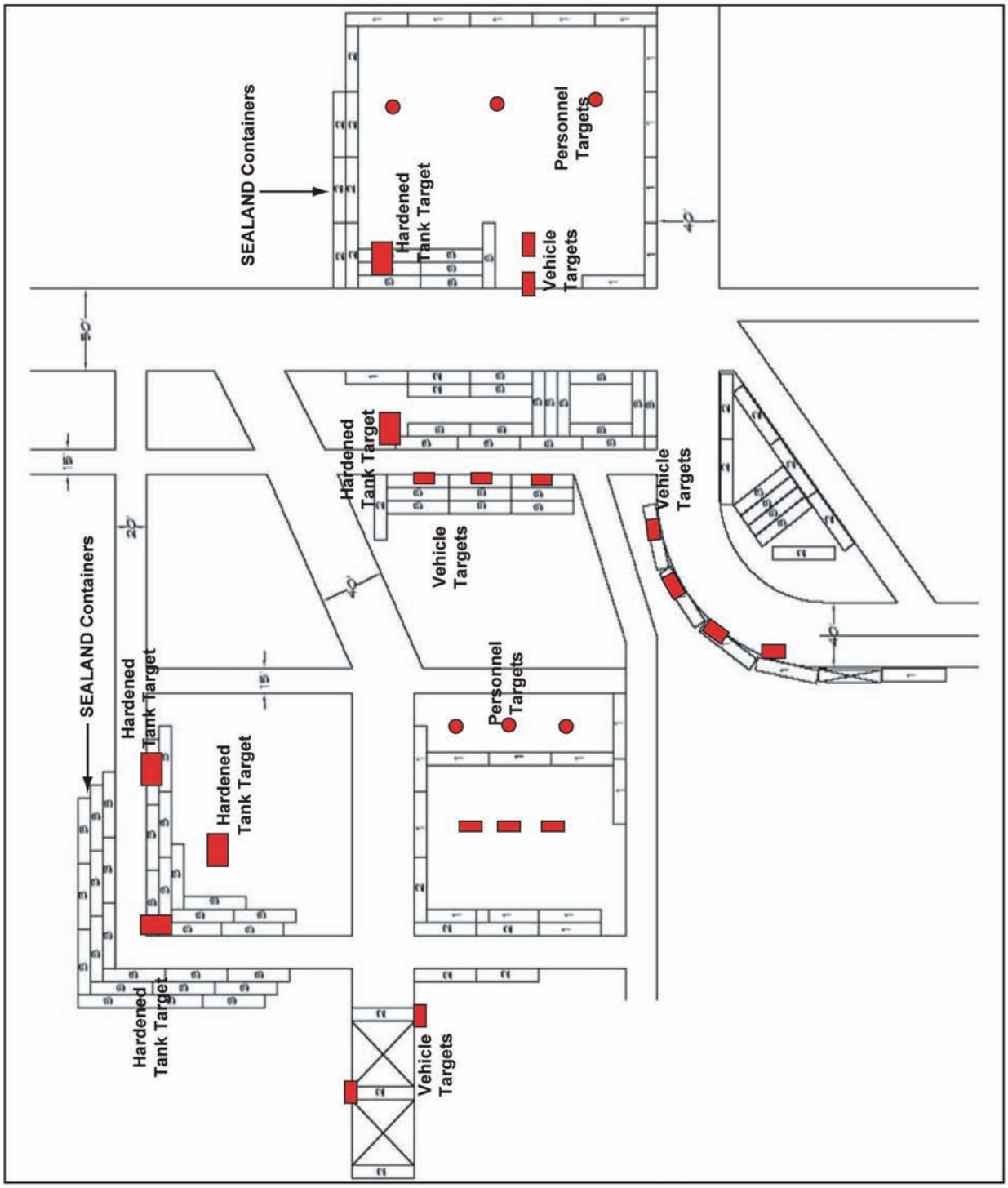


Figure 2.2-3. Representative 11-Acre Target Layout

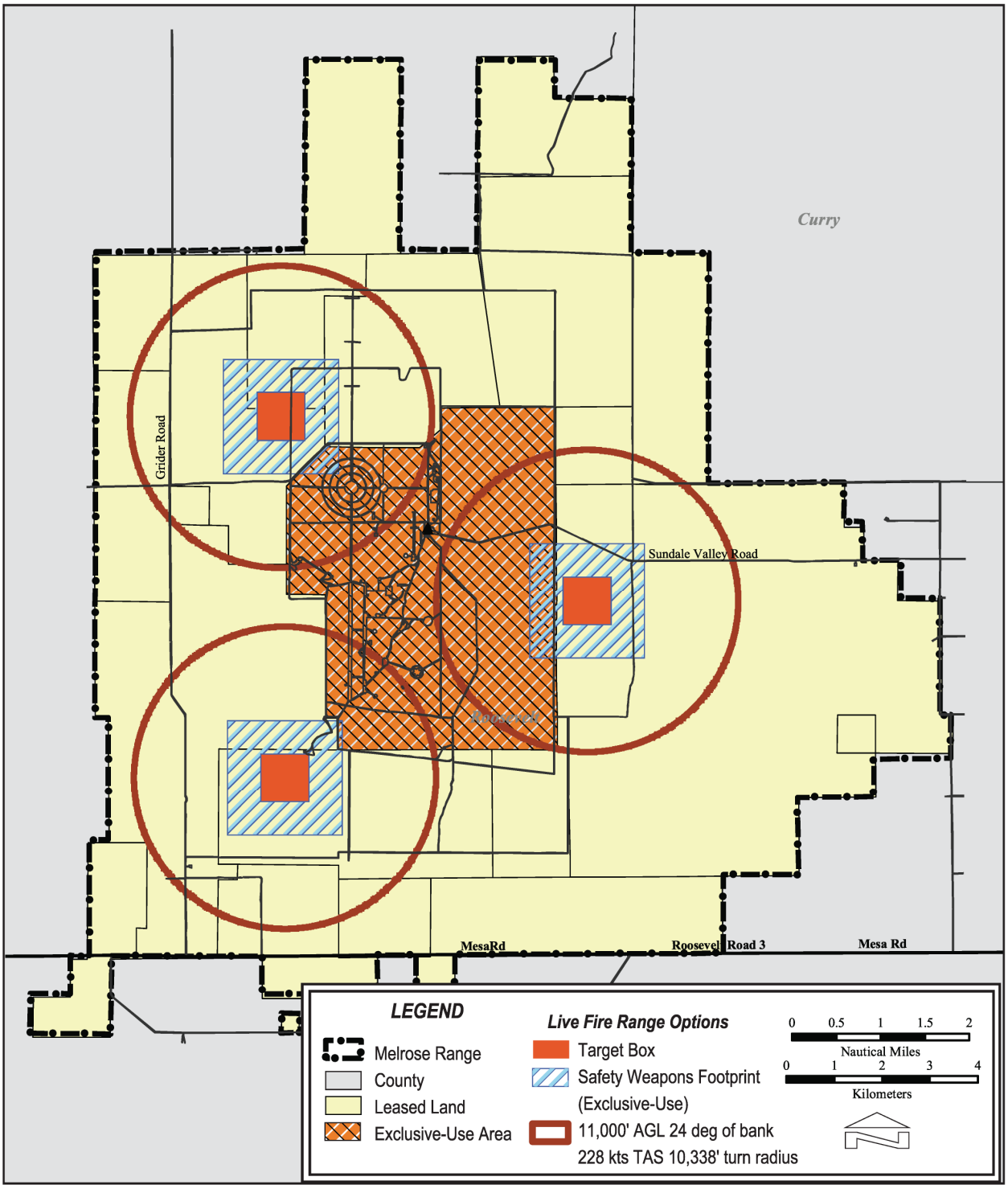


Figure 2.2-4. Melrose AFR Three-Target Alternative

As with the Two-Target Alternative, the estimated Three-Target Alternative expenditure for Melrose is $30 million split between FY 2008 and FY 2009. The primary difference between the Two-Target and the Three-Target Alternatives would be the changes in targets and resulting changes in grazing leases associated with the safety zones. This difference is presented in Table 2.2-5.

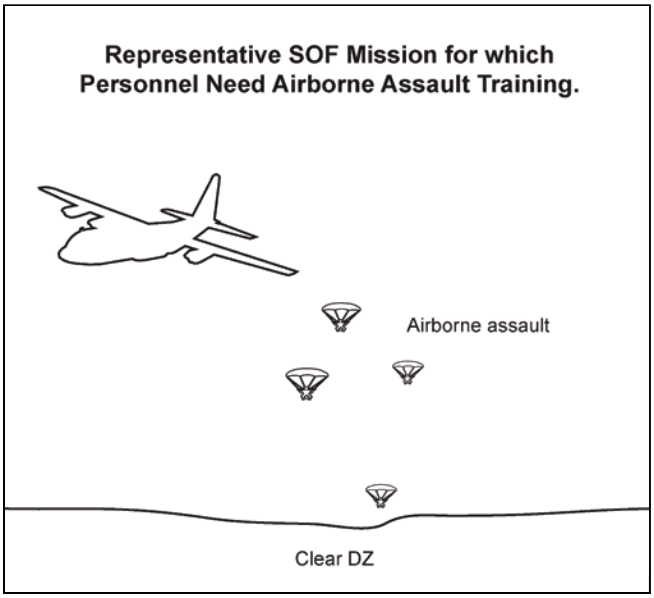
2.2.6 Additional Melrose AFR Activities

Additional proposed Melrose AFR activities include the ability to land and recover personnel training for insertion and extraction and improved small arms range capability.

2.2.6.1 Landing Zone and Drop Zone

Eventually there would be one proposed C-130, UAS, and NSA LZ on Melrose AFR. Several HLZs would be surveyed on Melrose AFR to accommodate CV-22 and helicopter use. A DZ would be surveyed on Melrose AFR to accommodate all aircraft. Training using LZ/DZ/HLZ would be approximately 50 percent during environmental night (after 10:00 p.m. and before 7 a.m.). LZ/DZ training could include the following:

- Fixed wing aircraft landing on the strip in darkened conditions to off-load supplies, equipment or personnel.
- C-130 or CV-22 landing for refueling training at a remote location.
- C-130 or CV-22 discharging paratroops to simulate a drop behind "enemy" lines.
- C-130 landing or CV-22 landing or hovering to retrieve personnel after a mission.
- Personnel deployed from a C-130 or CV-22 securing the location and/or moving from the strip to "attack" Melrose targets.



LZ/HLZ/DZ sites would be graded and would include a soil stabilizer to reduce the potential for debris to affect engine performance. LZ/DZ/HLZ sites would result in approximately 50 acres being cleared of vegetation and stabilized. An LZ would require a paved strip to support C-130 aircraft. Figure 2.2-5 presents a representative 50-acre LZ/DZ which would be located on Melrose AFR following decisions regarding the Two- or Three-Target Alternatives presented in this EIS.

2.2.6.2 Small Arms Range

SOF train to enter an area, carry out a mission, and exit the area. To accomplish this process, they must be proficient in the use of a variety of arms and ammunition. NMARNG personnel must also be trained in the use of a variety of arms. Proposed enhancements to the Melrose

AFR small arms range would meet the needs of both the 515th Regiment of the NMARNG and the Cannon-based AFSOC personnel.

The proposed small arms enhancements take into consideration past usage of the range for small arms training. The proposed range would provide basic and advanced weapons marksmanship ranges to include the following:

- Rifle/Machine Gun Zero Range
- Multi-Purpose Machine Gun Range
- Automated Record Fire Range
- Combat Pistol Qualification Course
- Grenade Launcher Range
- Range Operations Center

The proposed munition usage for the small arms range is presented in Table 2.2-4.

Figure 2.2-5 presents the area that could be affected by live fire from the small arms ranges above. The range facilities and firing locations would be in the upper right of the red polygon and the typical shape of these firing locations is presented in the figure. Targets would be located to the southwest of the firing locations. The red polygon encompasses all safety zones for all small arms training. Depending upon the type of training, portions or the entire polygon could be subject to stray or ricocheting rounds. During training, and depending on the weapons being used, personnel would be excluded from potential risk areas for safety.

Potential impacts from munitions use would be mitigated by having all targets meet stringent Air Force requirements for cleanup and collection of lead.

2.2.7 No Action Alternative at Melrose AFR

Section 1502.14(d) of the CEQ implementing regulations requires an EIS to analyze the No Action Alternative. Analysis of the No Action Alternative provides a benchmark and enables decision-makers to compare the magnitude of the environmental effects of the proposal. No Action for this EIS means Melrose AFR continues to be used for New Mexico Air National Guard (NMANG) and transient user training.

2.3 Elements Affecting Airspace

2.3.1 Training Missions within Airspace

There are four types of local training airspace scheduled by Cannon AFB. Figure 2.3-1 displays these types of airspace and a COA. Airspace scheduled by Cannon AFB associated with this proposal encompasses all the Restricted Airspace supporting Melrose AFR, the MOAs, and the MTRs. AFSOC aircraft do not normally fly in Air Traffic Control Assigned Airspace (ATCAAs). Restricted airspace use is discussed in Section 2.2.2.

The scoping briefings explained that AFSOC aircrews can meet airspace training requirements within the existing Cannon AFB managed airspace, including the Pecos, Mt. Dora, Taiban, and Bronco MOAs and Restricted Airspace associated with Melrose AFR. The MOAs, Restricted Airspace, and MTRs scheduled by Cannon AFB would support AFSOC low level, night, and other training missions as well as on-going training by other military users of the airspace. An FAA COA would be needed to permit Predator transition from Cannon AFB to Melrose AFR.

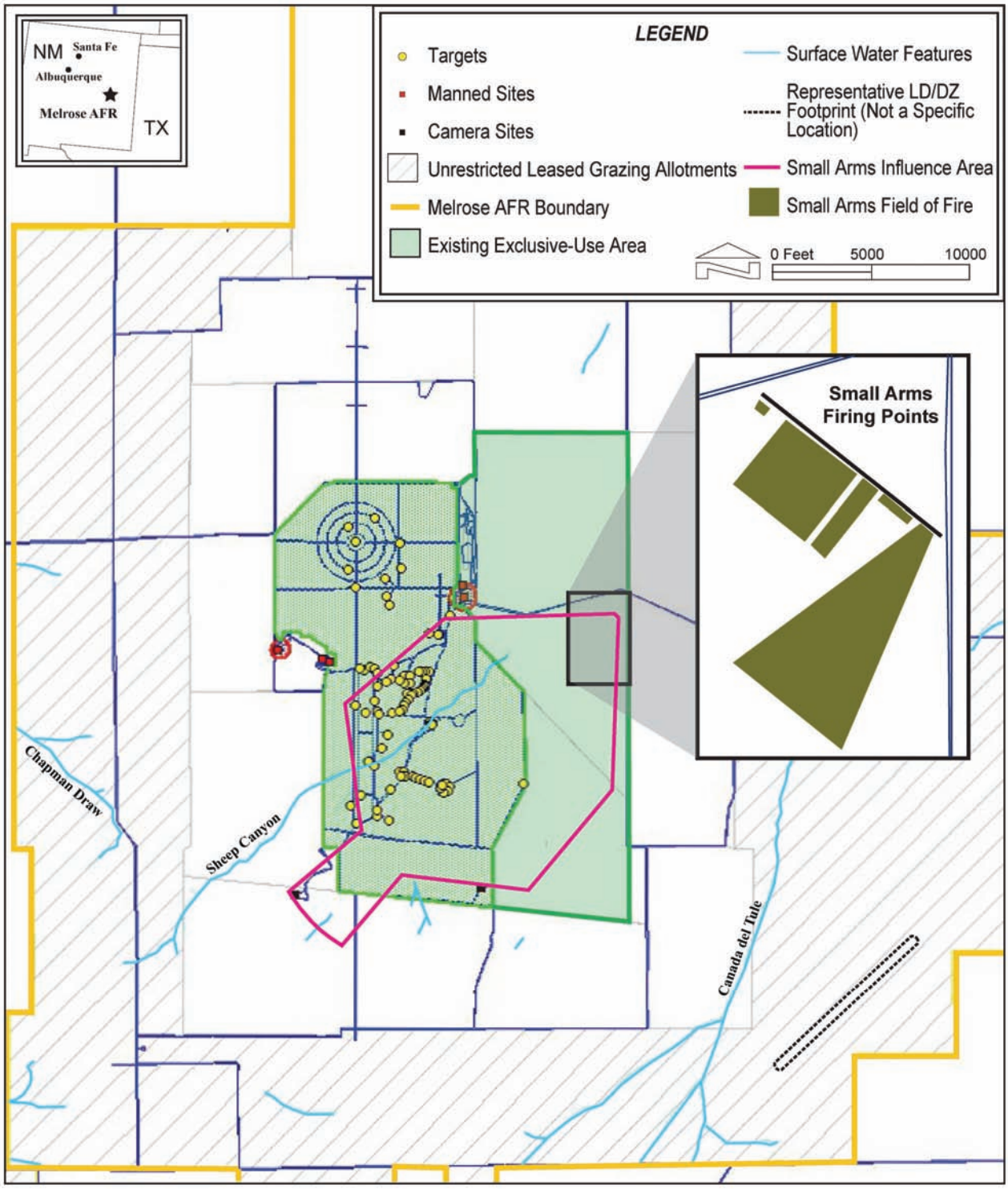


Figure 2.2-5. Influence Area for Proposed Army Guard Range on Melrose AFR

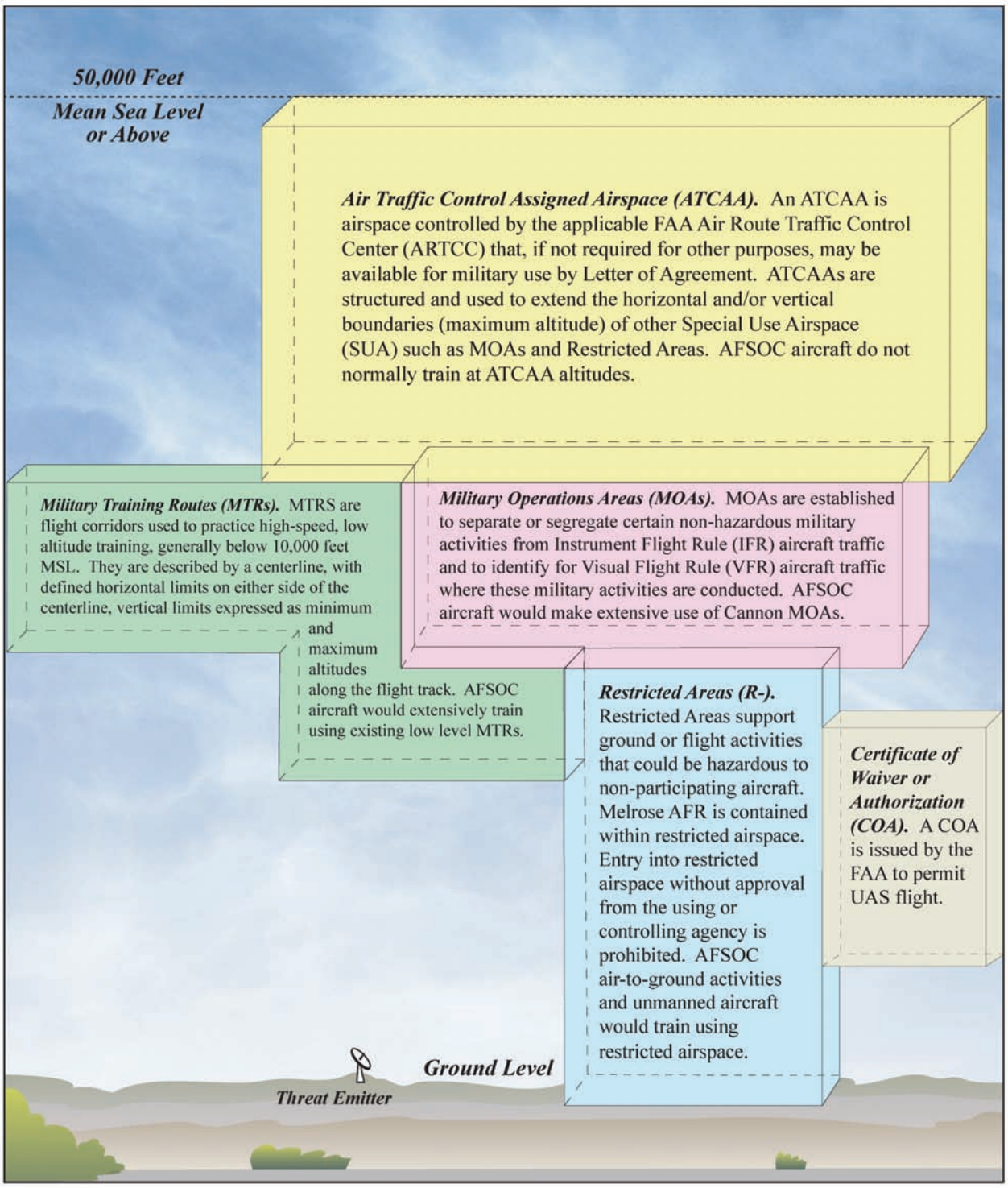


Figure 2.3-1. Types of Training Airspace

Figure 1.1-2 presents the existing airspace scheduled by Cannon AFB. This airspace includes the Pecos MOAs, the Mt. Dora MOA, the Taiban MOA, and the Bronco MOA. The Taiban and Pecos MOAs are often used in conjunction with Melrose AFR. The Pecos MOAs are divided into a north and south segment, with each segment having a high and low component. In general, these MOAs abut each other horizontally and vertically, essentially forming one contiguous block of airspace. The exception to this is the Pecos South High MOA, which extends to the south beyond the southern border of the Pecos South Low MOA. This structuring of the MOA airspace, in effect, created a "shelf" of MOA airspace extending to the south of the southern border of the Pecos South Low MOA that begins at 11,000 feet MSL.

The Taiban MOA is situated along the northeastern edge of the Pecos MOAs. This MOA effectively extends the Pecos North Low MOA and a portion of the Pecos South Low MOA eastward to the Restricted Airspace, which supports operations on Melrose AFR. These MOAs are scheduled by staff at Cannon AFB; airspace utilization is under the control of the Albuquerque ARTCC.

A COA is issued by FAA to permit a special use of a defined airspace for a specified period of time. The Predator aircraft based at Cannon AFB would need a COA to traverse the corridor between Cannon AFB and R-5104 and R-5105 associated with Melrose AFR. The Mt. Dora MOA is located north of Cannon AFB and has not been extensively used by Cannon AFB F-16 aircraft because of its distance from the base. As noted by participants at scoping meetings, the F-111s previously based at Cannon AFB used the Mt. Dora MOA. AFSOC C-130 and CV-22 aircraft can access and train in the Mt. Dora MOA. There is no proposed ground activity under the Mt. Dora MOA as part of this EIS.

Representative SOF Mission for which Personnel Need Refueling Training.

Midair refueling CV-22 or C-130.

The Bronco MOA is south of Cannon AFB and has been used for F-16 air-to-air training. AFSOC would train in the Bronco MOA. There is no proposed ground activity under the Bronco MOA as part of this EIS.

AFSOC aircraft would utilize the existing airspace for a variety of training missions. Table 2.3-1 briefly describes AFSOC training missions.

Table 2.3-1 includes two AR cases. Different AFSOC C-130 aircraft have air-to-air refueling capability from KC-135 and KC-10 aircraft. AFSOC C-130s can also refuel CV-22s, CSAR helicopters, and some U.S. Army Special Operations helicopters. AR can be accomplished by both the tanker aircraft and the refueling aircraft flying an orbit pattern such as the existing AR-602 refueling track on Figure 1.1-2. The existing refueling tracks for F-16 aircraft are too high an altitude for AFSOC aircraft. AFSOC will coordinate with appropriate agencies to lower the altitudes of existing tracks and/or designate other refueling tracks. The CV-22 is a new weapon system and operational capabilities and requirements for refueling are currently under development. Proposed C-130/CV-22 AR tracks would be established in conjunction with FAA when operational capabilities are refined. Civil aviation would be notified of the location, altitudes, and time of use. An FAA modification to MTR use to document AR tracks would be requested for AFSOC training.

TABLE 2.3-1. TRAINING ACTIVITY DESCRIPTION (PAGE 1 OF 2)

Training Activity	*Description*
Live Fire (aircraft)	Identify and engage targets with one or more available aircraft weapons in addition to weapons currently authorized on Melrose AFR. Table 2.2-3 includes AFSOC ordnance. These activities would occur within the restricted airspace of Melrose AFR.
Live Fire (ground)	Identify and engage targets with one or more man-portable weapons. Personnel may approach the target(s) by foot or vehicle and would normally be executing a tactical scenario that culminates in a live-fire activity. AFSOC man-portable weapons are included in Table 2.2-4. Other weapons would be used on the Melrose AFR in addition to those currently authorized. Training would take place on the approved small arms firing ranges at Melrose AFR.
Low Level Navigation Training	Four- to five-hour flights consist of both day and night activities (50 percent environmental night) with altitudes being between 100 feet AGL and 1,000 feet AGL (75 percent in the 500 feet AGL range) and airspeeds between 100 and 250 knots. These flights normally consist of flying to an objective (simulated or real) and then departing the objective area to recover back to base. Simulated or real objectives can consist of LZs, DZs, or target areas.
Air Drops (land)	Air drops normally consist of personnel and equipment exiting the aircraft from approximately 250 to 1,000 feet AGL on a DZ that is either owned or leased by the federal government. High-altitude drops would occur at 12,000 feet AGL. These DZs are normally 2,300 yards long by 800 yards wide or smaller and can be identified to the aircraft by visual or electronic means. These DZs would be manned with logistic support prior to a drop occurring. Medical and safety support personnel would be available at the site. All items that exit the aircraft would be recovered and transported back to the nearest military installation.
Air Drops (water)	Air drops over water normally consist of personnel and equipment exiting the aircraft from approximately 1,000 to 3,500 feet AGL and landing in a large body of water. These water DZs would be manned prior to executing the drop and all items that exit the aircraft would be recovered as quickly as possible and transported back to the nearest military installation. Water drops would have at least one safety boat on the DZ in time to survey the area for hazards. If any non-participating vessels were located within the DZ, the safety boat would ask them to exit the area. The drop would not take place if the area could not be safely secured.
Vertical Landings (tactical)	Vertical landings would normally be executed to a 320 by 160-foot clearing located on government-leased or owned land. These landings would be day or night. Activities can include offloading and on-loading of personnel and equipment. Normally the aircraft would spend very little time on the ground and would attempt to exit the area as quickly as possible. There are times when training requires the aircraft to stay in the area for extended periods while accomplishing required training. Multiple aircraft executing simultaneous landings could occur at DZs.

TABLE 2.3-1. TRAINING ACTIVITY DESCRIPTION (PAGE 2 OF 2)

Training Activity	*Description*
Fixed Wing Landings (tactical)	Most AFSOC aviators require training in NVG landings. C-130 crewmembers accomplish this training by landing on improved (paved) runways without the aid of airfield or aircraft lighting. These fields are no less than 3,500 feet long, 60 feet wide, and capable of supporting C-130 type aircraft. These events can take place on military or non-military airfields. Some events would only consist of landings and departures while others may consist of offloading and on-loading personnel and equipment. The military must formally request permission to accomplish this training at non-military fields from the owner/operator of that facility.
Chaff and Flares	Expending chaff and/or flares is achieved in conjunction with ground/aircraft radar while performing evasive maneuvers. These events would take place in approved MOAs or in Restricted Airspace. The minimum MOA altitude identified for flare use under less than very high fire danger is 2,000 feet AGL. Most AFSOC aircraft require this training event.
Strategic Aerial Refueling (high altitude)	Most AFSOC aircraft have the capability to refuel while airborne. AR training would be accomplished nightly in one of the local MOAs between KC-135/KC-10 aircraft and AFSOC C-130s and CV-22s. These refueling events would normally take place between 9,000 and 14,000 feet MSL and would take several hours as different C-130s and CV-22s cycle to the tanker. CV-22s would also practice AR in this same environment as they rendezvous with AFSOC's C-130 aerial tanker fleet. Both types of refueling would be accomplished at approximately 200 knots.
Tactical Aerial Refueling (low altitude)	AFSOC has a fleet of C-130s that have the ability to extend an AR basket behind the aircraft while allowing modified helicopters and CV-22s to receive fuel. This procedure would normally occur at 1,000 feet AGL or higher at 100 to 210 knots and could occur on designated refueling tracks. An FAA modification to MTR use to document AR tracks would be requested for AFSOC training.
Self-Contained Underwater Breathing Apparatus (SCUBA) Operations	SCUBA operations would take place in local lakes to allow AFSOC personnel to stay proficient in these tactical skills. During operations, there would be several safety boats on site to ensure training events take place as planned and to provide a buffer between divers and civilian observers. The Blue Hole is the regional location that provides adequate conditions for direct certification.
Forward Area Refueling Point	Fuel is transferred from tanker aircraft (C-130 or C-17) to a receiver aircraft (C-130, H-60, H-53, H-47, and H-6) via a Forward Area Manifold (FAM) cart and other specialized refueling equipment. Fuel is transferred from the tanker's internal tanks to a maximum of three simultaneous receivers.
Airborne Intercepts	C-130s would fly against fighter-type aircraft to simulate an airborne threat engagement. Airborne Intercepts between C-130s and fighters would be flown inside the MOA.

Table 2.3-2 presents proposed sortie operations for AFSOC aircraft within MTRs and MOAs. Sortie-operations on these MTRs and within the MOAs could include, from Table 2.3-1, low-level navigation training, flying a route to simulate airdrops, flying to meet refueling aircraft, and other missions.

Currently there are several noise avoidance areas under the MOAs and MTRs scheduled by Cannon AFB. AFSOC airspace schedulers would identify these avoidance areas, assess the applicability and use by AFSOC, and mitigate noise impacts by adopting noise-sensitive avoidance areas.

2.3.2 AFSOC Use of Chaff and Flares in Cannon Managed Airspace

Military aircraft are currently authorized to use chaff and defensive flares in Restricted Areas (R-5104, R-5105), Taiban MOA, Sumner ATCAA, and in the Pecos MOA/ATCAA. Flares are authorized for use in the MOAs and ATCAAs above 2,000 feet AGL under conditions not designated at, or above, high fire risk. When conditions are designated at or above high fire conditions, the minimum flare altitude for MOAs is 5,000 feet AGL. Chaff is also authorized in the northern portion of VRs-100/125. The NMANG will continue to use chaff and flares in the previously approved, existing airspace. RR-188 chaff and M-206 flares (or equivalent) are the only defensive countermeasures assessed for airspace outside R-5104 or R-5105.

AFSOC pilots use chaff and flares as self-protection measures against radar-directed anti-aircraft artillery and radar-guided and heat-seeking missiles. When aircrews detect threats from these systems, they must respond instantly and instinctively using appropriate countermeasures. The inability of aircrews to actually use these countermeasures in training results in the loss of critical response habit patterns. The instinctive nature of these habit patterns often determines an aircrew's survivability in a hostile environment. The following discussion provides information characterizing military training chaff and flares that would be used under the Proposed Action. Figure 2.3-2 depicts the life cycle and processes upon release of chaff and flares.

An annual total of 60,770 chaff bundles and 40,286 flares are assessed for F-16 and transient training throughout the permitted airspace. Table 2.3-3 presents the current and proposed chaff and flare usage with the proposed AFSOC beddown.

Chaff. Modern training chaff (known as "angel hair" chaff) consists of bundles of extremely small strands of aluminum-coated silica fibers that are designed to reflect radio waves from a radar set. Chaff is made as small and light as possible so that it will remain in the air long enough to confuse enemy radar. Individual chaff fibers are approximately the thickness of a very fine human hair and range in length from 0.3 inch to 1.0 inch (0.76 centimeters to 2.5 centimeters). The length of the chaff determines the frequency range of the radio wave most effectively reflected by that particular fiber. Chaff fibers are cut to varying lengths in order to make it effective against the wide range of enemy radar systems that may be encountered. Chaff used in the Cannon airspace is typically training chaff and may include RR-188 chaff or other versions of training chaff depending on the user. This specific chaff contains fibers cut to lengths that will not interfere with radars operated by the FAA for Air Traffic Control (ATC) throughout the National Airspace System.

TABLE 2.3-2. PROPOSED ANNUAL AIRCRAFT SORTIE-OPERATIONS FOR MTRS AND MOAS

	AC-130H		MC-130H		MC-130P		CV-22		C-47		UH-1		NSA		MC-130W		TRANSIENT	
	Day	*Night*	*Day*	*Night*	*Day*	*Night*	*Day*	*Night*	*Day*	*Night*	*Day*	*Night*	*Day*	*Night*	*Day*	*Night*	*Day*	*Night*
MTRs																		
VR-100	0	0	154	102	154	102	307	205	0	0	0	0	60	40	154	102	60	0
VR-108	0	0	154	102	154	102	307	205	0	0	0	0	60	40	154	102	19	0
VR-114	0	0	154	102	154	102	307	205	0	0	0	0	60	40	154	102	37	0
VR-125	0	0	154	102	154	102	307	205	0	0	0	0	60	40	154	102	18	0
IR-107	0	0	154	102	154	102	307	205	0	0	0	0	0	0	154	102	6	0
IR-109	0	0	154	102	154	102	307	205	0	0	0	0	0	0	154	102	19	0
IR-111	0	0	154	102	154	102	307	205	0	0	0	0	0	0	154	102	11	0
IR-113	0	0	30	20	30	20	30	20	0	0	0	0	0	0	13	37	25	0
MOAs																		
Mt. Dora	207	112	507	273	507	273	0	0	0	0	0	0	0	0	507	273	356	10
Pecos	811	437	507	273	507	273	1,008	543	148	80	130	70	130	70	507	273	606	200
Taiban	811	437	507	273	507	273	813	438	148	80	107	57	593	319	507	273	1,170	300
Bronco	169	91	169	91	169	91	0	0	0	0	0	0	0	0	169	91	150	85

Note: Day is considered as 7:00 a.m. to 10:00 p.m. and night is 10:00 p.m. to 7:00 a.m.

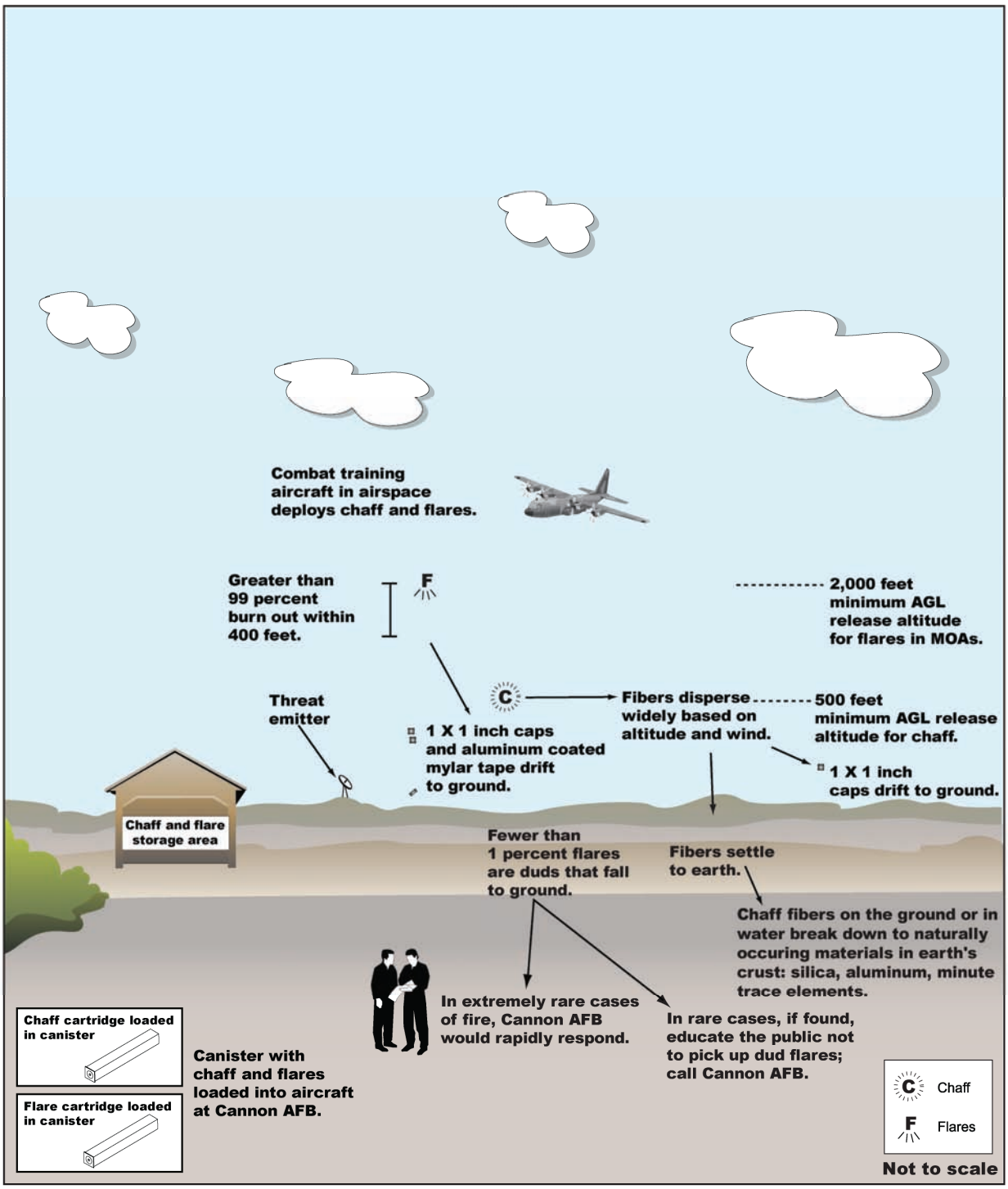


Figure 2.3-2. Life Cycle of Dispensing Chaff and Flare

Table 2.3-3. Current and Proposed Chaff and Flare Usage

Airspace	*Current Chaff*	*Proposed Chaff*	*Current Flares*	*Proposed Flares*
Mt. Dora MOA	0	0	0	0
Pecos MOA	20,484	10,000	15,100	9,000
Bronco MOA	0	0	0	0
Taiban MOA	20,483	6,000	15,099	5,000
Restricted (R-5104/5105)	3,762	18,000	2,031	10,000
VR-100/125	3,888	2,000	0	0
Totals	**48,617**	**36,000**	**32,230**	**24,000**

About 5 million chaff strands are dispensed in each bundle of chaff. When released from an aircraft, chaff initially forms an "electronic cloud" that disperses widely in the air. Dispersed chaff effectively reflects radar signals and forms an image on a radar screen. If the pilot quickly maneuvers the aircraft while momentarily obscured or "masked" from precise radar detection by the electronic cloud, the aircraft can avoid the threat. When multiple chaff bundles are ejected, each forms a similar cloud that further confuses radar-guided weapons. Chaff itself is not explosive; however, it is ejected from the aircraft pyrotechnically using a small explosive charge that is part of the ejection system. The chaff dispenser remains in the aircraft. Two 1-inch square by 1/8-inch thick pieces of plastic and a felt spacer are ejected with the chaff. On rare occasions, the chaff may not wholly separate and may fall to earth as a clump. For more detailed information on chaff, please refer to Appendix A.

Flares. M-206 (or equivalent) defensive training flares are the only flares assessed for use outside of the restricted airspace associated with Melrose AFR. M-206 flares are magnesium pellets that, when ignited, burn for a short period (3.5 to 5 seconds) at approximately 2,000 degrees Fahrenheit (°F). The burn temperature is hotter than the exhaust of an aircraft engine and therefore attracts and decoys heat-seeking weapons and sensors targeted on the aircraft. The flares are wrapped with aluminum filament reinforced tape and inserted into an aluminum case closed with a felt spacer and a plastic end cap. The top of the case has a pyrotechnic impulse cartridge that is activated electrically to produce hot gases that push one 1-inch square by 1/4-inch thick cap and the flare material out of the flare dispenser mounted in the aircraft. The flare ignites as it is ejected from the dispenser. Two approximately 1-inch square by 1/4-inch thick nylon or plastic pieces and an up to 2-inch by 13-inch piece of aluminum wrapped Mylar (similar to dry, aluminum-coated duct tape) fall to the earth with each flare. On extremely rare occasions, a flare may not ignite and could fall to the earth as a dud flare. For more detailed information on flares, refer to Appendix B.

Use of training flares where approved within Cannon AFB-managed airspace incorporates the following management practices:

- The minimum altitude for flare release in special use airspace is 2,000 feet AGL (flares burn out after falling approximately 400 feet).
- When the National Fire Danger Rating System indicates high fire conditions or above, the minimum altitude for flare release would be raised to above 5,000 feet AGL.

- The Air Force will maintain a record of chaff and flare usage within the training airspace.
- The Air Force will establish and maintain a method whereby chaff or flare materials found on private property can be identified for safety risk and removed to ensure safety.
- Cooperation will occur with local agencies for mutual aid response to fires.
- Continue an education program for fire departments beneath the airspace to include information on flares.

2.3.3 Proposed Airspace Enhancements and Use

Cannon AFB scheduled airspace meets the training needs of AFSOC training with one exception. Training with UAS currently can only be performed in restricted airspace. A COA by the FAA would be requested for UAS aircraft based at Cannon AFB to transit between Cannon AFB and the restricted airspace over the Melrose AFR. Predator aircraft could launch from Cannon AFB, be under visual or satellite control between Cannon AFB and Melrose AFR, and train in Restricted Airspace associated with Melrose AFR. A COA between the Air Force and FAA could permit Predator flights between Cannon AFB and the Restricted Airspace associated with Melrose AFR.

THE SCOPING BRIEFING DESCRIBED AFSOC'S PREDATOR UAS MISSION CURRENTLY BEING FULFILLED AT CREECH AFB IN NEVADA AND EXPLAINED THAT IT COULD BE BENEFICIAL TO INCLUDE THAT MISSION AT CANNON AFB. A UAS CORRIDOR AT A SPECIFIC ALTITUDE COULD CONNECT CANNON AFB WITH THE RESTRICTED AIRSPACE ASSOCIATED WITH MELROSE AFR.

Existing ARs are at higher altitudes than those needed for AFSOC aircraft. AFSOC controllers would work with the FAA to identify refueling locations. Figure 2.3-3 presents such an AR track where AFSOC aircraft could refuel.

2.3.4 Additional Training Outside Cannon AFB and Melrose AFR

Section 1.1.2 explains that the mission of AFSOC includes precision application of firepower, which would occur at Melrose AFR (see Section 2.2.1). In addition, AFSOC SOF has missions that include infiltration, exfiltration, resupply, and refueling. Search and rescue of SOF personnel is also part of AFSOC's role. Table 2.3-1 describes the training activity required to be proficient for these SOF and other missions. Those training activities include LZ, DZ, and water training as well as recovering airdrop loads, personnel, and equipment. Section 2.2.6.1 describes the LZ/DZ training that could occur at a location within Melrose AFR. An estimated 200 LZ/DZ training events per month could be required to ensure combat proficiency.

AFSOC MISSIONS DESCRIBED DURING SCOPING INCLUDED AIR DROPS, INSERTIONS, AND EXTRACTIONS. LZS, DZS, OR WATER AREAS FOR TRAINING COULD BE ON THE RANGE OR AT LOCATIONS WITH ESTABLISHED AGREEMENTS SUCH AS WITH RANCHERS, AT STATE OR COMMUNITY MANAGED LOCATIONS, AND/OR ON AN EXISTING AIRFIELD SUCH AS FT. SUMNER OR CLOVIS MUNICIPAL AIRPORTS.

Amphibious infiltration training could involve a variety of types of dives ranging from compass dives to amphibious operations to underwater search and recovery. These training events could occur during any weather conditions as AFSOC personnel could be called on to perform anywhere, anytime. Some amphibious training that involves open water would occur when personnel are on assignment to locations other than Cannon AFB. In addition, the Cannon base pool could support some level of proficiency and emergency procedure training.

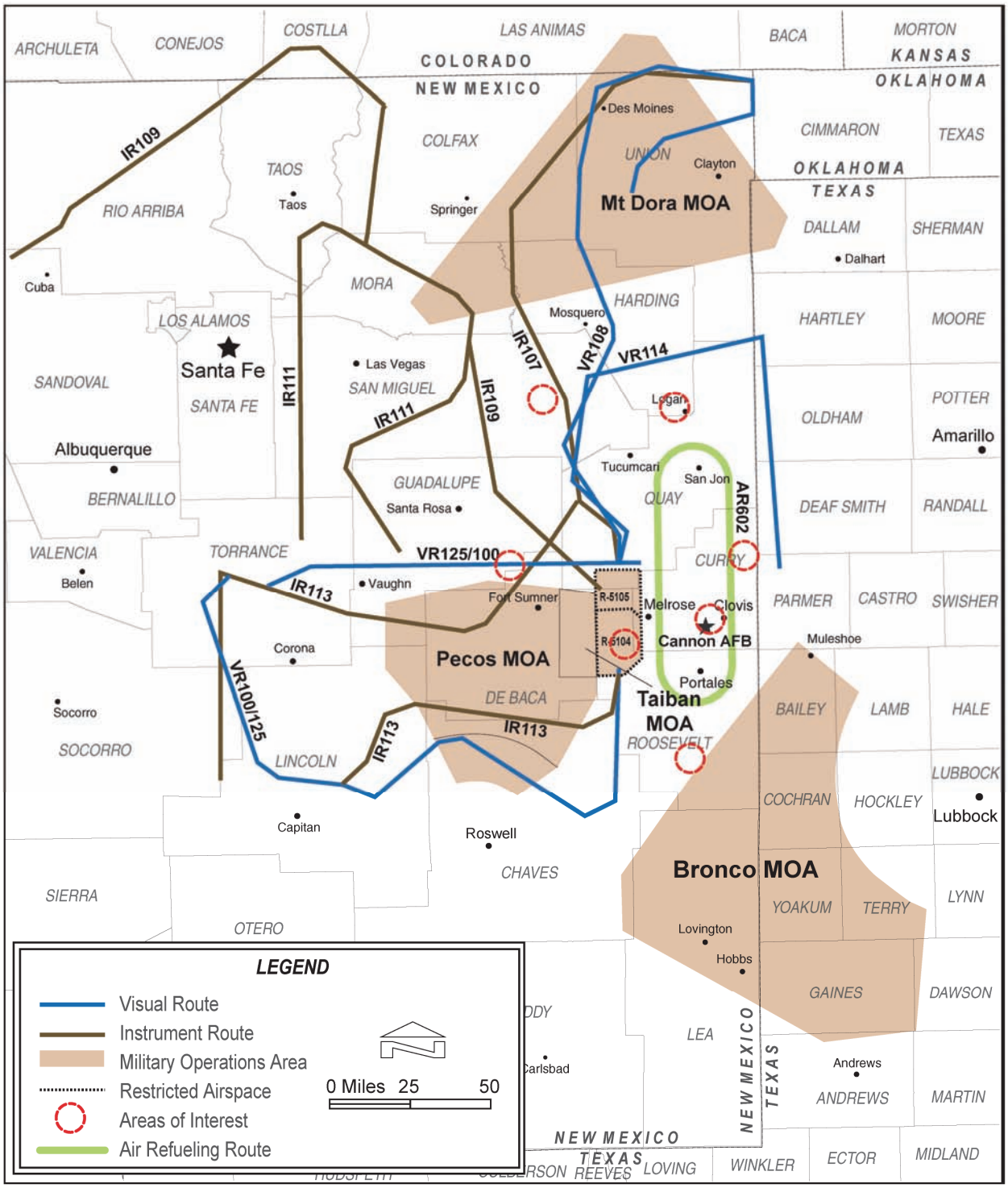
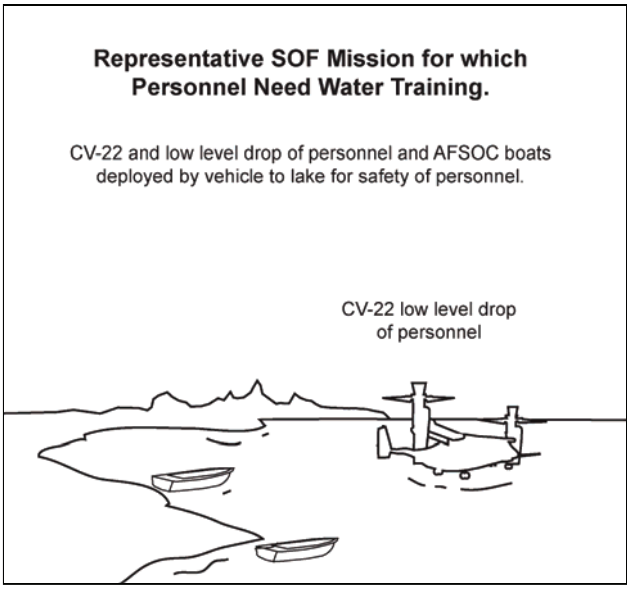


Figure 2.3-3. LZ, DZ, and Water Training Areas of Interest



Comprehensive, real life LZ, DZ, and water training would require realistic settings and different locations to test SOF personnel skills. AFSOC proposes to utilize lakes in the local area for water operations. Activities could include personnel and equipment airdrop, scuba, and boat operations.

Four lakes within 100 miles of Cannon AFB have the potential to support water training. These are Sumner Lake, Ute Lake, Conchas Lake, and Santa Rosa Lake. Training at lake water bodies would involve personnel and boats accessing the site prior to the drop for safety of personnel and/or later retrieval of dropped personnel and equipment. Activities would occur during the mission itself and during recovery of personnel and materials for transport back to Cannon AFB. Support vehicles (light trucks, vans) and support boats would use existing infrastructure including roads, parking areas, and launch ramps. Coordination with agencies responsible for lakes would be necessary to obtain access to lakes for training. Revisions to lake policies may be needed to permit low-flying aircraft or landing CV-22 aircraft at an LZ agreed to by lake managers.

Typically there would be four to five monthly training events in a given lake during spring to fall, water levels and weather permitting. Prior to the event, two boats with safety personnel would be launched from existing ramps. A typical event would last four to five hours. Either a C-130 or a CV-22 aircraft would fly over several times, and there could be three to five drops with 7 to 10 Special Operations personnel dropped into the lake with each drop. These events could be during day or night, but when they are at night they would generally avoid lights from campers and homes along the shore. For safety and operational realism, drops would be toward the middle of the water, away from shorelines and trees. After the drop, the Special Operations personnel would move to shore in a dark area of the lake and proceed covertly on foot to the objective. Either a vehicle or a CV-22 would use existing access or a designated LZ to pick up personnel and complete the mission. Where a CV-22 would land and where the Special Operations personnel come ashore would be surveyed at each lake similar to the survey for the other LZ/DZ locations. Such surveys would be performed sometime over the next 3 years before any CV-22s are assigned to Cannon. Preparation of separate environmental analysis, tiered from this EIS, would be expected for each LZ/DZ site. This analysis would be completed once developmental CV-22 operational capabilities and requirements for LZs/DZs are refined.

There is also a need for approximately four LZs/DZs in the vicinity of Cannon AFB to accommodate MC-130 and CV-22 training. Figure 2.3-3 identifies general areas of interest for LZ, DZ, or water training. LZ, DZ, or water training areas outside of Cannon AFB or Melrose AFR boundaries cannot be determined prior to a decision to beddown AFSOC assets at Cannon AFB. These locations are subject to review by Air Force real property personnel and required property ownership and environmental conditions must be evaluated before a state, federal, or private property could be used, or otherwise agreed to, or leased (in the case of an LZ or DZ) for off-base or off-range training.

LZ, DZ, or water training sites require the following operational, safety, and environmental considerations:

- The site should be located in an area free from obstructions such as towers, wires, wind machines, or underground utilities such as oil or gas pipelines that could make aircraft or ground operations hazardous.
- The site should be within an approximate two-hour drive from Cannon AFB and have good vehicular access to support training, recover air drop loads, recover personnel and equipment, and support safety oriented activities.
- Training operations, to the extent possible, should avoid residential buildings with a buffer of approximately 1,000 feet.
- Open, relatively flat areas remote from city lights are desirable for specific training missions.
- Training operations should avoid, to the extent possible, populated areas, ranches, or other noise-sensitive areas.

Training areas of interest would be identified and compared with the siting criteria listed above to determine the feasibility of the site. Any site would be subject to a subsequent evaluation of potential environmental concerns as well as a field evaluation of environmental conditions at the site. State Historic Preservation Office (SHPO) and natural resources agencies would be consulted, as appropriate, in the final determination of LZ, DZ, and water training locations. All applicable environmental impact analysis and permitting processes would be followed.

2.3.5 No Action Alternative within the New Mexico Airspace

Section 1502.14(d) of CEQ implementing regulations requires an EIS to analyze the No Action Alternative. Analysis of the No Action Alternative provides a benchmark and enables decision-makers to compare the magnitude of the environmental effects of the proposal. No Action for this EIS means that Cannon AFB becomes an AFSOC installation, but no beddown of AFSOC assets would occur within New Mexico airspace at this time. NMANG and transient aircraft using the Cannon managed airspace would continue to conduct training within the airspace and on Melrose AFR.

2.4 Identification of Alternatives

2.4.1 Review of Alternative AFSOC Missions at Cannon AFB

The BRAC Commission received and considered a May 2005 recommendation from the Secretary of Defense (SECDEF) to close Cannon AFB. Subsequently, a final report (September 2005) from the Commission to the President recommended Cannon AFB remain open as an enclave until at least 31 December 2009 and that the 27 FW be disestablished. In the interim, the SECDEF was to seek other missions for Cannon AFB and if no such mission were found Cannon AFB would close by December 2009. As a result of this search, the SECDEF designated AFSOC as the new mission for Cannon AFB. This designation provides the basis for the proposed AFSOC beddown as well as opportunities for training and assumption of management responsibilities for Melrose AFR, and associated airspace.

2.4.2 Consideration of Alternatives

Recognized Cannon AFB assets included little encroachment upon the base, an associated military range for training, extensive airspace for training personnel, and an environment with some characteristics similar to areas of current and potential continuing conflict.

With BRAC, there are relatively few growing Air Force commands with a need for expanded facilities. AFSOC, however, is one such growing command. The experiences with recent devastating Gulf hurricanes points to a need for an additional location for AFSOC assets and a more arid training location than Hurlburt/Eglin in Florida to simulate real-world combat threats. The growing mission requirements for AFSOC, combined with BRAC-directed actions at the AFSOC currently-used Eglin Range, make identification of a second location critical.

Without a back-up operating base, AFSOC aircraft and units would have to split up for months if Hurlburt were devastated by a hurricane. Combat capability would suffer and so would AFSOC's ability to support the War on Terror. Beddown of substantial additional AFSOC assets at Hurlburt Field was not considered a reasonable alternative for operational reasons.

Cannon AFB availability and its associated assets mesh perfectly with the AFSOC requirements. Which AFSOC assets to locate at Cannon AFB was the next question. AFSOC assets are interdependent. AC-130 gunships and low-level flying aircraft like the MC-130 and SOF ground forces depend upon the extraction capabilities of the CV-22. Predators supply battlefield information in support of all aspects of the missions. Operations in host countries utilize a variety of international common aircraft and both urban and rural locations.

The interdependence of AFSOC assets makes replication of the mission capabilities at Hurlburt Field the most efficient asset mix for Cannon AFB. The types of aircraft, personnel, and training missions proposed for Cannon AFB and Melrose AFR create a second AFSOC capability to both meet growing defense requirements and provide a location where a catastrophic storm would not neutralize AFSOC capabilities. Cannon AFB was designated as the best location for AFSOC assets.

2.5 Environmental Impact Analysis Process Public Participation

This Final EIS has been prepared in accordance with NEPA (42 United States Code [USC] 4321-4347), CEQ (40 CFR § 1500-1508), and 32 CFR Part 989, *et seq.*, *Environmental Impact Analysis Process* (formerly known as Air Force Instruction [AFI] 32-7061). NEPA is the basic national requirement for identifying environmental consequences of federal decisions. NEPA ensures that environmental information is available to the public, agencies, and the decisionmaker before decisions are made and before actions are taken.

An EIS is prepared as a tool for compiling information about a proposal and providing a full and fair discussion of potential environmental impacts to the natural and human environment. The Air Force analyzes alternatives to ensure that fully informed decisions are made after review of the comprehensive, multidisciplinary analysis of potential environmental consequences. The Air Force actively solicited comments during the EIS scoping period (August 25,

OPPORTUNITIES FOR PUBLIC INPUT INCLUDE SCOPING MEETINGS AND PUBLIC HEARINGS.

2006 through October 5, 2006) through press releases, newspaper advertisements, public service announcements, and letters to the public, local governments, federal and state agencies, Native Americans, and pilot associations.

On March 30, 2007, the Air Force issued a Notice of Availability (NOA) for the Draft EIS. The NOA began the 45-day public comment period of the document. The Air Force actively solicited comments during this review period (March 30, 2007 through May 14, 2007) through press releases, newspaper advertisements, public service announcements, postcards, flyers, and letters to the public, local governments, federal and state agencies, Native Americans, and pilot associations.

Public hearings were held in New Mexico to present the Draft EIS, environmental analysis, and opportunities for public and agency involvement (refer to Table 2.5-1). A total of 131 members of the public and agency representatives attended the three public hearings. At the hearings, 19 members of the public provided oral comments and 11 people provided written comments. Eighteen additional comments were received during the comment period. These comments, the transcripts of the public meeting, and responses to comments are contained in Chapter 7.0 of this Final EIS. Also included in Chapter 7.0 is a description of the process used to review and incorporate public comments into the Final EIS. A Privacy Advisory was provided to commenters on the public meeting information brochure, written comment forms, speaker registration cards, as well as the briefing given in the public meetings. The Privacy Advisory provided on the internal title page of the Draft EIS is included in Appendix C. A summary of scoping participation and responses to public and agency comments to help focus the Draft EIS are contained in Appendix C.

Table 2.5-1. AFSOC Public Hearings Conducted During April 2007

Date	*Time*	*Location*	*Address*
April 17, 2007, Tuesday	6:00 – 8:00 p.m.	Clovis, New Mexico	Clovis Community College 417 Schepps Blvd.
April 18, 2007, Wednesday	6:00 – 8:00 p.m.	Fort Sumner, New Mexico	Fort Sumner Community House, 137 East Baker Avenue
April 19, 2007, Thursday	6:00 – 8:00 p.m.	Clayton, New Mexico	Clayton High School, 323 South Fifth Street

2.6 Regulatory Compliance

This EIS has been prepared to satisfy the requirements of the NEPA (42 USC 4321 *et seq.*), and its implementing regulations.

This analysis of environmental resources considered all applicable federal, state, and local regulations. Certain areas of federal legislation, such as the Endangered Species Act (ESA) and National Historic Preservation Act (NHPA), include direct contact with agencies. Other state and federal regulations used for guidance in this analysis are presented in Appendix D.

Implementation of an alternative would involve coordination with several agencies. Compliance with the ESA involves consultation with the Department of the Interior (delegated to the U.S. Fish and Wildlife Service [USFWS]) in cases where a federal action could affect listed threatened or endangered species, species proposed for listing, or candidates for listing. The

primary focus of this consultation is to request information on whether any of these species occur in the region of influence of the Proposed Action or an alternative. If any of these species are present, a determination of the potentially adverse effects on the species is made. Should no species protected by the ESA be affected by the Proposed Action or an alternative, no additional action is required. A letter was sent to the appropriate USFWS office as well as New Mexico Department of Game and Fish (NMDGF), informing them of the Proposed Action and alternatives and requesting information on protected species (Appendix C).

The preservation of cultural resources falls under the purview of SHPO, as mandated by the NHPA and its implementing regulations. A letter was sent to the New Mexico SHPO and the Mescalero Apache, Jicarilla Apache, and Comanche tribes informing them of the proposal to beddown and train AFSOC assets (Appendix C).

2.6.1 Permit Requirements

This EIS has been prepared in compliance with NEPA; other federal statutes, such as the Clean Air Act (CAA) and the Clean Water Act (CWA); Executive Orders (EOs); and applicable state statutes and regulations. A list of Cannon AFB permits and certifications was compiled and reviewed during the EIS process. Table 2.6-1 summarizes these applicable federal, state, and local permits and the potential for change to the permits due to implementing the proposed beddown or an alternative. No new compliance permits are expected to be required as a result of this action. As noted in Section 2.3.4, coordination with lake managers would be required for water training.

Table 2.6-1. Environmental-Related Permitting

Permit	*Resource*	*Proposed Action*
Air Quality Synthetic Minor Permit	Air	New construction may require modifications to existing air quality permit.
Cannon AFB National Pollutant Discharge Elimination System (NPDES) Storm Water	Storm Water	There are no jurisdictional waters of the U.S. located on Cannon AFB or Melrose AFR; therefore, there is no requirement to obtain a storm water construction NPDES permit for any construction activity.

2.7 Environmental Comparison of Alternatives

2.7.1 Summary of Environmental Consequences

Table 2.7-1 presents the summary of environmental consequences for the West Flightline Alternative, the Air Force preferred East and West Airfield Alternative, and the No Action Alternative for Cannon AFB. Table 2.7-2 presents the summary of environmental consequences for the Air Force preferred Two-Target Alternative, Three-Target Alternative, and the No Action Alternative for Melrose AFR. Table 2.7-3 presents the summary of environmental consequences for the Proposed Training and No Action Alternative for the Cannon AFB-managed airspace.

Table 2.7-1. Cannon AFB Summary of Consequences by Resource (Page 1 of 3)

Resource, EIS Section	*West Flightline Alternative*	*East and West Airfield Preferred Alternative*	*No Action Alternative*
Airspace Management and Air Traffic Control, EIS Section 3.1	Airspace management and control procedures would be adjusted to include AFSOC mission requirements. Airfield operations would be reduced by approximately 40 percent annually.	Same as West Flightline Alternative.	Aircraft operations at the airfield would be limited transient aircraft and would be substantially below current (27 FW) conditions.
Noise, EIS Section 3.2	Noise levels around the airfield would be reduced in nearly all areas in the vicinity of Cannon AFB.	Approximately the same as West Flightline Alternative with minor changes in engine runup locations.	Noise levels would be substantially lower than current conditions.
Safety, EIS Section 3.3	Flight safety would be affected by the change in aircraft at Cannon AFB. Class A mishap rates for C-130 aircraft are low (1 per 100,000 flight hours). Class A mishap rates for newer aircraft (CV-22) are unknown. The overall AFSOC aircraft Class A mishap rate is expected to be comparable to the F-16 rate of 3.6 per 100,000 flight hours. Aircraft safety, bird aircraft strikes and ground safety conditions should be unchanged. Explosive safety procedures will be developed to address changing munitions needs for Melrose AFR training.	Same as West Flightline Alternative.	Safety provisions would continue as under current conditions. Flight safety issues would be limited to transients.
Air Quality, EIS Section 3.4	Emissions associated with construction would increase ambient air pollutants on a short-term basis. Aircraft emissions are expected to decrease with array of AFSOC aircraft.	Same as West Flightline Alternative	Emissions would be reduced following the departure of the 27 FW.

Table 2.7-1. Cannon AFB Summary of Consequences by Resource (Page 2 of 3)

Resource, EIS Section	*West Flightline Alternative*	*East and West Airfield Preferred Alternative*	*No Action Alternative*
Physical Resources, EIS Section 3.5	Disturbance of approximately 342 acres should not affect base earth or water resources. Addition of approximately 20 acres of impervious surface may increase stormwater runoff. Hazardous materials and construction debris would be addressed in accordance with all applicable regulations. A waiver would be submitted to the state to construct on or near 6 Environmental Restoration Program sites.	Disturbance of approximately 284 additional acres over West Flightline Alternative. Additional 150 acres of impervious surface. Otherwise, same as West Flightline Alternative.	Physical resources would remain the same as current conditions.
Biological Resources, EIS Section 3.6	Construction would occur in disturbed areas. Aircraft noise levels would change, but wildlife are habituated to the airfield environment.	Same as West Flightline Alternative.	Biological resources would remain the same although noise levels would be reduced.
Cultural Resources, EIS Section 3.7	The construction or renovation projects would not affect National Register of Historic Properties. AFSOC will continue to manage cultural resources in accordance with the 2004 Cultural Resources Management Plan (CRMP).	Same as West Flightline Alternative.	Cultural resources would continue to be managed in accordance with the 2004 CRMP.
Land Use and Transportation, EIS Section 3.8	Construction would be consistent with the updated base plan. Some off-base land uses may be impacted by noise. Traffic volume increases would be accommodated by existing roadways.	Same as West Flightline Alternative.	Land uses would be unchanged from current conditions. Noise levels and traffic volumes would be reduced.

Table 2.7-1. Cannon AFB Summary of Consequences by Resource (Page 3 of 3)

Resource, EIS Section	*West Flightline Alternative*	*East and West Airfield Preferred Alternative*	*No Action Alternative*
Socioeconomics, EIS Section 3.9	Dependent upon Congressional appropriations, direct and secondary employment is projected to drop for a year, peak at 13,533 in 2011, and stabilize at 8,724 in 2014. Approximately 5,000 housing units and education capabilities for 2,253 students would be needed for Curry and Roosevelt counties.	Same as West Flightline Alternative.	Substantial socioeconomic downturn upon the overall economy of Curry and Roosevelt counties.
Environmental Justice, EIS Section 3.10	No disproportionate affect to minority or low-income populations. Regional economic stimulation may be beneficial. Classroom crowding may occur.	Same as West Flightline Alternative.	Substantial economic effect may affect minority, low-income populations.

TABLE 2.7-2. MELROSE AFR SUMMARY OF CONSEQUENCES BY RESOURCE (PAGE 1 OF 7)

Resource, EIS Section	*Two-Target Preferred Alternative*	*Three-Target Alternative*	*No Action Alternative*
Airspace Management, EIS Section 4.1	Airspace management of Restricted Airspace would remain unchanged from current conditions except for modifying procedures to include AFSOC requirements. Landing zones would be consistent with other Melrose AFR training activities. A proposed COA allowing UAS operation between Cannon AFB with Melrose AFR in airspace other than restricted areas or military Class D airspace would not be expected to affect most general aviation, although some pilots may elect to avoid airspace potentially occupied by a UAS complying with "see and avoid" requirements of Federal Aircraft Regulation 91-113.	Same as Two-Target Alternative.	Aircraft operations would be limited to transient aircraft and would be substantially below current (27 FW) conditions.
Noise, EIS Section 4.2	Under the Two-Target Alternative, noise would increase to a Day-Night Average Sound Level (L_{dn}) of 55 to 58 decibels (dB) under the Restricted Airspace and the Taiban MOA. This would be noticeable and potentially annoying. Domestic or wild animals in areas subject to aircraft operations or impulse noise would be expected to avoid the specific impact area and habituate to noise levels. Penned range cattle have been known to react to jet aircraft low-level overflight. Impulse noise contours of 62 dB CDNL would be nearly	Under the Three-Target Alternative, live munitions use would occur at three locations. Aircraft noise would be approximately the same as the Two-Target Alternative. Impulse noise would be felt over a greater area. The 62 dB CDNL contour would be nearly completely contained within the range. Effects would be as described for the Two-Target Alternative.	The noise environment for Melrose AFR would be reduced due to the removal of the 27 FW F-16 aircraft.

Table 2.7-2. Melrose AFR Summary of Consequences by Resource (Page 2 of 7)

Resource, EIS Section	*Two-Target Preferred Alternative*	*Three-Target Alternative*	*No Action Alternative*
Noise, EIS Section 4.2 (continued)	completely contained within the range. Impulse noise within 6 miles from the target could produce an off-range sound comparable to strong knocking on a door and a vibration comparable to thunder. Such noises would not be expected to cause damage to a structure or its contents, but when heard and felt, especially during night hours, could cause annoyance to residents within approximately 6 miles of Melrose AFR. Target construction noise is not expected to extend beyond the boundaries of the 60,010-acre range under this alternative. Small arms live-fire could result in annoyance to residents on the periphery of the range.		
Safety, EIS Section 4.3	Exclusive-Use areas would be expanded for safety from 8,800 to 10,600 acres. AFSOC has proposed adoption of continued and expanded fire management practices, including grading of firebreaks, clearing of vegetation around targets, and aggressive reduction of weedy plants, which would improve fire management on Melrose AFR. Designation of additional areas for more buffer area grazing management would be needed to contain weapon safety footprints. AFSOC will prepare a supplement to AFI 13-212 to address the use of live munitions and residues.	Exclusive-Use areas would be expanded for safety from 8,800 to 12,700 acres. Otherwise, same as Two-Target Alternative except more aggressive fire management as this will cover three targets instead of just two.	Safety risks on Melrose AFR would be somewhat reduced due to the deactivation of the 27 FW. Continued use of Melrose AFR by transient aircraft, including the NMANG F-16s, would continue the requirement for existing safety measures on the range.

TABLE 2.7-2. MELROSE AFR SUMMARY OF CONSEQUENCES BY RESOURCE (PAGE 3 OF 7)

Resource, EIS Section	*Two-Target Preferred Alternative*	*Three-Target Alternative*	*No Action Alternative*
Air Quality, EIS Section 4.4	Air emissions under the aircraft and munitions use of the Two-Target Alternative would increase particulates, but not exceed any emission significance thresholds. Melrose AFR. Chaff and flare residue would not be expected to change air quality conditions.	Same as Two-Target Alternative.	No Action Alternative would produce less than significant air quality impacts within and around the Melrose AFR and Taiban MOA project region.
Physical Resources, EIS Section 4.5	The Two-Target Alternative would quadruple the amount of chaff or flare materials currently used over Melrose AFR. However, because chaff rapidly breaks down to the common elements of silica and aluminum no impacts to the soil are expected. Any fire in the arid east New Mexico environment has the potential to detrimentally affect soils, vegetation, and other resources. Improved fire management procedures would serve to protect Melrose AFR and off-range resources from fire caused by munitions or other sources. Surface disturbance from live munitions and fire management could increase wind erosion of soils. The training would increase chemicals from munitions, lead, and other heavy metals and potentially affect soil and water chemistry on the range. HE munitions use on the range could add up to 250 acres needing explosive ordnance disposal (EOD) clearance. Up to an additional 3,200 acres would have increasing lead	Similar to Two-Target Alternative. Munitions, including high-explosive (HE) munitions, would be used on three targets under this alternative. The area needing EOD clearance would increase by up to 750. Potential for HE chemical residuals would increase with three live-fire targets as compared with two live-fire targets. Small arms effects would be comparable to those for the Two-Target Alternative. Chaff and flare materials would be as described for the Two-Target Alternative. Wind erosion effects expected to be greater due to exposure of additional soils areas. No significant impacts would be expected from chaff use. Flares properly deployed would not be expected to increase fire risk. Enhanced fire management programs would apply to all three targets areas to reduce the potential for munitions-caused impacts.	Impacts would be the same as current conditions, with a reduction in overall chaff, flare, and munitions use associated with the deactivation of the 27 FW.

TABLE 2.7-2. MELROSE AFR SUMMARY OF CONSEQUENCES BY RESOURCE (PAGE 4 OF 7)

Resource, EIS Section	*Two-Target Preferred Alternative*	*Three-Target Alternative*	*No Action Alternative*
Physical Resources, EIS Section 4.5 (continued)	munitions from the small arms range. Hazardous materials and chemical residues result from HE munitions would be managed through the Cannon AFB hazardous materials management program. AFSOC will prepare a supplement to AFI 13-212 to address the use of live munitions and residues.		
Biological Resources, EIS Section 4.6	Construction of targets and use of AFSOC aircraft would result in some habitat loss and potentially impact wildlife in the area. Disturbance-related behavioral and ecological changes in wildlife would include changes in home range and abandonment of habitats. These changes will vary with wildlife species group and wildlife species. Long-term effects of aircraft training activities under the Two-Target Alternative would include localized species loss, species displacement, and a modification of ecological community structure at Melrose AFR. No federal or state-listed endangered, or threatened species have been observed at Melrose AFR. Recent monitoring at Melrose AFR revealed the presence of lesser prairie-chickens (federal candidate, New Mexico state sensitive). Surveys are being conducted	Same as Two-Target Alternative except wildlife habitat loss would be greater.	Biological resources on Melrose AFR would be expected to experience less human and training activity than present.

TABLE 2.7-2. MELROSE AFR SUMMARY OF CONSEQUENCES BY RESOURCE (PAGE 5 OF 7)

Resource, EIS Section	*Two-Target Preferred Alternative*	*Three-Target Alternative*	*No Action Alternative*
Biological Resources, EIS Section 4.6 (continued)	and a candidate species plan will be prepared. No critical habitat is present on the range. The increased chaff and flare use over Melrose AFR would not be expected to impact biological systems.		
Cultural Resources, EIS Section 4.7	No National Register of Historic Places (NRHP)-eligible buildings are located on Melrose AFR. Prior to construction of the targets, an archaeological review would be conducted to identify any archaeological sites within areas selected for target construction.	Same as Two-Target Alternative.	Cannon AFB would continue to manage all cultural resources within the range in accordance with the 2004 CRMP.
Land Use and Ranching, EIS Section 4.8	Modification to the existing Melrose AFR land use designations would occur. The Exclusive-Use area would increase in size from 8,800 to 10,600 acres and the Restricted Leased Land would be reduced from 18,710 to 18,600 acres. The Unrestricted Leased Lands would decrease from 32,500 to 30,810 acres. The reduced acreage would not be regionally significant, but could significantly impact grazing or agricultural operations of specific lessees. New impulse noise and vibration effects would not be expected to change general land use patterns, land ownership, or land management, although individuals living within	Same as Two-Target Alternative except the target area would be greater. The exclusive-use impact area would increase in size to 12,700 acres and the Restricted Leased Land would be reduced to 23,300 acres. The Unrestricted Leased Lands would decrease to 24,010 acres. Greater impact upon affected lessees.	Melrose AFR would continue to operate as a training range for military aircraft. Land ownership and the general land use patterns would remain the same.

Table 2.7-2. Melrose AFR Summary of Consequences by Resource (Page 6 of 7)

Resource, EIS Section	*Two-Target Preferred Alternative*	*Three-Target Alternative*	*No Action Alternative*
Land Use and Ranching, EIS Section 4.8 (continued)	audible range of this noise could be annoyed. Chaff would not be expected to cause a significant impact on land resources or land uses. Improved fire management would reduce the risk to property owners from fires on Melrose AFR.		
Socioeconomics, EIS Section 4.9	Live-fire training would affect the ability to access portions of the range. The Exclusive-Use area would increase and currently Restricted Leased Grazing Lands and Unrestricted Leased Grazing Lands would change. The approximately 2.8 sections of new Exclusive-Use land removed from Restricted or Unrestricted grazing leases could reduce stock grazing by an estimated 45 animal units (AUs). Such a reduction would not significantly affect regional cattle operations, although it could detrimentally affect ranching operations of the affected lessees. The preferred alternative is not expected to significantly impact existing irrigated agricultural on two leases. Residents within a few miles of Melrose AFR would be subject to increased impulse noise from munitions use and increased night overflight by training AFSOC aircraft. These training activities could be considered significant impacts by residents within approximately 6 miles of the Melrose AFR boundary.	Same as Two-Target Alternative except that the rangeland available for grazing would be reduced more than under the Two-Target Alternative. Approximately 6.1 sections of the rangeland removed from Restricted or Unrestricted grazing leases could reduce stock grazing by an estimated 98 AUs. Such a reduction would not significantly affect regional cattle operations, although it could detrimentally affect ranching operations of the affected lessees.	Melrose AFR grazing lease programs would remain as they currently exist. Noise levels and range activities would be reduced as the 27 FW was deactivated.

TABLE 2.7-2. MELROSE AFR SUMMARY OF CONSEQUENCES BY RESOURCE (PAGE 7 OF 7)

Resource, EIS Section	*Two-Target Preferred Alternative*	*Three-Target Alternative*	*No Action Alternative*
Environmental Justice, EIS Section 4.10	No permanent residents are on the Melrose AFR. Residents under the restricted airspace associated with Melrose AFR or in areas immediately adjacent to the range are representative of the minority, low-income, and youth in adjacent counties. No disproportionate impacts are expected to minority or low-income populations or to children.	Same as Two-Target Alternative.	No impacts on minority or disadvantaged individuals. Some residents within approximately 6 miles of Melrose AFR boundaries would receive less impulse or aircraft noise with no action than with either action alternatives. These individuals are not disproportionately minority or low-income.

Table 2.7-3. Training Airspace Summary of Consequences by Resource (Page 1 of 4)

Resource, EIS Section	*Proposed Training*	*No Action Alternative*
Airspace Management, EIS Section 5.1	Increased annual sortie operations would occur in the MOAs and MTRs. At night, MTR training altitudes would be below those used by general aviation. During daylight, low-altitude general aviation aircraft could be encountered at training altitudes. C-130 and CV-22 aircraft are piloted and would employ see-and-avoid procedures during four- to five-hour daylight and night operations. LZ, DZ, and water training could involve landing at locations not currently used by aircraft; coordination with FAA and land or lake managing agencies would be initiated to identify specific locations. AR would be performed under ATC and would not be expected to affect civil aviation.	Airspace use would be less than current use, but would still include NMANG 150th Fighter Wing (150 FW) aircraft and transient users.
Noise, EIS Section 5.2	Annual average noise levels would generally be at or below Day-Night Average Sound Level (L_{dn}) 55 dB in Pecos, Taiban, Mt. Dora, and Bronco MOAs. Certain MTR segments would experience noise levels of approximately L_{dn} 49 dB. Some of the MTRs could experience an average of four overflights during environmental night, resulting in some segments experiencing substantial changes from ambient conditions. LZ, DZ, and water training locations would be subjected to increased noise from C-130, CV-22, or other aircraft. Night activity in the Taiban MOA, on MTRs, and at lakes used for training could produce sufficient noise to be perceived as an intrusion and annoyance to residents and recreationists.	Noise levels would be lower than existing conditions since the number of military training sorties would be reduced with the disestablishment of the 27 FW.
Safety, EIS Section 5.3	Aircraft safety is not expected to be measurably different from baseline conditions; AFSOC aircraft (C-130 and CV-22) possess improved situational awareness. Bird-aircraft strike of small night-migrating songbirds could increase with the MTR low-level flights. All national forests, national monuments, and state parks would be avoided by 2,000 feet. No safety consequences are anticipated from continued and reduced chaff and flare use. LZ, DZ, and water training would include safety procedures.	Safety procedures would continue within the military training airspace.

TABLE 2.7-3. TRAINING AIRSPACE SUMMARY OF CONSEQUENCES BY RESOURCE (PAGE 2 OF 4)

Resource, EIS Section	*Proposed Training*	*No Action Alternative*
Air Quality, EIS Section 5.4	Air pollutant emissions associated with the AFSOC training would not have an effect upon ambient air conditions within the MOAs or MTRs.	Emissions associated with military training aircraft would be reduced with the disestablishment of the 27 FW.
Physical Resources, EIS Section 5.5	Overflight activities would not cause disturbances to the ground. DZ and LZ construction would occur on permitted or leased land using Best Management Practices (BMPs). Water training would occur within the four existing lakes and would require coordination and scheduling with lake management agencies. The amount of fuel and other products near reservoirs would increase; procedures would be employed to ensure that no fuel spills or debris was deposited in the water bodies. Chaff and flare use would decrease in the airspace except under the restricted airspace.	No changes to physical resources would occur.
Biological Resources, EIS Section 5.6	AFSOC aircraft produce less noise and fly at slower speeds with a slower onset of the noise than jet aircraft currently operating in the airspace or on the MTRs. Wildlife respond more to noise from helicopters than fixed-wing aircraft. CV-22 training in support of LZ, DZ, or water activities would be conducted in the helicopter mode. Increased night use could disturb nocturnal species. Water training would occur within developed areas. No significant impacts from chaff or flares on biological resources are anticipated.	No changes to biological resources would occur. Noise levels would be reduced with the disestablishment of the 27 FW.
Cultural Resources, EIS Section 5.7	Airspace use, including the proposed UAS corridor, would not affect cultural resources. LZ, DZ, or water locations for training would be surveyed for cultural resources prior to agreements for their use. State parks associated with lakes identified for water training possess cultural and paleontological resources. Avoidance includes using existing boat ramps and disturbed shoreline areas for training activity. Training activities on MTRs would not be expected to impact historical or cultural resources.	No changes to cultural resources would occur.

TABLE 2.7-3. TRAINING AIRSPACE SUMMARY OF CONSEQUENCES BY RESOURCE (PAGE 3 OF 4)

Resource, EIS Section	*Proposed Training*	*No Action Alternative*
Land Use and Recreation, EIS Section 5.8	Land use, land ownership and land management plans are not expected to be affected by changes in noise levels associated with AFSOC aircraft. No new restrictions on any property outside of the Melrose AFR are anticipated. Recreational hunting currently occurs in areas under MOAs with low-level overflight to 500 feet. Additional noise in MTRs and MOAs could result in increased annoyance, although the noise is not at the level that would damage human health. Training LZ and DZ sites would be selected to avoid noise effects on nearby land uses. Water training sites would occur in existing lakes as coordinated with managing agencies. Continued CV-22 training could annoy lake recreationalists or residents. Coordination with State Park superintendents will be initiated and changes to management plans may be required to permit low-flying aircraft. Chaff and flare use is not expected to result in modifications to land use. Cannon AFB would continue to work with federal, state, and local agencies to identify the impacts caused by the development of tall structures to Cannon AFB operations and training. AFSOC training activities within the airspace could result in annoyance to individuals who experience noise, vibration, low-level night overflights, or find pieces of chaff or flare residual materials. None of these events would be expected to significantly affect overall land use or land ownership within the area.	No changes to land use and recreation resources would occur.

TABLE 2.7-3. TRAINING AIRSPACE SUMMARY OF CONSEQUENCES BY RESOURCE (PAGE 4 OF 4)

Resource, EIS Section	*Proposed Training*	*No Action Alternative*
Socioeconomics, EIS Section 5.9	Activities associated with AFSOC training are not expected to have any significant adverse impacts on the human, social, or economic resources of the region. Recreational land use, ranching operations, wind energy operations, oil and gas exploration and production, and other economic pursuits are not expected to experience any limitations or negative effects as a result of beddown of AFSOC assets. Cannon AFB would continue to work with federal, state, and local agencies to identify the impacts caused by the development of tall structures to Cannon AFB operations and training. Increased noise associated with low-altitude training, particularly night training, could be viewed as an annoyance or an impact by residents under the MTRs, under the Taiban, Pecos, and Mt. Dora MOAs, and near water training areas.	Regional economic activity would experience a downturn associated with Cannon AFB assuming enclave status.
Environmental Justice, EIS Section 5.10	Populations under the MOAs and MTRs are not disproportionately minority or low-income and no disproportionate impacts are expected. Low-altitude night training would be widely dispersed and would not specifically impact children.	Any downturn in regional economic activity could affect workers, including minorities and low-income populations.

2.7.2 Environmentally Preferred Alternative

CEQ requires the identification of the environmentally preferred alternative. For most environmental resources at Cannon AFB, Melrose AFR, and training airspace, the No Action Alternative would be the environmentally preferred alternative. For socioeconomics and environmental justice at Cannon AFB, the No Action Alternative is not the environmentally preferred alternative. For these environmental resources, the East and West Airfield Alternative would be the environmentally preferred alternative.

2.8 Mitigation and Management Measures

Mitigation and management measures for the proposed beddown of AFSOC assets have been identified and will be carried forward in implementing the selected action. Management measures are defined as those measures incorporated in the design of the preferred alternative to avoid, minimize, or reduce the impacts to most of the resource areas. These management measures are primarily discussed in Chapter 2.0. Chapters 3.0, 4.0, and 5.0 include management and mitigation measures required by regulation or agency guidance (even though impacts may not be significant) for each relevant resource. Management measures can refer to the planning and implementation of efforts to restore degraded ecosystems, where applicable. Mitigations can include permit requirements, Best Management Practices (BMPs), New Mexico State regulatory requirements for fugitive dust and noise, burn permits, and Memoranda of Understanding between agencies.

For those resource areas where potential impacts are not mitigated by avoidance (i.e., project design), mitigation and management measures are proposed and discussed in this section. An example of this type of mitigation is taking action in accordance with the Cannon AFB CRMP in the case of inadvertent discovery of cultural artifacts uncovered during construction.

Each of the following resource subsections includes a description of possible measures to avoid, minimize, rectify, reduce, or compensate for the identified impact.

2.8.1 Defining a Mitigation Measure

The mitigation measures discussed in an EIS cover a range of issues generally addressing mitigation measures applied in the design of reasonable alternatives (i.e., mitigation by avoidance) or address mitigations not included in the design, but applied after impact analysis (i.e., reduction, et al.). Mitigation measures are considered even for impacts which, by themselves, would not be considered "significant." The AFSOC asset beddown proposal is considered as a whole to address specific effects on the environment (whether or not "significant"), and mitigation measures are developed where it is feasible to do so. Mitigations already in place for the training airspace are described in Section 2.8.3. Once environmental consequences are described and mitigation measures are presented, those effects that would still occur are identified in Section 2.8.4.

CEQ regulations (at § 1508.20) define mitigation in the following five ways:

1. **Avoiding** the impact altogether by not taking a certain action or parts of an action.
2. **Minimizing** impacts by limiting the degree or magnitude of the action, and its implementation.
3. **Rectifying** the impact by repairing, rehabilitating, or restoring the affected environment.

4. **Reducing or eliminating** the impact over time by preservation and maintenance operations during the life of the action.
5. **Compensating** for the impact by replacing or providing substitute resources or environments.

During the initial development of this project, mitigation and management measures were included in the design parameters. This meant that avoiding, minimizing, or reducing potential impacts was a priority guiding the development of the alternatives. These mitigation and management measures, which are incorporated into the overall design of the alternatives, include BMPs.

The Air Force will develop plans to address specific mitigations. These plans, for example, will include a Temporary Erosion Sediment Control Plan, a Stormwater Pollution Prevention Plan (SWPPP), and a Spill Prevention, Control, and Countermeasure (SPCC) Plan. These plans are in addition to, and complement, any permits that may be issued to the Air Force for the project.

2.8.2 Resource-Specific Measures Adopted to Reduce the Potential for Environmental Impacts

Section 2.8.1 describes the CEQ definition of mitigation measures (§ 1508.20). This section describes measures adopted to reduce the potential for environmental impacts. Each measure is listed by environmental resource identified during development of this EIS or during public and agency participation in the environmental process. Example sections where the resource is addressed are noted for each measure. In addition, the type of mitigation action is identified from the CEQ list (§ 1508.20) presented in Section 2.8.1. The mitigation measures from Section 2.8.1 are abbreviated as follows: Avoiding = A; Minimizing = M; Rectifying = Rc; Reducing = Re; Compensating = C.

2.8.2.1 Airspace Management and Air Traffic Control

- Employ FAA COA measures for UAS operations outside restricted or Class D airspace to minimize conflicts with general aviation: A (Section 2.3.3).
- Perform after-dark (before 10:00 p.m.) MTR training at altitudes not frequented by general or commercial aviation: A (Section 2.3.1).

2.8.2.2 Noise

- Schedule after-dark training to occur as much as possible (approximately 40 percent) before 10:00 p.m. to reduce activity during environmental night: M (Section 4.1.3).
- Place new live targets as close as possible toward the center of the range to reduce impulse noise effects on surrounding ranches: M, Re (Section 4.2.3).
- Apply LZ/DZ siting criteria to avoid residences and reduce noise effects: A, Re (Section 2.3.4).
- Identify noise sensitive avoidance areas under the airspace: M (Sections 2.3.1 and 5.2.3).

2.8.2.3 Safety

- Identify a Cannon AFB contact telephone number for ranchers to call to help training aircraft avoid cattle roundups: A (Section 5.9.3.1).

- Expand fire response capabilities at Melrose AFR and exercise an aggressive vegetation control program to reduce fire risk: Re (Sections 4.2 and 4.3.2.1).
- Expanded small arms range to overlap with historic small arms ranges to keep munitions within existing impact areas to the extent possible: M (Section 2.2.6.2).
- Prepare a new AFSOC responsibilities and procedures supplement to AFI 13-212 for the maintenance operation and use of Melrose AFR: M (Section 2.2).

2.8.2.4 Air Quality

- Stabilize soils during construction and replace ground cover in disturbed areas to reduce particulates: Rc (Section 3.4.3).
- Apply dust suppression and soils stabilization measures to areas disturbed by construction-related activities on Melrose AFR: M (Section 4.5.3.1).
- Conduct sortie–operations over the Pecos Wilderness Area Class I area at altitudes above 2,000 feet AGL in order to reduce the effect of potential aircraft emissions on ground-level pollutant concentrations within this area: M (Section 5.4.3.1).

2.8.2.5 Physical Resources

- Revegetate construction-disturbed areas to the extent practicable to prevent soils migration: Rc (Sections 3.4.3 and 4.5.3.1).
- Perform regular EOD cleanup on Melrose AFR to reduce concentrations of lead or other munitions residual materials in accordance with the new AFI 13-212 Supplement: Rc (Section 2.2).
- Use existing lake access locations, to the extent possible, and retrieve all elements used during water training to reduce potential for impacts to soil, lakeshores, or reservoirs: M (Section 2.3.4).

2.8.2.6 Biological Resources

- Conduct after dark training as much as practicable prior to early morning hours to reduce disturbance on species such as lesser prairie-chickens: M (Section 5.6.3.1).
- Confer and cooperate with USFWS to develop appropriate and reasonable conservation measures to minimize, mitigate, and identify significant adverse effects on a population of migratory bird species of concern: M (Section 3.6).
- Perform water training during daylight or early evening hours to the extent possible to be similar to ongoing lake recreational activities to which species have adapted: M (Section 5.6.3.1).
- Avoid, to the extent possible, low-level overflights of concentrations of cattle during identified seasonal ranching operations when Cannon AFB is notified of the concentrations: A (Section 5.9.3.1).
- Use existing access locations for water safety craft training to be consistent with other human activities: M (Section 2.3.4).

- Perform LZ/DZ biological surveys consistent with site selection criteria: Re (Section 2.3.4).

2.8.2.7 Cultural and Paleontological Resources

- Perform LZ/DZ cultural surveys consistent with site selection criteria: Re (Section 2.3.4).
- Use existing access locations for water training to avoid lakeshore paleontological or cultural resources: M (Section 2.3.4).
- Continue to make available information regarding AFSOC training activities to agencies and Native American tribes: M (Section 2.8.3).
- Require personnel to notify the Air Force archaeologist in the event of inadvertent discoveries of cultural artifacts during construction. Cannon AFB will take action in accordance with the Cannon AFB CRMP: A, Rc (Sections 3.7.3 and 4.7.3).

2.8.2.8 Land Use and Transportation

- Provide information on potential AFSOC personnel and growth to support regional planning and transportation: Re (Section 3.9.3).
- Schedule training on lakes to reduce, to the extent possible, potential impacts on recreational and residential locations bordering the lakes, especially during holidays or other high use periods: M (Section 5.2.3.1).
- Apply LZ/DZ criteria to be consistent with rural land uses to the extent possible: A (Section 2.3.4).
- Construct Cannon AFB facilities consistent with long-term base planning goals: Re (Section 2.1.3).
- Locate Melrose AFR new live-fire targets to minimize, to the extent possible, changes to land use in the area: Re (Section 2.2).
- Coordinate scheduling of AFSOC water training exercises with agencies to reduce surprise effects on property owners and recreationalists: M (Section 2.3.4).

2.8.2.9 Socioeconomics

- Provide projected population and education information for regional management decisions to meet anticipated demands: Re (Section 3.9.3).
- Identify Melrose AFR potentially-affected lands for ranching decisions regarding grazing lands: Re (Sections 2.2.4 and 2.2.5).

2.8.2.10 Environmental Justice

- Scheduling after-dark MTR and MOA training missions to the extent possible (approximately 40 percent) before 10:00 p.m. to reduce environmental night noise to residents and children under the training airspace: M (Section 4.1.3).

2.8.3 Ongoing Mitigation Actions

Cannon AFB has committed to a variety of management actions associated with the use of defensive countermeasures where approved within Cannon AFB-managed training airspace.

These actions were formalized in a mitigation plan prepared subsequent to the New Mexico Training Range Initiative (NMTRI) ROD (13 February 2007).

All pilots receive a Local Area Orientation brief prior to conducting operations in Cannon AFB-managed training airspace. The briefing includes information on the local airspace, including operating altitudes, aircraft restrictions, and type of chaff and flare authorized for use. The Cannon Operations Support Squadron webpage publishes the current National Fire Danger Rating System indication, specifying which expendables may currently be used in Cannon AFB-managed training airspace. Aircrews not assigned to Cannon AFB are provided the web link to the Local Area Orientation airspace brief containing all applicable restrictions and information for their flights. The specific actions may be summarized as follows:

Minimum Altitude

The minimum altitude for defensive countermeasure flare release in NMTRI SUA continues to be above 2,000 feet AGL (flares burn out after falling approximately 400 feet).

High Fire Conditions

When the National Fire Danger Rating System indicates high fire conditions or above, the minimum altitude for flare release in SUA shall be raised to above 5,000 feet AGL. As part of the above referenced flight briefing, all aircrews will check the National Fire Danger Rating System status for Pecos MOA and comply with the appropriate altitudes for flare expenditures.

Mutual Aid Agreements

Cannon AFB has established Mutual Aid Agreements with civilian communities or other government agencies to supplement internal levels of fire protection staffing and equipage. Cooperation with local agencies for mutual aid response to fires will continue. Cannon AFB currently has Mutual Aid Agreements with seven surrounding communities, including Broadview, Clovis, Floyd, House, Melrose, Portales, and Texico. The Cannon Civil Engineer Squadron, Fire and Emergency Services Flight, maintains these agreements. Additional mutual aid response and coordination will be in accordance with formal Military Support to Civil Authorities guidance.

Education Program

An education program for fire departments in the communities surrounding Cannon AFB, including those beneath airspace assessed for flare use, will continue to include information on flares. The Cannon Civil Engineer Squadron Fire and Emergency Services Flight provides educational training with the fire departments serving the communities. This training includes precautions for emergency response to chaff/flares, to include identification, proper disposal and recovery of residual materials and dud flares.

Recording Defensive Countermeasure Use

Records of defensive countermeasure (chaff and flares) use will reflect, to the maximum extent practicable, all defensive countermeasures expended in airspace assessed for use of defensive countermeasures. Cannon Operations Group will be responsible for recording defensive countermeasure expenditures and will maintain annual records. Records include the type of countermeasures used, the period of use, and the airspace in which the countermeasures were used, for both Cannon AFB and transient aircraft.

Response and Recovery Procedures

Response and recovery procedures for defensive countermeasure residual materials and dud flares discovered off-range are employed, including:

- Use of Cannon AFB personnel to identify, render safe if necessary, and remove if feasible, any chaff or flare residual materials and dud flares discovered off-range. In particular, Cannon personnel will render safe any chaff or flare residual materials and dud flares discovered off-range, which pose an imminent and substantial threat.
- Disseminate of information annually to the public through Cannon AFB Public Affairs concerning precautions with dud flare and residual materials.
- Establish Cannon AFB Public Affairs as the initial point of contact for members of the public who discover a dud flare or residual material resulting from the use of chaff and flares. Cannon Public Affairs will immediately notify Cannon Judge Advocate and Civil Engineer Squadron response personnel who will coordinate a response and work to resolve issues as required.
- Ensure that claims of potential loss or damage due to training operations will be referred to the Cannon AFB Judge Advocate for appropriate processing.

2.8.4 Unavoidable Adverse Impacts

Some of the AFSOC training activities are projected to result in disturbance and/or noise within areas not previously or recently subject to these effects. In other cases, AFSOC training would continue to result in activities that have been identified as an annoyance during scoping meetings. To the extent possible, mitigation measures, such as those identified in Sections 2.8.2 and 2.8.3, would be applied to reduce potential effects to acceptable levels. However, some impacts that cannot be mitigated would occur. These impacts, while not likely to be significant to environmental resources, could be considered significant or annoying to individuals potentially affected.

Potential impacts that could occur and cannot be mitigated include the following:

- Noise from low-level training overflights would be heard on MTRs (Section 5.2.3).
- Available lakes would receive some impacts from water training to biological species, recreationalists, and residents (Sections 5.6.3.1 and 5.8.3.1).
- Training missions would increase noise during environmental night (between 10:00 p.m. and 7:00 a.m.) (Sections 4.2.3 and 5.2.3).
- Chaff and flare debris, although reduced from existing levels, would continue to be deposited under training airspace where chaff and flare use has been assessed (Section 5.6.3.1).
- Munitions chemicals and materials would be deposited at target areas and such chemicals could eventually affect soils or water resources on the range (Section 4.5.3).
- Noise from munitions would be audible off range (Section 4.2.3).
- New live-fire target restrictions on Melrose AFR for required AFSOC training and the safety would change land use and ranching operations on Melrose AFR (Section 4.8.3).

- Individual species would be affected by changes in Melrose AFR and/or water training activities (Sections 4.6.3.1, 4.6.3.2, and 5.6.3.1).
- Increased numbers of temporary workers have the potential to increase the need for local safety and protection services (Section 3.9.3.1).
- Expanded student population would increase the requirement for school services (Section 3.9.3.1).
- Increased demand for construction resources could result in a short-term increase in construction costs (Section 3.9.3.1).

3.0 CANNON AIR FORCE BASE AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the affected environment and potential environmental consequences at Cannon Air Force Base (AFB). Chapter 4.0 addresses Melrose Air Force Range (AFR) and Chapter 5.0 addresses areas under the training airspace. In compliance with the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) guidelines, and 32 Code of Federal Regulations (CFR) Part 989, et seq., the description of the affected environment focuses on those resources and conditions potentially subject to impacts. The affected environment is described for ten resource topics: Airspace Management and Air Traffic Control, Noise, Safety, Air Quality, Physical Resources (including Hazardous Materials and Waste), Biological Resources, Cultural Resources, Land Use and Transportation, Socioeconomics and Environmental Justice. Many of these resources are extensively interrelated. In recognition of those interrelationships, each resource topic relies upon the findings of relevant other analyses. For example, noise analyses are reflected in the analysis of land use, socioeconomics, and biological resources

The sections for each resource topic begin with an introduction that defines the resources addressed in the section, defines key terms as necessary and describes the region of influence (ROI) within which the effects from the Alternative Actions are anticipated to occur. The ROI varies from resource to resource, but in general, effects from Cannon AFB Alternative Actions are expected to be concentrated on base and in Roosevelt and Curry counties (see Figure 1.1-1). There are three primary reasons why the ROI can differ among resources:

- The resource itself has a geographic definition. For example, the ROI for earth resources can be defined as limited to the location where ground disturbance from construction would occur (i.e., Cannon AFB), whereas the ROI for air quality is defined by a much larger area (i.e., air quality control region) due to the nature of air pollutants to migrate throughout a broad region.
- The nature of potential impacts from the alternative actions can vary from resource to resource. For example, impacts to water resources may be defined by drainage patterns from the location of proposed development to surrounding surface water, while impacts from aircraft noise may be defined by proposed flight paths.
- In some cases, data about the resource are only available for certain defined areas (e.g., at the Census block or block group level); as a result, the analysis can only be performed at that level.

Following the introduction for each resource topic, information is presented about existing environmental conditions in the ROI. This information provides a frame of reference about conditions that prevail currently or existed in the recent past. Applicable laws and regulations for each resource are presented in Appendix D.

For each resource the Action Alternatives and No Action Alternative, as described in Section 2.1, are assessed for their potential to impact the natural and human environment. In some

instances a brief methodology is provided to explain how the analysis of impacts was conducted, and to describe what would constitute a significant impact.

The impacts described in this section represent a best estimation of the consequences of the beddown of Air Force Special Operations Command (AFSOC) assets at Cannon AFB. The impact analysis for each alternative includes direct and indirect, as well as short-term and long-term impacts. The impacts of each alternative are compared against the baseline conditions. Cumulative impacts and other environmental considerations are described in Section 6.0.

3.1 Airspace Management and Air Traffic Control

3.1.1 Definition of the Resource

Airspace management is defined as the direction, control, and handling of flight operations in the "navigable airspace" that overlies the geopolitical borders of the United States (U.S.) and its territories. "Navigable airspace" is airspace above the minimum altitudes of flight prescribed by regulations under United States Code (USC) Title 49, Subtitle VII, Part A, and includes airspace needed to ensure safety in the takeoff and landing of aircraft (49 USC § 40102). Congress has charged the Federal Aviation Administration (FAA) with responsibility for developing plans and policy for the use of the navigable airspace and assigning by regulation or order the use of the airspace necessary to ensure the safety of aircraft and its efficient use (49 USC § 40103(b); FAA Order 7400.2 2004).

There are two categories of airspace or airspace areas: regulatory and non-regulatory. Within these two categories, there are four types of airspace: Controlled, Special Use, Other, and Uncontrolled airspace. Controlled airspace is airspace of defined dimensions within which air traffic control service is provided to Instrument Flight Rule (IFR) flights and to Visual Flight Rule (VFR) flights in accordance with the airspace classification (Pilot/Controller Glossary [P/CG] 2004). Controlled airspace is categorized into five separate classes: Classes A through E. These classes identify airspace that is controlled, airspace supporting airport operations, and designated airways affording en route transit from place-to-place. The classes also dictate pilot qualification requirements, rules of flight that must be followed, and the type of equipment necessary to operate within that airspace. Uncontrolled airspace is designated Class G airspace and has no specific prohibitions associated with its use. Other airspace consists of advisory areas, areas that have specific flight limitations or designated prohibitions such as Military Training Routes (MTRs) and parachute jump areas.

Special Use Airspace (SUA) identified for military and other governmental activities is charted and published by the National Aeronautical Charting Office in accordance with FAA Order 7400.2 and other applicable regulations and orders. Management of this resource considers how airspace is designated, used, and administered to best accommodate the individual and common needs of military, commercial, and general aviation. The FAA considers multiple and sometimes competing demands for aviation airspace in relation to airport operations, Federal Airways, Jet Routes, military flight training activities, and other special needs to determine how the National Airspace System can best be structured to address all user requirements. Specific rules and regulations concerning airspace designation and management are listed in FAA Order 7400.2.

SUA is airspace of defined dimensions wherein activities must be confined because of their nature, or wherein limitations may be imposed upon aircraft operations that are not a part of those activities. The types of SUA areas are Prohibited Areas, Restricted Areas, Military

Operations Areas (MOAs), Warning Areas, Alert Areas, Controlled Firing Areas, and National Security Areas. MOAs and Restricted Areas are proposed to be used for AFSOC training missions.

The United States Air Force (Air Force) manages airspace in accordance with processes and procedures detailed in Air Force Instruction (AFI) 13-201, *Air Force Airspace Management*. AFI 13-201 implements Air Force Planning Document 13-2, *Air Traffic Control, Airspace, Airfield, and Range Management*, and Department of Defense (DoD) Directive 5030.19, *DoD Responsibilities on Federal Aviation and National Airspace System Matters*. It addresses the development and processing of SUA, and covers aeronautical matters governing the efficient planning, acquisition, use, and management of airspace required to support Air Force flight operations.

The airspace directly associated with the proposed AFSOC beddown includes Restricted Areas R-5104 A/B and R-5105 (addressed in Chapter 4.0), and the Pecos, Taiban, Mt. Dora, and Bronco MOAs, and the following MTRs: IR-107, IR-109, IR-111, IR-113, VR-108, VR-114, VR-100/125 and Aerial Refueling (AR) Route AR-602 (addressed in Chapter 5.0). The volume of airspace encompassed by the combination of these airspace elements constitutes the Environmental Impact Statement (EIS) ROI for airspace management.

3.1.2 Existing Conditions

Airspace areas associated with the Cannon AFB airfield consist of those designated to serve civil and military aircraft operating to and from the base or transiting the local area. Two types of controlled airspace are designated around Cannon AFB to support airfield operations. Class D controlled airspace immediately surrounds the base, forming a uniform circle with a radius of approximately 6 nautical miles (nm) and extending from the surface up to 6,800 feet above mean sea level (MSL). Class D airspace is comprised of an Airport Traffic Area and Control Zone. Class E controlled airspace represents the larger area in which Air Traffic Control (ATC) radar services are provided to base air traffic as well as to other pilots (military and civilian) transiting the area. Air Force ATC personnel provide radar approach control services to commercial aircraft using Clovis Municipal Airport. For most of its extent, this Class E airspace encompasses a radius of 20 nm surrounding Cannon AFB. To the northeast, an additional corridor of Class E airspace extends from this circle for approximately 20 nm. Southeast of Cannon AFB, the Class E airspace bulges slightly to accommodate activities at the public airport in Portales. The Class E airspace around Cannon AFB also overlaps partially with the eastern edge of restricted areas R-5104A and R-5105 when these areas are inactive. When the restricted areas are active, the border of the Class E airspace is coincident with the eastern edge of the restricted areas to support air-to-ground training at Melrose AFR.

Air Force personnel in the new Cannon AFB tower pictured here are responsible for aircraft traffic in the immediate vicinity of the base.

The proposed Certificate of Waiver or Authorization (COA) would specify a corridor to be established to connect the Cannon Class D airspace with R-5104 by traversing the Class E airspace between Cannon AFB and Melrose AFR. This COA is discussed in Section 4.1.

The base has two intersecting runways that cross near its southwest corner: Runway 04/22, oriented northeast and southwest, is 10,000 feet long; and the northwest and southeast runway, 31/13, is 8,200 feet in length. The majority of takeoffs and landings use Runway 04/22. Cannon AFB supports both visual and instrument flight operations.

There are three public and two private airports located within the vicinity of Cannon AFB. Public airports are located at Portales, approximately 14 nm to the southwest, and at Clovis and Benger, approximately 12 and 35 nm, respectively, east of the base. Private airfields consist of Lockmiller, 12 nm northwest of Cannon AFB, and Farwell, 15 nm to the east.

Three federal airways (V routes) cross the Class E airspace and two are adjacent to the Class E airspace east of Cannon AFB. Victor Airways are controlled airspace and can be likened to highways in the sky for aircraft. These airways are used by both IFR and VFR aircraft. The airspace set aside for a Victor Airway is 8 miles wide with a floor at 1,200 AGL extending up to 18,000 feet MSL ceiling.

Military aircraft conduct approximately 23,600 sorties at Cannon AFB annually under baseline conditions. Of these, over 97 percent are operations conducted by F-16 aircraft. Transients (i.e., aircraft from other bases), ranging from helicopters to C-5A transport aircraft, account for the remainder. These airfield operations consist of departures and arrivals in the airfield airspace.

3.1.3 Environmental Consequences

3.1.3.1 West Flightline Alternative

With the implementation of the West Flightline Alternative, airspace management and ATC procedures in the vicinity of Cannon AFB would require changes with the beddown of AFSOC assets. Modification to the Cannon AFB Airfield Operating Instruction (AOI) 11-250 would be needed to accommodate the type of operations typically executed by AFSOC aircraft. Alterations to the local approaches/departure patterns, aircraft separation and provisions for operations with night vision devices and airfield lights out operations would need to be incorporated into the AOI. Airfield operations, including approaches/departures and closed patterns, would be reduced by approximately 40 percent annually. This reduction would not result in any modifications to Cannon Tower procedures.

3.1.3.2 East and West Airfield Preferred Alternative

Under the East and West Airfield Alternative, the number of annual airfield operations and sorties would be the same as those described under the West Flightline Alternative; thus, the airspace effects are identical. The East and West Airfield Alternative includes a variation on the construction, renovation, and infrastructure improvement projects. The consequences to the airspace environment from aircraft operations would be similar to those described for the West Flightline Alternative.

3.1.3.3 No Action Alternative

No Action would result in no movement of AFSOC assets to Cannon AFB although AFSOC would maintain and operate the properties. After the 27th Fighter Wing (27 FW) is disestablished, aircraft operations around the airfield would be limited to transient aircraft and would be substantially below current conditions.

3.2 Noise

3.2.1 Definition of Resource

The noise environment is generally described by the sound level or the amplitude of a sound that occurs at any given time. From the ground, the sound level of an aircraft changes continuously, starting at the ambient (background) level, increasing to a maximum as the aircraft passes closest to the receiver, and then decreasing to ambient as the aircraft flies into the distance. Sound levels are on a logarithmic decibel scale; a sound level that is 10 decibels (dB) higher than another will be perceived as twice as loud. Specific noise metrics include Maximum Sound Level (L_{max}), the Sound Exposure Level (SEL), Day-Night Average Sound Level (L_{dn}), and Onset-Rate Adjusted Monthly Day-Night Average Sound Level (L_{dnmr}). A-weighted levels are used for subsonic aircraft noise, and C-weighted levels are used for sonic booms and other impulsive noises. A "C" is included in the symbol (as dBC) to denote when C-weighting is used. Each of these metrics is summarized below and discussed in detail in Appendix F.

- L_{max} is used to define maximum sound levels. L_{max} is the highest sound level measured during a single aircraft overflight. For an observer, the sound level starts at the ambient sound level, rises up to the maximum level as the aircraft flies closest to the observer, and returns to the ambient level as the aircraft recedes into the distance.
- SEL accounts for both the maximum sound level and the length of time a sound lasts. SEL does not directly represent the sound level heard at any given time. Rather, it provides a measure of the total sound exposure for an entire event. This provides a better measure of intrusion that L_{max} alone.
- L_{dn} is a noise metric combining the levels and durations of noise events and the number of events over an extended time period. It is a cumulative average computed over a set of 24-hour periods to represent total noise exposure. L_{dn} also accounts for more intrusive night time noise, adding a 10 dB penalty for sounds after 10:00 p.m. and before 7:00 a.m. L_{dn} is the appropriate measure to account for total noise exposure around airfields and airports. Depending on the regularity of operations, L_{dn} is computed either as an annual average or for operations representing an average busy day.
- L_{dnmr} is the measure used for subsonic aircraft noise in military airspace (MOAs or Warning Areas). When military aircraft fly low and fast, the sound can rise from ambient to its maximum very quickly. This rapid onset rate carries a "surprise" effect that can make noise seem louder than its measured SEL would suggest. L_{dnmr} contains a penalty of up to 11 dB to account for this effect. It is computed for the busiest month of the year, so as to account for the seasonal use of some airspaces. L_{dnmr} is interpreted by the same criteria as used for L_{dn}.
- C-Weighted Day-Night Sound Level (CDNL) is a day-night average sound level computed for areas subject to impulsive noise or sonic booms, including munitions. These areas are also subjected to subsonic noise assessed according to L_{dnmr}.

Specific guidelines concerning noise are discussed in Appendix F. The ROI for Cannon AFB is the airfield and the vicinity potentially affected by aircraft takeoffs and landings. Noise contributions from aircraft operations and ground engine run-ups at the base airfield were calculated using the NOISEMAP model, the standard noise estimation methodology used for military airfields. NOISEMAP uses the following data to develop noise contours: aircraft types,

runway utilization patterns, engine power settings, airspeeds, altitude profiles, flight track locations, number of operations per flight track, engine run-ups, and time of day.

3.2.2 CANNON AFB EXISTING CONDITIONS

At Cannon AFB, the noise environment is primarily influenced by aircraft operations. Noise from these operations typically occurs beneath main approach and departure corridors and in areas immediately adjacent to parking ramps and aircraft staging areas. As aircraft take off and gain altitude, their contribution to the noise environment drops to levels indistinguishable from the background.

Land use guidelines identified by Federal Interagency Committee on Urban Noise (1980) are used to determine compatible levels of noise exposure for various types of land use surrounding airports; L_{dn} 65 dB noise contours are frequently used to help determine compatibly of aircraft operations with local land use. Figure 3.2-1 presents the L_{dn} 65 to 80 dB noise contours in 5 dB increments surrounding the Cannon AFB airfield based on existing airfield operations. Table 3.2-1 presents the current land acreage exposed to noise levels between L_{dn} 65 and 80 dB or more. Further discussion of land use compatibility and noise in areas surrounding Cannon AFB is included in Section 3.8, Land Use and Transportation.

TABLE 3.2-1. BASELINE NOISE CONTOUR ACREAGE IN THE VICINITY OF THE CANNON AFB AIRFIELD

	NOISE CONTOUR (L_{dn})			
	65-70 dB	***70-75 dB***	***75-80 dB***	***80 +dB***
Acres	4,575	2,270	1,050	1,420

3.2.3 ENVIRONMENTAL CONSEQUENCES

3.2.3.1 WEST FLIGHTLINE ALTERNATIVE

Under the West Flightline Alternative, noise levels in the vicinity of Cannon AFB would decrease from baseline conditions. This is primarily due to the lower number of missions and quieter turbo-prop aircraft as compared with current F-16 operations. A noise contour overlay representing baseline and projected noise contours is presented in Figure 3.2-2. This is attributed to the new array of aircraft that would be based at Cannon AFB including the AC-130H, MC-130H/P/W, CV-22, C-47, UH-1, and Predator unmanned aerial system (UAS). Airfield operations for these aircraft is based on Table 2.1-2.

Short-term noise increases due to construction and renovation, as well as infrastructure (stormwater and electric lines) installment and realignment would also occur. Construction occurs in stages; the earlier stage entails trucks, bulldozers, and other heavy construction equipment for the major construction projects (e.g., hangars, aircraft parking facilities, apron). This stage of construction would be temporary and isolated to those areas where construction would occur. Later stages of construction involve less heavy equipment, are also temporary, and occur in the same areas. Most of these projects would be undertaken adjacent to the flight line and occupy industrial areas, and would be isolated from any off base communities. In addition, construction would take place during daylight hours and would follow Best Management Practices (BMPs) to minimize noise to any off base receptors. Construction noise would be contained within base environs since most heavy construction would occur near the flight line, where noise would be compatible with ongoing activities.

FIGURE 3.2-1. EXISTING OR BASELINE NOISE CONTOURS AT CANNON AFB

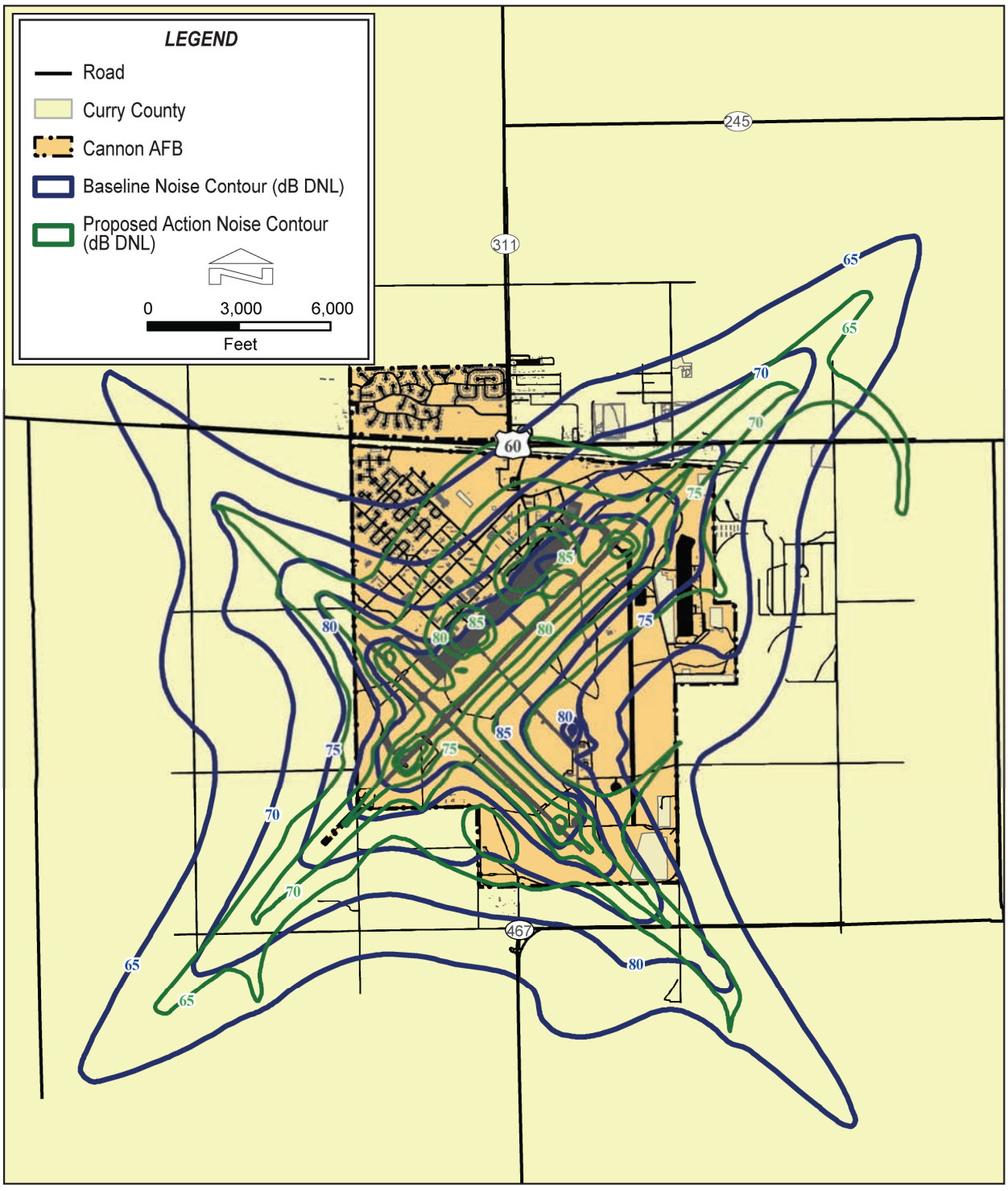


FIGURE 3.2-2. BASELINE AND PROPOSED NOISE CONTOURS AT CANNON AFB

3.2.3.2 East and West Airfield Preferred Alternative

Under the East and West Airfield Alternative, the number of annual sorties would be the same as those described under the West Flightline Alternative; thus, the noise effects are identical. The East and West Airfield Alternative includes a variation on the construction, renovation, and infrastructure improvement projects. However, because the overall construction noise would be temporary and often masked by aircraft taking off and landing, adverse impacts from construction noise is not expected. The consequences to the noise environment from aircraft operations would be essentially the same as those depicted for the West Flightline Alternative in Figure 3.2-2.

3.2.3.3 No Action Alternative

No Action would result in no movement of AFSOC assets to Cannon AFB although AFSOC would maintain and operate the properties. Noise levels around the airfield would remain as discussed in Section 3.2.2 until the F-16 aircraft depart. After the departure of the F-16 aircraft, the base could only host transient aircraft and would have substantially lower noise levels than at present.

3.3 Safety

3.3.1 Definition of Resource

This section addresses ground, flight, and explosive safety associated with operations conducted at Cannon AFB. Ground safety considers issues associated with operations and maintenance activities that support base operations, including fire response. Flight safety considers aircraft flight risks. Explosive safety discusses the management and use of ordnance or munitions associated with airbase operations.

The safety ROI includes Cannon AFB and environs. Safety at Melrose AFR is discussed in Section 4.3 and safety in military training airspace used by aircrews from the 27 FW is discussed in Section 5.3.

3.3.2 Existing Conditions

3.3.2.1 Ground Safety

Ongoing operations and maintenance activities conducted by the 27 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 27 FW fire department provides fire and crash response at Cannon AFB. The unit has a sufficient number of trained and qualified personnel, and possesses all equipment necessary to respond to aircraft accidents and structure fires. There are no response-equipment shortfalls. Should extraordinary requirements occur, the Cannon AFB Fire Department has established seven mutual aid support agreements with the nearby communities of Clovis, Portales, Floyd, Texico, House, Broadview, and Melrose (Air Force 2001a).

To minimize the results of a potential accident involving aircraft operating from Cannon AFB, Clear Zones (CZs), Accident Potential Zones (APZs), and safety zones have been established around the airfield (see Figure 3.3-1). In developing these zones, Cannon AFB is considered to have two Class B runways. Within clear and safety zones, construction is either prohibited (CZs) or limited in terms of placement and height (safety zones). Areas around the airfield where experience has shown most aircraft accidents occur are designated as APZs.

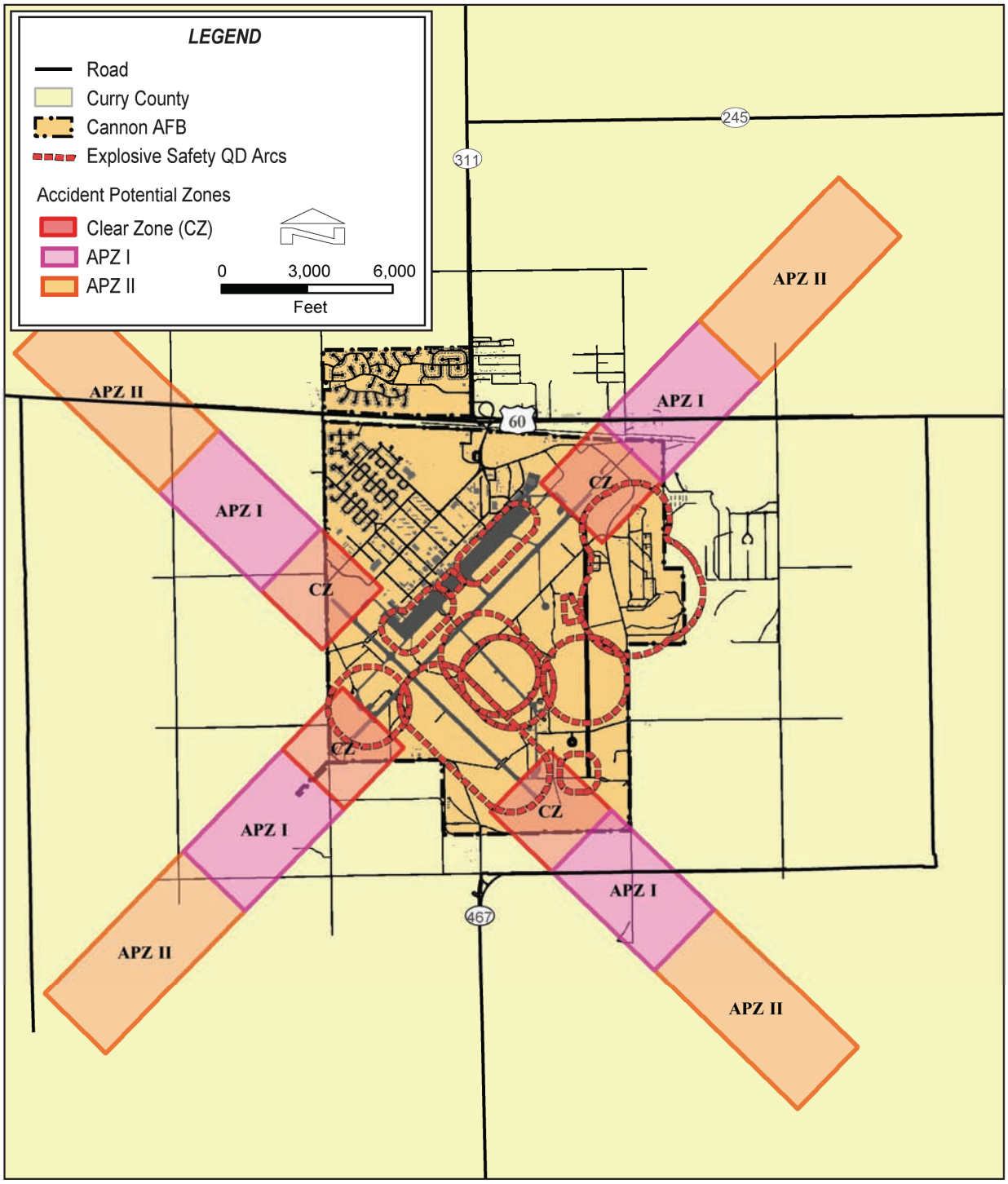


FIGURE 3.3-1. ACCIDENT POTENTIAL ZONES AND EXPLOSIVE SAFETY QUANTITY DISTANCE ARCS

The CZ is an area 3,000 feet wide by 3,000 feet long for both Class A and Class B runways, and is located at the immediate end of the runway. The accident potential in this area is so high that no building is allowed. For safety reasons, the military is authorized to purchase the land for these areas if not already part of the installation (U.S. Army Center for Health Promotion and Preventive Medicine 2001).

APZ I is less critical than the CZ, but still poses significant potential for accidents. This 3,000-foot wide by 5,000 foot-long area located just beyond the CZ has land use compatibility guidelines that allow a variety of industrial, manufacturing, transportation, communication, utilities, wholesale trade, open space and agricultural uses. Uses that concentrate people in small areas are not compatible (Air Force 2001f).

APZ II is less critical than APZ I, but still poses potential for accidents. APZ II is 3,000 feet wide and extends 7,000 feet beyond APZ I. Compatible land uses include those of APZ I, as well as low density single family residential, and those personal and business services and commercial retail trade uses with low intensity or scale of operation. High density functions such as multistory buildings, places of assembly (e.g., theaters, schools, churches and restaurants) and high-density offices are not considered compatible (U.S. Army Center for Health Promotion and Preventive Medicine 2001).

Unified Facilities Criteria 3-260-01 also specifies requirements for imaginary surfaces on and around the runway. These criteria specify encroachment-free standards along and on either side of the runway (U.S. Army Center for Health Promotion and Preventive Medicine 2001). Currently, Cannon AFB is operating under 14 permanent waivers and exemptions to these criteria.

3.3.2.2 Flight Safety

Air Force flight operations are conducted according to specific procedures contained in various AFIs. Among them, the AFI-11 series addresses general flight rules, aircrew training, as well as aircraft specific operational requirements. These instructions establish the framework for safe operation of Air Force aircraft.

One concern with regard to flight safety is the potential for aircraft accidents. Such mishaps may occur as a result of bad weather, mechanical failure, pilot error, mid-air collisions, collisions with manmade structures or terrain, or bird-aircraft collisions. Flight risks apply to all aircraft; they are not limited to the military.

The Air Force defines four categories of aircraft mishaps: Classes A, B, C, and High Accident Potential (HAP). Class A mishaps must result in one of the following: a loss of life, permanent total disability, a total cost in excess of $1 million, destruction of an aircraft, or damage to an aircraft beyond economical repair. Class B mishaps result in total costs of more than $200,000, but less than $1 million, result in permanent partial disability or inpatient hospitalization of three or more personnel, but do not result in fatalities. Class C mishaps involve reportable damage of more than $20,000, but less than $200,000, or a lost workday involving 8 hours or more away from work beyond the day or shift on which it occurred; or occupational illness that causes loss of work at any time. HAP represents minor incidents not meeting any of the criteria for Class A, B, or C. Class C mishaps and HAP, the most common types of accidents, represent relatively unimportant incidents because they generally involve minor damage and injuries, and rarely affect property or the public (Air Force 2001b). Class A mishaps are of primary

concern in environmental analyses because of their potentially catastrophic results either on or off base.

Secondary effects of an aircraft crash include the potential for fire or environmental contamination. Again, because the extent of these secondary effects is situationally dependent, they are difficult to quantify. A crash of any aircraft can cause damage and loss of life. The terrain overflown in the ROI is diverse. For example, should a mishap occur in highly vegetated areas during a hot, dry summer, such a mishap would have a higher risk of extensive fires than would a mishap in more barren and rocky areas during the winter. When an aircraft crashes, it may release hydrocarbons. Those petroleum, oils, and lubricants not consumed in a fire could contaminate soil and water. The potential for contamination is dependent on several factors. The porosity of the surface soils will determine how rapidly contaminants are absorbed. The specific geologic structure in the region will determine the extent and direction of the contamination plume. The locations and characteristics of surface and groundwater in the area will also affect the extent of contamination to those resources.

Based on historical data on mishaps at all installations, and under all conditions of flight, the military services calculate Class A mishap rates per 100,000 flying hours for each type of aircraft in the inventory. Table 3.3-1 presents Class A mishap rates for aircraft flown in the Pecos airspace. CV-22 and Predator are new aircraft that have not flown the requisite hours to calculate Class A accident rates. During operational testing, V-22 aircraft variants have incurred several Class A accidents. This is not unusual for a new aircraft type just entering production. CV-22 aircraft could have mishap rates comparable to CH-46 type helicopters or 6.78 per 100,000 flying hours. Predator aircraft are new and are expected to have mishap rates comparable to or below military fighter aircraft from Table 3.3-1.

TABLE 3.3-1. PROJECTED CLASS A MISHAP RATES FOR AIRCRAFT

Aircraft	*Mishap Rates per 100,000 Flying Hours*
A-10	2.30
F-15	2.46
F-16	3.60
F/A-18[1]	3.34
UH-1	3.22
C-130[2]	0.90
B-1B	4.51
CH-46	6.78
CV-22	N/A[3]

Notes: 1. F-18 mishap rate.
2. Includes all C-130 variants.
3. New aircraft that have not flown the requisite hours to calculate Class A accident rates.

Source: Air Force Safety Center 2006

A Class A mishap can result in metal debris on the ground. The extent of the debris field depends upon the aircraft accident. Both for reconstructing the cause of the accident and for

restoring the accident site as much as possible, the Air Force makes every effort to locate, document, and then clean up debris resulting from the accident.

For purposes of comparison, aircrews at Cannon flew their first F-16 training sortie in September 1995. Since 1995, Cannon-based F-16s have been involved in eight Class A mishaps. All accidents except one occurred on local training missions, but not necessarily in the Cannon airspace (personal communication, Zahnley 2004). The most recent Class A mishap involving Cannon-based aircraft occurred in April 2006 and was caused by ingestion of a Swainson's Hawk into engine intake, resulting in engine damage (personal communication, Steele 2006). The last fatal crash in the U.S. involving a Cannon AFB aircraft occurred in September 2002 and occurred 50 miles west of Cannon AFB. Citizens incurring damage from Cannon AFB mishaps can contact Cannon AFB directly to inquire about the damage claims process. The Air Force has an established claims process for citizens who have damages as a result of aircraft training activities. This process is initiated through contact with a base's Public Affairs Office.

Cannon AFB maintains detailed emergency and mishap response plans to react to an aircraft accident, should one occur. These plans assign agency responsibilities and prescribe functional activities necessary to react to major mishaps, whether on or off base. Response would normally occur in two phases.

The initial response focuses on rescue, evacuation, fire suppression, safety, elimination of explosive devices, ensuring security of the area, and other actions immediately necessary to prevent loss of life or further property damage. Subsequently, the second or investigation phase is accomplished.

The initial response element consists of those personnel and agencies primarily responsible to initiate the initial phase. This element will include the Fire Chief, who will normally be the first On-scene Commander, fire-fighting and crash-rescue personnel, medical personnel, security police, and crash-recovery personnel. A subsequent response team will be comprised of an array of organizations whose participation will be governed by the circumstances associated with the mishap and actions required to be performed.

The Air Force has no specific rights or jurisdiction just because a military aircraft is involved. Regardless of the agency initially responding to the accident, efforts are directed at stabilizing the situation and minimizing further damage. If the accident has occurred on non-federal property, a National Defense Area will normally be established around the accident scene and the site will be secured for the investigation phase.

After all required actions on the site are complete, the aircraft will be removed and the site cleaned up. Depending on the extent of damage resulting from a Class A mishap, only the largest damaged parts may be located and removed from a crash site.

Tall structures on the ground have the potential to create hazards to flight. The FAA provides detailed instructions for the marking of obstructions (i.e., paint schemes and lighting) to warn pilots of their presence. Cannon AFB would continue to work with federal, state, and local agencies to identify the impacts caused by the development of tall structures to Cannon AFB operations and training. Any temporary or permanent structure, including all appurtenances, that exceeds an overall height of 200 feet (61 meters) above ground level (AGL) or exceeds any obstruction standard contained in 14 CFR Part 77, should normally be marked and/or lighted. The FAA may also recommend marking and/or lighting a structure that does not exceed 200 feet AGL or 14 CFR Part 77 standards because of its particular location (FAA 2000). The

obstruction standards in 14 CFR Part 77 are primarily focused on structures in the immediate vicinity of airports and approach and departure corridors from airports (14 CFR Part 77 1971).

3.3.2.3 Wildlife Strike Hazard

Bird-aircraft strikes constitute a safety concern because they can result in damage to aircraft or injury to aircrews or local populations if an aircraft crashes. Aircraft may encounter birds at altitudes up to 30,000 feet MSL or higher. However, most birds fly close to the ground. Over 97 percent of reported bird strikes occur below 3,000 feet AGL. Approximately 30 percent of bird strikes happen in the airfield environment.

Bird-aircraft strike data from 1996 to 2003 indicate that Cannon-based aircraft experience an average of approximately 25 bird-strikes per year. The majority, approximately 41 percent, occur during July, August, and September. The months of January, February, and March exhibit the lowest incidence (approximately 12 percent). The dominant species involved are doves (27 percent), horned larks (16 percent), swallows (12 percent), and kingbirds (11 percent). The remaining 33 percent of strikes involved a wide variety of raptors, owls, shore birds, and small songbirds (personal communication, Zahnley 2004). As noted previously, the last reported Class A mishap involving a bird strike occurred in April 2006.

3.3.2.4 Explosives Safety

The 27 FW controls, maintains, and stores all ordnance and munitions required for mission performance. Ordnance is handled and stored in accordance with Air Force explosive safety directives (Air Force Manual 91-201), and all munitions maintenance is carried out by trained, qualified personnel using Air Force-approved technical data. Ample storage facilities exist and all facilities are approved for the ordnance they store.

During current training, aircraft are not loaded with any ordnance configured with high explosive warheads. Inert training bombs and several different types of rockets are delivered on Melrose AFR, as well as training projectiles fired from the aircrafts' 20 millimeter (mm) cannon. Aircraft may also be configured with training air-to-air and air-to-ground missiles. AFSOC aircraft will utilize a variety of munitions on Melrose AFR that will be stored and located at Cannon AFB. These munitions are shown in Table 2.2-4.

3.3.3 Environmental Consequences

3.3.3.1 West Flightline Alternative

Ground Safety

Other Cannon AFB activities, including the construction of new buildings and facilities under the West Flightline Alternative, would not take place in CZs or APZs. The construction would be consistent with the Base General Plan and construction safety procedures would be part of any construction contract. Construction of a Hot Cargo Pad would require the establishment of an Explosive Quantity-Distance (QD) arc that measure 1,250 feet from the corners of the pad. This Explosive QD arc should not impact construction or operations at Cannon AFB. The change in personnel is not expected to have an effect on safety.

Flight Safety

The beddown of AFSOC assets at Cannon AFB would essentially replace existing F-16 with variants of the C-130 and add new aircraft, including the CV-22, Predator, and, potentially Non-

Standard Aircraft (NSA). Cannon AFB aircraft ground safety conditions would not change as a result of the new aircraft.

Historically, when new military aircraft first enter the inventory, the flight safety accident rate is higher. For example, safety data are limited for the CV-22 because it is a new aircraft with multiple complex systems. These systems are undergoing refinement as the CV-22 transitions from a test and training platform to an operational system. Class A mishaps are calculated on a basis of 100,000 flight hours. The CV-22 has not yet achieved that level of flight hours. During test activities and weapons system development, the CV-22 had a number of Class A mishaps; this is not unusual for a new aircraft.

As the CV-22 becomes operationally mature, the aircraft mishaps rate is expected to become comparable with a similarly sized helicopter aircraft with a similar mission. Historical trends show that mishaps of all types decrease the longer an aircraft is operational as operations and maintenance personnel learn more about the aircraft's capabilities and limitations.

WILDLIFE STRIKE HAZARD

The C-130 and CV-22 would operate in the same airfield environment as the F-16, and the overall potential for bird-aircraft or wildlife strikes is not anticipated to be greater than current levels given the reduced number of sorties to be conducted by AFSOC aircraft within the Cannon AFB airspace. There would be no significant adverse effects of the military readiness activities described in this EIS on any population of resident or migratory birds.

CANNON AFB HAS AN ACTIVE BASH PROGRAM TO REDUCE THE POTENTIAL FOR BIRD AND WILDLIFE STRIKES AND ENHANCE AIRFIELD SAFETY.

EXPLOSIVE SAFETY

The amount of munitions associated with the beddown of AFSOC assets is projected to be higher than that associated with the existing F-16 squadrons. Training requirements for AC/MC-130 crew are established in AFI 11-2AC130 and require training with live ordnance. Existing Air Force instructions and procedures that address explosive, flying, and ground safety will provide a basis for a new Melrose AFR specific instruction for Cannon-based personnel. Table 2.2-3 shows current and projected annual ordnance use within Melrose AFR.

The number of chaff bundles and flares would be reduced with the introduction of AFSOC assets in comparison to the amount currently deployed by F-16 squadrons. Cannon AFB has the personnel and facilities to handle the level of munitions and chaff and flares associated with implementing the West Flightline Alternative.

3.3.3.2 EAST AND WEST AIRFIELD PREFERRED ALTERNATIVE

Under the East and West Airfield Alternative, the number of annual sorties would be the same as those described under the West Flightline Alternative; thus, the flight safety effects are identical. The East and West Airfield Alternative includes a variation on the construction, renovation, and infrastructure improvement projects. However, the variation in construction activity would not result in any greater safety risk than that posed by activity under the West Flightline Alternative.

3.3.3.3 No Action Alternative

No Action would result in no movement of AFSOC assets to Cannon AFB although AFSOC would maintain and operate the properties. Safety conditions around the airfield would remain as discussed in Section 3.3.2 until the F-16 aircraft departed. Under No Action conditions, aircraft training activity would be reduced to limited numbers of transients.

3.4 Air Quality

3.4.1 Definition of Resource

This section discusses air quality considerations and conditions in the area around Cannon AFB in Curry County, New Mexico. It addresses air quality standards and describes current air quality conditions in the region. 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 the West Flightline Alternative is the Pecos-Permian Basin Intrastate Air Quality Control Region (AQCR) (AQCR 155), which includes Chaves, Curry, DeBaca, Eddy, Quay, and Roosevelt counties in New Mexico.

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 U.S. Environmental Protection Agency (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 seven "criteria" pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter less than or equal to 10 micrometers in diameter (PM_{10}), particulate matter less than or equal to 2.5 micrometers in diameter ($PM_{2.5}$), ozone (O_3), 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 generally may not be exceeded more than once 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 U.S. as having air quality equal to or better than the NAAQS (attainment) or worse than the NAAQS (nonattainment). Upon achieving attainment, areas previously in nonattainment 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.

State Air Quality Standards. Under the CAA, state and local agencies may establish ambient air quality standards and regulations of their own, provided that these are at least as stringent as the federal requirements. The New Mexico Air Quality Bureau (NMAQB) has promulgated the New Mexico ambient air quality standards (NMAAQS) that meet these guidelines and they have adopted standards for pollutants not included in the NAAQS. Table 3.4-1 summarizes the NAAQS and NMAAQS.

TABLE 3.4-1. FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS

Air Pollutant	*Averaging Time*	NAAQS		NEW MEXICO
		Primary	*Secondary*	*AAQS*
Carbon Monoxide (CO)	8-hour 1-hour	9 ppm 35 ppm	--- ---	8.7 ppm 13.1 ppm
Nitrogen Dioxide (NO_2)	Annual 24-hour	0.053 ppm ---	0.053 ppm ---	0.05 ppm 0.10 ppm
Sulfur Dioxide (SO_2)	Annual 24-hour 3-hour	0.030 ppm 0.14 ppm ---	--- --- 0.50 ppm	0.02 ppm 0.10 ppm ---
Total Suspended Particulates	Annual 30-day 7-day 24-hour	--- --- --- ---	--- --- --- ---	60 $\mu g/m^3$ 90 $\mu g/m^3$ 110 $\mu g/m^3$ 150 $\mu g/m^3$
Particulate Matter (PM_{10}) [1]	Annual 24-hr	--- 150 $\mu g/m^3$	--- 150 $\mu g/m^3$	--- ---
Particulate Matter ($PM_{2.5}$)[1]	Annual 24-hour	15 $\mu g/m^3$ 35 $\mu g/m^3$	15 $\mu g/m^3$ 35 $\mu g/m^3$	--- ---
Hydrogen Sulfide (H_2S)	1-hr[2] ½-hr[3] ½-hr[4]	--- --- ---	--- --- ---	0.010 ppm 0.100 ppm 0.030 ppm
Total Reduced Sulfur[5]	½-hr[2] ½-hr[3] ½-hr[4]	--- --- ---	--- --- ---	0.003 ppm 0.010 ppm 0.003 ppm
Ozone (O_3)	8-hour	0.08 ppm	0.08 ppm	---
Lead (Pb) and Lead Compounds[6]	Calendar Quarter	1.5 $\mu g/m^3$	1.5 $\mu g/m^3$	---

Notes:
1. In 2006 the federal annual standard of 50 $\mu g/m^3$ for PM_{10} was revoked, and the federal $PM_{2.5}$ standard for the 24 hour averaging time was changed from 65 $\mu g/m^3$ to 35 $\mu g/m^3$; the State of New Mexico does not have any standards for PM_{10} or $PM_{2.5}$.
2. Entire state except for the Pecos-Permian Air Basin (AQCR 155), which includes De Baca, Chaves, Curry, Quay, and Roosevelt counties.
3. Within the Pecos-Permian Air Basin.
4. Within corporate limits of municipalities in the Pecos-Permian Air Basin, or within 5 miles of the corporate limits of municipalities having a population greater than 20,000 and within the Pecos-Permian Air Basin.
5. Total reduced sulfur does not include Hydrogen Sulfide.
6. The State of New Mexico does not have any standard for lead or lead compounds.

Sources: 40 CFR 50; 20.2.3 New Mexico Administrative Code (NMAC).

State Implementation Plan (SIP). An SIP is a detailed description of the programs a state uses to carry out its responsibilities under the CAA. State implementation plans are collections of the regulations used by a state to reduce air pollution. The CAA requires that USEPA approve each SIP. For attainment, non-attainment regions, and unclassifiable regions, all states are required to develop an SIP designed to eliminate or reduce the severity and number of NAAQS violations, with an underlying goal of bringing 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.

Prevention of Significant Deterioration (PSD). Section 162 of the CAA further established the goal of PSD of air quality in all international parks; national parks which exceeded 6,000 acres; and national wilderness areas and memorial parks which exceeded 5,000 acres if these areas were in existence on August 7, 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 August 7, 1977, which 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 areas that attain the NAAQS and serve as a pre-construction permitting system. In attainment and unclassifiable areas, the federal New Source Review (NSR) program is implemented under the PSD preconstruction program requirements of Section 165 of the CAA and the implementing regulations in 40 CFR § 52.21. New Mexico's PSD program regulations that are part of the SIP are contained in 20.2.74 New Mexico Administrative Code (NMAC).

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 Class I area is typically associated with evaluation of stationary source contributions. The USEPA is implementing a Regional Haze rule for 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 NO_2, particulate matter, and SO_2 in the lower atmosphere.

Stationary Source Operating Permits. In New Mexico, the NMAQB Permitting Section processes permit applications for industries that emit pollutants to the air. The Permitting Section consists of two groups: (1) NSR and (2) Title V. NSR under the NMAC, is subdivided into a number of subcategories including, but not limited to: (1) minor new source review (Minor NSR) (20.2.72 NMAC); (2) PSD (20.2.74 NMAC); (3) new source performance standards (NSPS) (20.2.77 NMAC); (4) national emission standards for hazardous air pollutants (NESHAPS) (20.2.78 NMAC); and (5) nonattainment area new source review (NA NSR) (20.2.79 NMAC). In general, Minor NSR applies to all stationary sources with the potential emission rate greater than 10 pounds per hour, or 25 tons per year (TPY), of criteria pollutants (such as

nitrogen oxides [NO_x] and CO), except as otherwise provided. The exceptions are too numerous to summarize here (e.g., 20.2.72.202 NMAC Exemptions), but they include the majority of emissions sources that are analyzed here in both the existing conditions and environmental consequences sections for air quality. Examples of such exceptions include highway and nonroad mobile sources; 'fire fighter training' (20.2.72.202 A(4)); 'Government military activities such as field exercise, explosions, weapons testing and demolition to the extent that such activities: (a) Do not result in visible emissions entering publicly accessible areas; and (b) are not subject to NSPS or NESHAP (20.2.72.202 A(5))'; and 'Use of portable aerospace ground equipment (such as power generators, compressors, heaters, air conditions, lighting units) in direct support of aircraft operations and or in the immediate vicinity of an airfield (20.2.72.202 A(13))'. Title V of the CAA Amendments of 1990 requires states to issue Federal Operating Permits for major stationary sources. In New Mexico, 20.2.70 NMAC implements the federal Title V Operating Permit program requirements for existing and new major stationary sources. A major stationary source in an attainment or maintenance area is a facility (i.e., plant, base, or activity) that emits more than 100 TPY of any one criteria air pollutant, 10 TPY of a hazardous air pollutant, or 25 TPY 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 2006).

Conformity of General Federal Actions to the State Implementation Plan (20.2.98 NMAC). In nonattainment and maintenance areas in New Mexico, new or modified federal mobile and fugitive sources of emissions that are otherwise exempt from stationary source permitting requirements are subject to General Conformity requirements. The General Conformity requirements do not apply in air quality areas that have always been designated as attainment or unclassifiable for the NAAQS, as CAA § 176(c)(5) limits applicability to nonattainment and maintenance areas.

3.4.2 Existing Conditions

Climate. The general climate for the region surrounding Cannon AFB is arid or semi-arid, with light precipitation, abundant sunshine, low relative humidity, and a relatively large annual and diurnal temperature range (Western Regional Climate Center [WRCC] 2006a).

Winds at Cannon AFB are generally moderate in strength and persistent, with an annual average of 12 miles per hour (mph). All months maintain an average wind speed of between 10 and 14 mph, with a maximum occurring in April (WRCC 2006b). Winds are generally westerly from late fall through spring, and then switch to a more southerly direction during the summer and early fall months (WRCC 2006c). Wind speeds and direction can vary greatly on a shorter time-scale due to the effects of air mass frontal passages, severe storms, and interaction with local topography.

Winters in Curry County are cool and dry. January, on average, is the coldest month, and experiences the least precipitation. For the city of Clovis, approximately 8 miles east of Cannon AFB, average high and low temperatures for January are 53 degrees Fahrenheit (°F) and 23°F, and the average monthly precipitation is 0.35 inches. Conversely, summers are much warmer and wetter, with July being the warmest month, and August being the wettest. Average high and low temperatures for July are 97°F and 62°F, and the average recorded rainfall in August is 2.97 inches. The average annual precipitation in Clovis is 16.97 inches. Snow does occasionally fall during the winter months, with a peak average of 1.4 inches in the month of December. The annual average snowfall is 5.1 inches (WRCC 2006d).

Regional Air Quality. Federal regulations at 40 CFR 81 delineate certain AQCRs which were originally based upon 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 discussion includes the Pecos-Permian Basin Intrastate AQCR (AQCR 155) as described above in Section 3.4.1.

Attainment Status. The USEPA designates all areas of the U.S. as having air quality better than (attainment) or worse than (nonattainment) the NAAQS. A nonattainment designation generally means that a primary NAAQS has been exceeded more than once per year in a given area. Curry County and AQCR 155 are presently in attainment of all NAAQS and have always attained these standards, due to their general rural nature and lack of substantial emission sources.

PSD Class I Areas. Mandatory PSD Class I areas for the State of New Mexico are listed under 40 CFR 81.421. The nearest PSD Class I area is the Salt Creek Wilderness Area, located approximately 90 miles southwest of Cannon AFB.

Current Air Emissions. Air emissions at Cannon AFB occur from both stationary and mobile sources. Stationary sources at the installation include heating units, generators, engine testing (while engine is not attached to an aircraft), classified waste disintegration, fuel storage and transfer, paint and chemical usage, degreasers, woodworking activities, welding, fuel cell maintenance, abrasive blasting, pesticide application, small arms firing, open detonation of energetic materials, equipment leaks, and barrier engine emissions. The installation is considered to be a minor source under the CAA Amendments, due to the fact that its potential emissions from stationary sources are below the Title V thresholds for major sources. The mobile sources at Cannon AFB include (1) ground-based activities, such as on-road and off-road vehicles, aerospace ground equipment, aircraft trim and power checks and (2) aircraft flying operations, including landings and takeoffs and low approaches.

Table 3.4-2 summarizes the results of an emissions inventory for sources at Cannon AFB for calendar year 2004 (Air Quality Branch, Environmental Analysis Division, Air Force Institute for Operational Health 2005). Nitrogen oxides mainly include NO_2 and NO_x. Because volatile organic compounds (VOCs) and NO_x are precursors to the formation of O_3 in the atmosphere, control of these pollutants is the primary method of reducing O_3 concentrations in the atmosphere. The aircraft flying operations emissions in Table 3.4-2 were calculated using default Air Force combat aircraft time-in-mode data and emission factors (Air Force Institute for Environmental, Safety, and Occupational Health Risk Analysis 2003) and the aircraft trim check emissions were calculated using default number of tests per aircraft and time in mode values per test from the Air Force Air Conformity Applicability Model (ACAM) (Air Force Center for Environmental Excellence [AFCEE] 2005). Although Pb is also a criteria pollutant, it is often not quantified in this analysis because emissions of this pollutant are minimal at Cannon AFB.

TABLE 3.4-2. BASELINE EMISSIONS FOR CANNON AFB

Source	ANNUAL EMISSIONS (TONS PER YEAR)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Stationary [1]	37.98	47.94	30.09	0.78	1.94	1.94
Aircraft Flying Operations [2]	7.34	154.40	199.05	6.52	12.07	11.97
Aircraft Engine Testing (Mobile)[3]	42.31	70.22	70.18	3.25	4.07	4.04
Commuting [4]	18.80	258.87	34.27	0.23	0.95	0.61

Notes: 1. 2004 Air Emissions Inventory (Air Quality Branch, Environmental Analysis Division, Air Force Institute for Operational Health 2005). $PM_{2.5}$ assumed to be same as PM_{10} since there was no determination of $PM_{2.5}$ emissions in the Emissions Inventory.
2. Calculations based on a fleet of 60 F-16s flying a total of 23,105 sorties per year (DOPAA).
3. Calculations based on default total number of tests per aircraft and time in mode per test given by the U.S. Air Force Air Conformity Applicability Model (ACAM), using emission factors from the Air Force Institute for Environmental, Safety, and Occupational Health Risk Analysis. Since these tests are conducted while the engines are on the plane, these are considered mobile sources.
4. Calculated by assuming that all base personnel commute 20 miles round trip, 5 days a week, 50 weeks a year, with an average of 1.1 commuters per vehicle. Emission factors were generated from the USEPA's Mobile6 model, for average conditions at Cannon AFB, and assuming an average mix of vehicles.

VOC = volatile organic compound

3.4.3 ENVIRONMENTAL CONSEQUENCES

The proposed beddown of AFSOC assets would change emissions from Cannon AFB. Air pollutant emissions produced from each project alternative were quantitatively estimated, netted with base case operational emissions that will be removed from the AQCR, and then compared to the criteria identified below to determine their significance. Emission sources associated with the project alternatives would include combustive and/or fugitive dust (PM_{10}) emissions generated by construction or operational activities.

Air quality standards are based on federal, state, and local air pollution standards and regulations. Net emissions impacts would be potentially significant if they equaled or exceeded the PSD major source threshold for new non-listed sources or the major source thresholds for hazardous air pollutants. The PSD threshold for new non-listed major sources of regulated pollutants under the CAA is 250 TPY. New Mexico applies this preconstruction permitting threshold to all new stationary sources of regulated pollutants in attainment areas except for twenty-eight listed source categories, none of which are involved in this action (20.2.74.7 AF(2) and 20.2.74.501 NMAC). The major source thresholds for hazardous air pollutants are 25 TPY for aggregate hazardous air pollutants or 10 TPY for any single hazardous air pollutant (CAA § 112(a)(1)) (NMAQB 2006). This approach is conservative because these thresholds are designed to assess the potential for stationary sources to impact a localized area. However, almost all of the proposed emissions would occur from mobile sources that would spread impacts over a large portion of Cannon AFB and the surrounding area.

If emissions exceeded a significance threshold described above, further analysis of the emissions and their consequences would be performed to assess whether there was likelihood of a significant impact on air quality. The nature and extent of such an analysis would depend on the specific circumstances. The analysis could range from simply a more detailed and precise examination of the likely emitting activities and equipment, to air dispersion modeling

analyses. If project emissions were determined to increase ambient pollutant levels from below to above a national or state ambient air quality standard, these emissions would be significant.

According to USEPA's General Conformity Rule in 40 CFR Part 51, Subpart W, any proposed federal action that has the potential to impact air quality in a nonattainment or maintenance area must undergo a conformity analysis. A conformity analysis is not required in an attainment area. Since Curry County is currently an attainment area for all criteria air pollutants, the West Flightline Alternative does not require a conformity analysis.

As previously discussed, Section 169A of the CAA established the PSD regulations to protect 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 the Salt Creek Wilderness Area, located approximately 90 miles southwest of Cannon AFB. Since the project site is so far from this Class I area, the West Flightline Alternative would not be expected to produce any significant air quality impacts upon it, unless net emissions exceeded a significance threshold.

3.4.3.1 West Flightline Alternative

The West Flightline Alternative would involve transfer of AFSOC aircraft to Cannon AFB. The fleet would be comprised of at least nine different types of aircraft (see Table 2.1-2). The West Flightline Alternative would also include the construction of new structures to support the different activities associated with AFSOC aircraft.

Construction Emissions

Emissions during the construction period were quantified to determine the potential impacts on air quality in the project area. Calculations of VOCs, NO_x, CO, sulfur oxides (SO_x), and PM_{10} emissions were performed for each year of construction with the use of emission factors from the USEPA's *MOBILE6.2* (USEPA 2006a) and *NONROAD2005* models (USEPA 2006b). Emissions produced during construction of new buildings include contributions from engine exhaust (i.e., construction equipment and material handling) and fugitive dust (e.g., from ground disturbance). Estimated total emissions that would occur from the annual construction activities under the West Flightline Alternative are presented in Table 3.4-3.

Review of the data in Table 3.4-3 show that the annual emissions of criteria pollutants, as well as the combined total emissions from six years of proposed construction activities, would produce emissions that remain well below the emission significance thresholds of 250 TPY. Additionally, the project construction contractor would comply with BMPs to minimize fugitive dust emissions during construction. For instance, frequent spraying of water on exposed soil during construction, proper soil stockpiling methods, and prompt replacement of ground cover or pavement are BMPs that would minimize the amount of dust generated during construction. Using efficient practices and avoiding long periods where engines are running at idle also would reduce combustion emissions from construction equipment.

TABLE 3.4-3. CONSTRUCTION EMISSIONS AT CANNON AFB – WEST FLIGHTLINE ALTERNATIVE

Project Year	TONS PER YEAR					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
2009	0.16	0.86	1.33	0.21	0.70	0.27
2010	0.10	0.51	0.91	0.14	1.19	0.33
2011	1.00	5.50	8.69	1.49	5.24	1.98
2012	0.15	0.84	1.34	0.24	0.85	0.32
2013	0.31	1.71	2.79	0.52	1.89	0.73
2014	0.06	0.32	0.53	0.10	0.38	0.15
All Years Totaled	**1.77**	**9.74**	**15.58**	**2.71**	**10.26**	**3.77**
Significance Thresholds	**100**	**100**	**100**	**100**	**100**	**100**

Emissions associated with construction of the West Flightline Alternative would increase ambient air pollutant concentrations on a localized and short-term basis. However, their relatively low magnitude would not result in any significant air quality impacts in Curry County or the Pecos-Permian Basin Intrastate AQCR (AQCR 155).

OPERATIONAL EMISSIONS

Upon completion of the West Flightline Alternative, air emissions at the Cannon AFB would change because the new aircraft would produce emissions at a different rate compared to the current primary assigned aircraft. Other base emissions, including contributions from stationary sources and commuting of personnel, are expected to increase as the operations increase with the addition of new aircraft and personnel. It is also possible that the installation or modification of any air emission sources, such as boilers and heaters, emergency generators, paint booths, degreasers, etc., may be subject to NMAQB permitting requirements.

Table 3.4-4 summarizes the estimated changes in aircraft emissions for the West Flightline Alternative. Factors used to estimate project aircraft emissions were obtained from the *Air Emissions Inventory Guidance Document for Mobile Sources at Air Force Installations* (Air Force Institute for Environment, Safety, and Occupational Health Risk Analysis 2003). Factors used to determine emissions from commuting vehicles were generated using the *MOBILE6* model (USEPA 2006a). The data in Table 3.4-4 show that the West Flightline Alternative would reduce emissions of all criteria pollutants from current levels at Cannon AFB. Due to the estimated decrease in emissions, the West Flightline Alternative would not produce any significant air quality impacts in Curry County and the AQCR.

TABLE 3.4-4. CHANGE IN OPERATIONAL EMISSIONS AT CANNON AFB – WEST FLIGHTLINE ALTERNATIVE

Source	TONS PER YEAR (1)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Stationary	11.11	14.02	8.80	0.23	0.57	0.57
Aircraft Flying Operations	5.67	(113.44)	(172.76)	(3.39)	0.45	0.45
Aircraft Engine Testing (Mobile)	(40.87)	(62.91)	(47.74)	(1.32)	1.27	1.26
Commuting	5.50	75.72	10.03	0.07	0.28	0.18
Total Change	**(18.59)**	**(86.61)**	**(201.68)**	**(4.41)**	**2.57**	**2.45**
Significance Thresholds	**100**	**100**	**100**	**100**	**100**	**100**

Note: (1) Parentheses represent a reduction in emissions from current levels.

3.4.3.2 EAST AND WEST AIRFIELD PREFERRED ALTERNATIVE

The East and West Airfield Alternative is essentially the same as the West Flightline Alternative except for construction location and a few facility differences. All operational emissions, including those from stationary sources, commuting, and aircraft operation would be the same as in the West Flightline Alternative.

CONSTRUCTION EMISSIONS

While the East and West Airfield Alternative proposes a different area of the base for development, most of the structures that would be built are the same as in the West Flightline Alternative. The few differences that do exist were applied to the emission source data and using the same calculation methods as outlined with the West Flightline Alternative, emissions were estimated for each year during the projected construction period. Estimated annual emissions that would occur from construction under the East and West Airfield Alternative are presented in Table 3.4-5. Review of these data show that the combined total emissions from seven years of proposed construction activities would produce emissions that remain well below the emission significance thresholds of 100 TPY.

TABLE 3.4-5. CONSTRUCTION EMISSIONS AT CANNON AFB – EAST AND WEST AIRFIELD ALTERNATIVE

Project Year	EMISSIONS (TONS PER YEAR)					
	VOC	*CO*	NO_x	SO_x	PM_{10}	$PM_{2.5}$
2009	0.25	1.32	2.04	0.32	1.08	0.41
2010	0.10	0.51	0.91	0.14	1.19	0.33
2011	0.58	3.19	5.04	0.87	3.04	1.15
2012	0.23	1.29	2.06	0.37	1.31	0.50
2013	0.31	1.71	2.79	0.52	1.89	0.73
2014	0.06	0.32	0.53	0.10	0.38	0.15
Project Totals	**1.52**	**8.34**	**13.36**	**2.33**	**8.89**	**3.26**
Significance Thresholds	**100**	**100**	**100**	**100**	**100**	**100**

Emissions from construction of the East and West Airfield Alternative would increase ambient air pollutant concentrations on a localized and short-term basis. However, as with the West Flightline Alternative, their relatively low magnitude would not result in any significant air quality impacts in Curry County or the Pecos-Permian Basin Intrastate AQCR (AQCR 155).

OPERATIONAL EMISSIONS

Operational emissions produced from the East and West Airfield Alternative would be the same as those estimated for the West Flightline Alternative, and thus would not produce any significant air quality impacts in Curry County or the AQCR.

3.4.3.3 NO ACTION ALTERNATIVE

Under the No Action Alternative, no construction emissions would occur and the installation's operational emissions would be identical to current baseline presented in Section 3.4.2 until the F-16 aircraft depart. After that, emissions would be reduced. The No Action Alternative would produce less than significant air quality impacts.

3.5 PHYSICAL RESOURCES

3.5.1 DEFINITION OF RESOURCE

Physical resources include a description of earth (topography, geology, and soils), water, and hazardous material and waste. Topography characterizes surface form of the landscape and provides a description of the physical setting. Geologic resources include subsurface and exposed rock. The inherent properties of local bedrock affect soil formation and properties, groundwater sources and availability, and terrain. Soils include particulate unconsolidated materials formed from in place the underlying bedrock or other parent material or transported from distant sources via wind and water. Soils play a critical role in the natural and human environment, affecting vegetation and habitat, water and air quality, and the success of the construction and stability of roads, buildings, and shallow excavations. Water resources include surface water, such as lakes, rivers, streams and wetlands and groundwater (subsurface hydrologic resources.) These resources may have scientific, historical, economic, ecological and recreational value.

Typically, issues relevant to water resources include the quality and quantity of downstream water bodies potentially affected and hazards associated with 100-year floodplains delineated in accordance with Executive Order (EO) 11988, *Floodplain Management*. EO 11988, *Floodplain Management*, requires federal agencies to take action to reduce the risk of flood damage; 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.

Hazardous materials are identified and regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); the Occupational Safety and Health Administration (OSHA); and the Emergency Planning and Community Right-to-Know Act (EPCRA). Hazardous materials have been defined in AFI 32-7086, *Hazardous Materials Management*, to include any substance with special characteristics that could harm people, plants, or animals. Hazardous waste is defined in the Resource Conservation and Recovery Act (RCRA) as any solid, liquid, contained gaseous or semisolid waste, or any combination of wastes, that could or do pose a substantial hazard to human health or the environment.

Waste may be classified as hazardous due to of its toxicity, reactivity, ignitibility, or corrosivity. In addition, certain types of waste are "listed" or identified as hazardous in 40 CFR 263.

The ROI for this resource is primarily Cannon AFB. However, descriptions of topography and geology are described in a regional context to depict the setting. Soils and water resource information provided is site-specific, focusing on the properties most likely to be affected or to have an effect on construction of the facilities planned under the West Flightline Alternative.

3.5.2 Existing Conditions

3.5.2.1 Earth Resources

Cannon AFB is located within the Southern High Plains Major Land Resource Area on the western edge of the Great Plains. The topography of the base consists of nearly level landscape dominated by a southeastern downslope of 0-2 percent (Air Force 1997a, USDA Soil Conservation Service [SCS] 1980). The high point on the base is 4,330 feet; the low is 4,260 feet above sea level. The Southern High Plains is underlain by nearly horizontal sedimentary rocks that have been covered by alluvial and aeolian deposits (Air Force 2003a).

In general, the semi-arid climate of the region contributes to the development of thin topsoil with low organic content, underlain at relatively shallow depths by a leached clay-carbonate hardpan. The soils within major portions of the base contain caliche layers, and all have well-developed soil horizons or layers, indicating they formed in place over a long period of time. Soils in the project areas associated with the West Flightline Alternative are classified as Amarose fine sandy loam, 0-2 percent slope. Amarose soils are very deep, well-drained, moderately permeable soils that formed in calcareous loamy materials (Natural Resources Conservation Service [NRCS] 2004, Air Force 1997a) A secondarily deposited calcium carbonate horizon variably develops at depth of between 30 to 60 inches. Amarose soils formed in eolian (windborne) deposits from the Blackwater Draw Formation.

Soil physical and chemical characteristics determine their potential for wind and water erosion, and the soil's suitability for siting buildings, roads, and pipelines, which are important factors to consider when planning for construction and stabilization of disturbed areas. Table 3.5-1

summarizes the important soil hazards and limitations that should be taken into account during site planning in Amarose fine sandy loam.

TABLE 3.5-1. AMAROSE FINE SANDY LOAM HAZARDS AND LIMITATIONS FACILITY RELATED TO CONSTRUCTION

HAZARD RATINGS		LIMITATIONS		
Water Erosion	*Wind Erosion*	*Roads*	*Shallow Excavations*	*Commercial Buildings*
Moderate	Moderate	Slight	Slight	Slight

Source: NRCS 1997

3.5.2.2 WATER RESOURCES

There are no major drainageways or perennial streams on Cannon AFB. No 100-year floodplains have been delineated on Cannon AFB. Surface water runoff on Cannon AFB is managed through a stormwater system consisting of a combination of swales, inlets, culverts, and pipes currently having adequate capacity to handle flows. Currently, stormwater discharges are managed in compliance with the National Pollutant Discharge Elimination System (NPDES) requirements for construction activity under a program administered by the USEPA. Cannon AFB has certification under an NPDES General Permit for Stormwater Discharges. Based on a recent (22 June 2006) review, Cannon AFB was determined to have no jurisdictional waters of the U.S. Water bodies and drainages within the Cannon AFB ROI are isolated and not subject to regulation under the Clean Water Act (CWA). Construction activities do not require site-specific stormwater pollution prevention plans or permitting under Section 404 of the CWA. See Section 3.6 for a further discussion of waters habitats.

The watershed in which Cannon AFB is located drains towards the Brazos River in Texas. However, little or no surface water reaches receiving waters from the High Plains in eastern New Mexico due to the low annual precipitation and high evaporation rates (Air Force 2003a). Surface waters at Cannon AFB are isolated from jurisdictional waters of the U.S.

The Ogallala Aquifer is the principal aquifer system underlying the region and provides the primary source of domestic water. It occurs chiefly in the Ogallala Formation, a thick geologic formation composed of late Miocene to early Pliocene clay, silt, sand, and gravel layers, sometimes cemented by calcium carbonate and silica with a caprock of caliche at the top (North Plains Groundwater District 2004). Regional groundwater levels have declined for the past 65 years with an average annual decline slightly over 2 feet. These declining regional water-level data likely indicate groundwater withdrawals from the resource exceeded recharge (U.S. Geological Survey [USGS] 2006). A long-term project to bring surface water via pipeline from Ute Reservoir to Curry and Roosevelt counties is under consideration for funding by the state.

3.5.2.3 HAZARDOUS MATERIALS AND WASTE MANAGEMENT

Hazardous Materials. The majority of hazardous materials used by Air Force and contractor personnel at Cannon AFB are controlled through an Air Force pollution prevention process called the Pollution Prevention Program Plan (P2 Program Plan). This process provides centralized management of the procurement, handling, storage, and issuing of hazardous materials and turn-in, recovery, reuse, or recycling of hazardous materials. The P2 Program Plan process includes review and approval by Air Force personnel to ensure users are aware of

exposure and safety risks. Base management plans further serve to ensure compliance with applicable federal, state, and local regulations.

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

Hazardous Waste. Cannon AFB is a large-quantity hazardous waste generator, generating more than 2,200 pounds of hazardous waste per month. Hazardous wastes are generated from a variety of functions on base, including aircraft and vehicle operations and maintenance (hydraulic and lubricating oils and JP-8 jet fuels); medical and dental facilities; morale, welfare, and recreation; and security operations. These wastes include solvents, metal-contaminated spent acids, and sludge from wash racks. Cannon AFB recycles lubricating fluids, batteries, oil filters, absorbents with petroleum products and JP-8 grade fuel. Hazardous wastes generated are managed in accordance with the Cannon AFB Hazardous Waste Management Plan, Plan 32-2, dated 2006.

Generators of hazardous wastes are responsible for properly segregating, storing, characterizing, labeling, marking, packaging, and transferring all hazardous wastes for disposal from the initial accumulation point (IAP) to the established 90-day storage area according to federal, state, local, and Air Force regulations. There are approximately 96 IAPs located on base and 89 to 114 established waste streams; the present number may vary with changes in operational procedures and management practices. Approximately 12,000 pounds of hazardous wastes were disposed of in calendar year 2005 (personal communication, Wood 2006).

Cannon AFB closed their Hazardous Waste Storage facility, Building 226. The Part B storage building approved as "clean closed" by the New Mexico Environment Department (NMED) on September 19, 2003. Installation waste generators manage their respective waste generations in containers with a maximum quantity of 55 gallons, at or near the point of generation and under the control of the process operator. Full containers are removed from the accumulating area and transferred to the less-than-90-day interim storage on site. Later, the hazardous waste generation is shipped off site on a manifest to an approved Treatment Storage Disposal Facility permitted to accept the waste. Return signed and dated manifests complete the paperwork trail for all off-site waste shipments.

Cannon AFB has a Facility Response Plan, which addresses on-base storage locations and proper handling procedures of all hazardous materials to minimize potential spills and releases. The plan further outlines activities to be undertaken to minimize the adverse effects of a spill, including notification, containment, decontamination, and cleanup of spilled materials. The plan meets the Federal Spill Prevention Control and Countermeasures (SPCC) requirements.

Storage Tanks. There are currently 64 aboveground storage tanks (ASTs) located at Cannon AFB (personal communication, Smith 2006). No underground storage tanks (USTs) are located at Cannon AFB. The ASTs range in size and function from a 132-gallon diesel fuel tank used for an emergency generator to an 840,000-gallon fuel tank used for aircraft fuel storage.

Solid Waste Management. Solid waste generated on Cannon AFB is removed by contract services to either the Clovis Regional Landfill or the Cannon AFB Recycling Center. The

Cannon AFB Recycling Center is located in the southwest corner of the base, just east of Perimeter Road. In Fiscal Year (FY) 2005, Cannon AFB generated 13,998 tons of solid waste and diverted 299 tons to mulch. The base also generated 10,112 tons of construction and demolition debris and diverted 7,747 tons for recycling (personal communication, Madril 2006). Clovis Regional Landfill is a sanitary landfill, but also accepts construction and demolition waste. In 2006, this facility received 260 tons per day of wastes, excluding special wastes. The current disposal area has a remaining useful life of approximately 5 years and there are additional lands available for expansion with the approved landfill site (personal communication, Wang 2006).

Asbestos. Asbestos-containing materials (ACMs) are those materials that contain greater than 1 percent asbestos. Friable, finely divided, and powdered wastes containing greater than 1 percent asbestos are subject to regulation. Friable waste is one that can be reduced to a powder or dust under hand pressure when dry. Non-friable ACMs, such as floor tiles, are considered to be non-hazardous, except during removal and/or renovation, and are not subject to regulation.

An asbestos management plan provides guidance for the identification of ACMs and the management of asbestos wastes. An asbestos facility register is maintained by the base Civil Engineer. The design of building alteration projects and requests for self-help projects are reviewed to determine if ACMs are present in the proposed work area. ACM wastes are removed by contractor and disposed of in accordance with state and federal regulations

RCRA/Defense Environmental Restoration Act (DERA). Cannon AFB underwent a RCRA Facility Assessment in 1987 as the result of an application for a RCRA Part B Permit to store hazardous waste and 128 Solid Waste Management Units (SWMUs) and 52 Areas of Concern (AOCs) were identified. Currently, there remain 44 SWMUs and 3 AOCs on Cannon AFB. Recently, 23 RCRA sites and 11 sites regulated under the DERA were categorized by NMED as No Further Action (NFA). The Cannon AFB Management Action Plan (Air Force 2004a) summarizes the current status of the base environmental programs, including and presents a comprehensive strategy for implementing actions necessary to protect human health and the environment. The Plan also identifies that the base is covered with a layer of unconsolidated alluvium deposits that overlie a 25- to 60-foot-thick layer of caliche. The caliche is underlain by unconsolidated silts, sands, and gravels up to depths of 400 feet below ground surface. Groundwater occurs at approximately 280 feet below ground surface and is part of the Ogallala Aquifer. Groundwater levels have been dropping at a rate of 2 feet per year as a result of pumping patterns during the last 40 years. Given these geologic and hydrologic conditions along with the lack of substantial precipitation soil and groundwater contamination is limited within Cannon AFB.

Construction and demolition to support the AFSOC beddown would take place at or near several Environmental Restoration Program (ERP) sites (SD-15, SS-18, SS-19 and ST-27) described below and near many of the remaining SWMUs. Waivers for construction on or near these sites or other RCRA sites will need to be submitted by AFSOC to the NMED.

ERP Site SD-15 is an Aerospace Ground Equipment (AGE) Drainage Ditch remaining after railroad tracks were removed in the late 1960s. This site originated on the northwest corner of Building 184 and ran parallel to the flightline sides of Buildings 186, 191, 192, and 193. In 1991, approximately 400 feet of the ditch nearest to Building 192 was filled and covered with concrete due to nearby construction. The ditch currently receives stormwater runoff from flightline operations and nearby roads. Sampling Investigations (SI) conducted in 1982 identified oil and grease contamination. A Remedial Investigation (RI) was conducted in 1992 and a Class 3

Permit Modification Request for NFA was submitted in September 2000. A Record of Decision (ROD)/Decision Document (DD) was submitted in 1996; this site is considered closed.

ERP Site SS-18 is a JP-4 Fuel Spill site that occurred on the south apron southwest of Building 120. Building 120 was moved to another location and a new facility constructed over the site. Approximately 400 gallons of JP-4 fuel spilled onto the apron from a broken fuel coupling on an aircraft fuel tank in 1980. A Draft Supplemental Assessment Report is being reviewed; four soil samples were analyzed for VOCs, semivolatile organic compounds (SVOCs), and lead. All concentrations below current NMED residential soil screening levels (SSLs); and an NFA recommended. After NMED's approval of the Final Supplemental Assessment Report, the site will be removed from the permit when Cannon submits its next Class 3 Permit Modification Request.

ERP Site SS-19 is the site of two motor gasoline (MOGAS) spills (2,000 – 3,000 gallons) from overturned fuel trucks. These spills occurred in the early 1960s at the site location of Argentia Avenue southeast of Building 444. A portion of this spill site is located under Argentia Avenue. An SI was conducted in 1985; an RI was conducted in 1992; a Feasibility Study (FS) was conducted in 1996; and a ROD/DD was submitted in 1996 indicating NFA was needed. After NMED's approval of the Final Supplemental Assessment Report, the site will be removed from the permit when Cannon submits its next Class 3 Permit Modification Request.

ERP Site LF-25 is a concrete rubble pile covering approximately 30 acres adjacent to the perimeter road on the east area of the base. This site is located adjacent to the site for construction of the raw water distribution system. The rubble consists mainly of materials from demolished World War II era facilities (bricks, concrete blocks, and asphalt road and runway material). Two or more cut-and-burn landfill trenches were located under the rubble. In FY 2000, an abatement project removed all asbestos siding and concrete rubble and covered the site with topsoil. An RI was conducted in 1992; an FS was conducted in 1995, and a ROD submitted in 1996. Long-term monitoring continues and NFA will be requested for this site. This site is considered closed.

ERP Site ST-26 was originally constructed as the base gas station during World War II. The records are scanty for this location but original drawings do show that two USTs were originally planned to be installed. However, when the location was used as a solvent disposal site only one UST is mentioned. It could not be determined whether the second tank was removed or was not installed. When a new gas station was constructed around 1965, the facility was partially demolished and at least one UST of 20,000 gallons was left in place and used for waste solvent disposal. The location around the 20,000-gallon UST was identified as Facility 4028. The Aboveground Overflow Capacity Tank (SWMU 48b) was an adjacent 2,000-gallon tank that was brought in to provide overflow protection for the underground tank. These tanks were on the northeast lot at the corner of Torch Boulevard and Argentia Boulevard. They were active as solvent disposal tanks from approximately 1965 to 1984. Prior to 1965, the 20,000-gallon tank was used as a fuel tank for the base gas station. A Resource Conservation and Recovery Act Facility Investigation (RFI) has been submitted to NMED and once comments are received further actions will be determined.

ERP Site ST-27 is a sump located just off the southern edge of the south ramp. The location for this old sump is now surrounded by concrete pavement or concrete pads on the north, east, and south. It is a 22-feet by 22-feet dirt and grass covered area between the telephone pole to the north and the new hazardous waste accumulation area to the south. The area was deliberately

left uncovered to facilitate future investigations; otherwise the hazardous waste accumulation facility would have been constructed over it. This sump was still in existence when the ERP and RFI programs started and was described as being located 120 feet west of Building 120. Building 120 along with Buildings 113, 114, 118, and 119 were moved to a new location on-base and the new small aircraft maintenance dock constructed over the old sites. The sump was self-contained and measured approximately 6 feet by 8 inches by 5 inches and was constructed in a 12-feet by 14-feet concrete pad.

During the construction of the small aircraft maintenance dock, the only thing found remaining was a French drain that was apparently constructed in the bottom of the sump. This French drain consisted of a gravel filled pit 1 foot wide and at least 5 feet long. The total length was not uncovered and the depth is unknown. The gravel was completely covered with black oily wastes and is now covered with up to 2 feet of clean soil. This oily gravel could be relocated by digging trenches east to west across the grassy area. The purpose of the sump, potential contaminants, and the date of construction are unknown; however, it apparently received drainage off the south ramp. NMED reviewed November 2004 NFA document and the site was removed from the permit on 31 December 2006.

3.5.3 Environmental Consequences

3.5.3.1 West Flightline Alternative

Earth Resources

Due to the great depth to bedrock in the locations of the proposed facilities, it is unlikely that potential impacts could occur to geologic resources. Under the West Flightline Alternative, newly constructed facilities and facility upgrades would disturb approximately 342 acres. Only a portion of the acreage disturbed would occur in any one year.

Due to the relatively flat terrain at Cannon AFB, little cut and fill would be needed to prepare the sites for facility construction. In any construction, the natural soil horizons would be disturbed if they have not already been disturbed from previous construction. There would be few hazards or limitations to construction of buildings or roads on the soil types at the locations of the proposed facilities. Potential secondary effects from surface-disturbing activities, such as increases in stormwater runoff or offsite sedimentation, would be minimized through the installation and maintenance of standard construction practices and landscaping. While soils would be changed by construction activities, the effects would be localized and would not result in significant secondary impacts to water resources because standard construction practices would be implemented.

Water Resources

At Cannon AFB, approximately 20 acres of additional impervious surface from new buildings and parking lots would increase stormwater runoff during precipitation events. Approximately 10 acres of new buildings and parking areas would be interspersed between existing base buildings and stormwater from these facilities would be handled with a combination of existing storm drains and newly installed infrastructure. Two projects, the Hot Cargo Pad and the CV-22 ramp, would make up the remaining 10 acres of new impervious surface. Stormwater flows from these two projects would generate a combined peak flow of 37.8 cubic feet per second (cfs) during a 25-year 24 hour storm event. These flows would be dispersed to reduce

the potential for erosion. At Cannon AFB, the flat terrain and permeable soils would allow much of the surface water to infiltrate before leaving the base.

Although no site-specific stormwater pollution plans are required for construction under the West Flightline Alternative, stormwater design and planning would identify standard construction practices appropriate for the site and soil type to be implemented during construction to minimize wind erosion and 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 with landscaping, most likely combinations of native plants and gravel ground cover, which would minimize erosion and improve infiltration of precipitation. BMPs would reflect Cannon AFB's long history of sound natural resource stewardship.

Hazardous Materials and Waste Management

Hazardous Materials. Construction and demolition of facilities to support the AFSOC beddown may require the use of hazardous materials by contractor personnel. In accordance with Cannon AFB Hazardous Materials Pharmacy (HAZMART) procedure, copies of Material Safety Data Sheets must be provided to the base contracting office (27 CONS) and maintained on the construction site. Project contractors would comply with federal, state, and local environmental laws and would employ affirmative procurement practices when economically and technically feasible.

All hazardous materials and construction debris generated by the proposed projects would be handled, stored and disposed of in accordance with federal state and local regulations and laws. Contractors will obtain permission from the base to store hazardous materials required to complete facility construction. Contractors will obtain appropriate storage cabinets for hazardous material storage.

Hazardous Waste. Contractor personnel may generate hazardous waste during construction. Storage and disposal of these wastes would be the responsibility of the site contractor. Generation of appreciable amounts of hazardous wastes from AFSOC projects is not anticipated. However, IAPs encountered in buildings scheduled for demolition would be relocated to the new locations associated with hazardous waste generation. Any soil suspected of contamination discovered during the construction or demolition process, would be tested and disposed of in accordance with proper regulations.

In the event of fuel spillage during construction, the contractor would be responsible for its containment, clean up, and related disposal costs. The contractor would have sufficient spill supplies readily available on the pumping vehicle and/or at the site to contain any spillage. In the event of a contractor related release, the contractor shall immediately notify the AFSOC CES/Environmental Management Office and take appropriate actions to correct its cause and prevent future occurrences.

Forward Area Refueling Points (FARP) will be adapted on existing flightline areas for training for contingency operations. FARP training will consist of passing fuel from one aircraft to another using fuel lines designed for such transfers. Operations safety and spill plans will be adapted for each site prior to the start of these training procedures.

ACMs have been identified in Buildings 12, 102, 206, 155, 622/622A, and 680 (personal communication, Hamilton 2006). Construction at these facilities may disturb ACMs, and if so,

then the following federal and state regulations must be followed if ACMs or lead-based paint are found in or near the demolition areas.

- ***Asbestos Removal and Disposal***. Upon classification as friable or non-friable, all waste ACM should be disposed of in accordance with the New Mexico Solid Waste Management Regulations (20NMAC9.1), and transported in accordance with the New Mexico regulations governing Transportation of Hazardous Materials (20NMAC9.1 et seq.).
- ***Lead-Based Paint Removal and Disposal.*** The proposed project should comply with the U.S. Department of Labor, OSHA regulations, and with the USEPA regulations addressing Lead: Management and Disposal of Lead-Based Paint Debris (40 CFR Part 745).

Storage Tanks. Certain AFSOC projects may require the installation of ASTs to support proposed operations and new emergency power generators. These fuel tanks will be constructed and managed in accordance with existing Cannon AFB procedures.

Solid Waste Management. Demolition of the facilities would generate solid wastes consisting of concrete, brick, wood, structural steel, glass, and miscellaneous metal building components. These materials would be generated during a 5-year period from FY 2008 through FY 2014. Demolition contractors would be directed to mulch or recycle materials to the maximum extent possible, thereby reducing the amount of demolition debris disposed in landfills. Based on the Cannon AFB FY 2003 experience, approximately 48 percent of the demolition materials generated by the AFSOC projects would be recycled. Materials not suitable for recycling would be taken to a landfill permitted to handle construction debris wastes, such as the Cannon AFB Recycling Center and Clovis Regional Landfill. Construction of new facilities would also generate debris, and based on studies conducted by USEPA (USEPA 1998), construction during the FY 2008 through FY 2014 timeframe would average 1.6 tons per day. Disposal of these wastes at the Clovis landfill would increase the daily flow by less than 1 percent and would not have a significant impact to the operating life of the landfill. No significant environmental consequences would result from the implementation of the West Flightline Alternative.

RCRA/DERA. Construction and demolition associated with AFSOC projects would occur on or near ERP Sites SD-15, SS-18, SS-19, LF-25, ST-26 and ST-27 and in close proximity to a number of SWMUs. The base would request a waiver to construct on or near these sites. Any soil suspected of contamination would be disposed of in accordance with proper NMED regulations. Disposal of contaminated soil would be funded by this beddown project. Construction of the Hot Cargo pad would also require the closure and cleanup of the existing CATM range. This action and would require the removal of lead from the soil and the recycling of the lead and would be coordinated with the NMED.

3.5.3.2 East and West Airfield Preferred Alternative

Earth Resources

Impacts analysis would be similar to the West Flightline Alternative. Under this alternative, approximately 284 additional acres would be disturbed. Due to the relatively flat terrain at Cannon AFB, little cut and fill would be needed to prepare the sites for facility construction. In any construction, the natural soil horizons would be disturbed if they have not already been disturbed from previous construction. There would be few hazards or limitations to

construction of buildings or roads on the soil types at the locations of the proposed facilities. Potential secondary effects from surface-disturbing activities, such as increases in stormwater runoff or off-site sedimentation, would be minimized through the installation and maintenance of standard construction practices and landscaping.

While soils would be changed by construction activities, the effects would be localized and would not result in significant secondary impacts to wind or water resources because standard construction practices would be implemented. No significant impacts to physical resources would result from the implementation of the East and West Airfield Alternative.

Water Resources

Under this alternative, approximately 150 acres of additional impervious surface from new buildings and parking would increase stormwater runoff during precipitation events. During a 25-year 24-hour storm event, it is anticipated that approximately 350 cfs of stormwater would be generated from the new impervious surface. This additional stormwater runoff would be managed by directing the stormwater to an area that would allow for the stormwater to infiltrate the permeable soils found on Cannon AFB.

Although no site-specific stormwater pollution plans are required for construction under this Alternative, project planning would identify standard construction practices appropriate for the site and soil type to be implemented during construction to minimize wind erosion and 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 with landscaping, most likely combinations of native plants and gravel ground cover, which would minimize erosion and improve infiltration of precipitation. BMPs would reflect Cannon AFB's long history of sound natural resource stewardship. In compliance with the USEPA General Permit for Stormwater Discharges, this additional stormwater runoff would be managed to keep quantities to pre-development conditions where practicable. Even if additional stormwater runoff were generated, the improved storm drain system, constructed in conjunction with new facilities, would be designed to handle additional flows. At Cannon AFB, the flat terrain and permeable soils would cause much of the surface water to infiltrate before leaving the military properties.

Hazardous Materials and Waste Management

Hazardous Materials. Under this alternative, construction and demolition of facilities to support the AFSOC beddown would be slightly greater and may require the use of hazardous materials by contractor personnel. All hazardous materials, hazardous wastes, and storage tanks would be handled as described for the West Flightline Alternative.

Solid Waste Management. Demolition of the facilities would generate solid wastes consisting of concrete, brick, wood, structural steel, glass, and miscellaneous metal building components. These materials would be handled as described for the West Flightline Alternative.

RCRA/DERA. Under this alternative, construction and demolition would be as described for the West Flightline Alternative.

3.5.3.3 No Action Alternative

No Action would result in no movement of AFSOC assets to Cannon AFB although AFSOC would maintain and operate the properties. No construction or demolition would occur.

Physical resources would remain the same as current conditions. Management of hazardous wastes or materials would continue assuming Cannon AFB were managed in an enclave status.

3.6 Biological Resources

The term "biological resources" refers to non-domestic organisms that may be found within and potentially affected by specified project areas on Cannon AFB. The biological resources category includes all native and introduced plant and animal species and the habitats, including wetlands, within which they occur. Functional groups of species that are linked by ecological processes within a defined area are referred to as ecological communities. These communities may be either terrestrial or aquatic.

Terrestrial communities consist of plant and animal species whose life history strategies include little or no aquatic component. In contrast, aquatic communities consist of plant and animal species whose dominant life history pattern features an aquatic component; the term also considers the water associated with these species. Most ecological communities are distinguished by a characteristic assemblage of dominate plant species. The spatial and functional portion of a community within which a species obtains its required resources (nutrients, water, shelter, space, temperature, etc.) is defined as its habitat. Within an ecological setting the quality and attributes of available habitat determine wildlife composition, diversity and abundance. Habitat requirements, species interactions and tolerance establish observed distribution and abundance patterns of individual species. For this reason, habitat type, quality, and area affected will provide the dominant perspective in establishing baseline conditions and assessing potential impacts.

Ecological communities and the species they support are presumed to have intrinsic value. They are sources of biological diversity, important for nutrient, water and atmospheric gas cycling, and are linked to regional and global ecosystem functions; they also provide aesthetic, recreational and socioeconomic values to society. This biological resources section focuses on animal species and vegetation types that typify or are important to the function of the ecosystem, are of special societal importance, or are listed as endangered or threatened under federal or state law or statute. These resources are organized into three major categories: (1) terrestrial ecological communities, including animals and plants, (2) wetlands, and (3) special-status species. As stated above, a habitat-level perspective will govern both descriptions of existing conditions and analyses. The following defines the wetland and special status species categories.

Wetlands are a special category of Waters of the U.S. and are subject to regulatory authority under Section 404 of the CWA and EO 11990, *Protection of Wetlands*. Jurisdictional wetlands are those defined by the U.S. Army Corps of Engineers (USACE) and USEPA as meeting all the criteria defined in the USACE's *Wetlands Delineation Manual* (Environmental Laboratory 1987) and fall under the jurisdiction of the USACE. Recent Supreme Court decisions and subsequent guidance have determined that isolated wetlands do not have jurisdictional status and are not subject to regulation under Section 404 of the CWA. On 22 June 2006, the USACE determined that Cannon AFB does not have any jurisdictional waters of the U.S.

Special-status species are defined as those plant and animal species listed as threatened, endangered or candidate for listing by the USFWS, as well as those species with comparable state levels of legal protection. The Endangered Species Act (ESA) protects federally listed threatened or endangered plant and animal species. Candidate species are species that USFWS

is considering for listing as federal threatened or endangered but for which a proposed rule has not yet been developed. Candidates do not benefit from legal protection under the ESA. The USFWS encourages federal agencies to consider candidate species in their planning process because they may be listed in the future and, more importantly, because current action may prevent future listing.

The New Mexico Wildlife Conservation Act (1978) provides for the listing of species at risk within the state as endangered or threatened. New Mexico Department of Game and Fish (NMDGF) maintains a list of endangered and threatened fish and animals. The New Mexico Energy, Minerals, and Natural Resources Department (EMNRD) manages state-listed plants. Other states provide similar species conservation frameworks. Typically state and federal lists have considerable overlap, but occasionally a state may provide more protection than is required at the federal level.

Regulatory Setting for Biological Resources

Endangered Species Act

The ESA of 1973 (16 USC §§ 1531–1544, as amended) established measures for the protection of plant and animal species that are federally listed as threatened or endangered, and for the conservation of habitats that are critical to the continued existence of those species. Federal agencies must evaluate the effects of their proposed actions through a set of defined procedures, which can include the preparation of a Biological Assessment and can require formal consultation with the USFWS under Section 7 of the Act.

The consultation requirements of Section 7 of the Act are to ensure that actions of Federal agencies will not jeopardize the continued existence of any listed species or adversely modify designated critical habitats. Before initiating an action, the Air force must ask the USFWS to provide a list of threatened, endangered, proposed, and candidate species and designated critical habitats that may be present in the project area. If the USFWS answers that no species or critical habitats are present, then the Air Force has no further obligation under the consultation provisions of the Act, and "consultation" is concluded. If a species is present, then the Air Force must determine whether the project *may affect* a listed species. If so, further consultation is required. If the Air Force determines (and USFWS agrees) that the project *does not adversely affect* any listed species then the consultation (informal to this point) is concluded and the decision is put in writing. If the Air Force determines the project *may adversely affect* a listed species or designated critical habitat, "formal consultation" is required. Letters were sent to the appropriate USFWS offices informing them of the West Flightline Alternative and alternatives and requesting data regarding applicable protected species (Appendix C).

Clean Water Act

The CWA of 1977 (33 USC § 1251 *et seq*.) and the USEPA Stormwater General Permit regulate pollutant discharges that could affect aquatic life forms or human health and safety. Section 404 of the CWA and 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 USACE for dredging and filling in wetlands. Based on a recent USACE determination (USACE 2006), inundated areas on either Cannon AFB or Melrose AFR are considered components of isolated drainages and not classified as jurisdictional waters of the U.S. No wetlands, currently defined by USACE, occur at either Cannon AFB or Melrose AFR.

Migratory Bird Treaty Act (16 USC 703 et seq.) and EO 13186

The Migratory Bird Treaty Act (MBTA) prohibits the take, possession, import, export, transport, selling, purchase, barter, or offering for sale, purchase or barter, any migratory bird, their eggs, parts, and nests, except as authorized under a valid permit (50 CFR 21.11). Taking, as defined by USFWS, does not include habitat destruction or alteration as long as these activities do not lead to the direct take of birds, nests, eggs or their parts. The MBTA governs the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests. The take of all migratory birds is governed by the MBTA's regulation of taking migratory birds for certain purposes, such as educational, scientific, and recreational purposes and requiring harvest to be limited to levels that prevent overuse. Eighty-three percent of all native bird species are protected by MBTA. Section 315 of the FY 2003 National Defense Authorization Act (signed 2 December 2002) provided DoD a one-year exemption from the incidental take during "military readiness activities" and directed USFWS to develop a rule governing these activities.

The final rule (published in the *Federal Register* on 28 February 2007) became effective on 30 March 2007. It authorizes incidental take of migratory birds that may result from military readiness training and requires DoD:

- To assess the adverse effects of military readiness activities on migratory birds.
- To confer and cooperate with USFWS to develop appropriate and reasonable conservation measures to minimize, mitigate and identify significant adverse effects on a population of migratory bird species of concern.
- To monitor the effects of military readiness activities on migratory bird species of concern and conservation measures.

EO 13186 (effective January 10, 2001) outlines the responsibilities of federal agencies to protect migratory birds, in accordance with the MBTA, the Bald and Golden Eagle Protection Acts, the Fish and Wildlife Coordination Act, ESA, and NEPA. This order specifies the following:

- Established the USFWS as the lead for coordinating and implementing EO 13186;
- Requires federal agencies to incorporate migratory bird protection measures into their activities;
- Requires federal agencies to obtain permits from USFWS before any "take" occurs, even when the agency intent is not to kill or injure migratory birds; and
- Requires federal agencies to develop and implement a Memorandum of Understanding (MOU) with USFWS that promotes the conservation of migratory birds.

Sikes Act (16 USC 670)

The Sikes Act requires military services to establish Integrated Natural Resources Management Plans (INRMPs) to conserve natural resources for their military installations unless the Secretary of the service concerned determines that in the absence of significant natural resources on a particular installation makes preparation of an INRMP inappropriate. The INRMPs include threatened and endangered species, other fish and wildlife resources, wetlands, migratory bird habitat and forest lands. INRMPs are developed in cooperation with the USFWS and state Fish and Wildlife agencies.

3.6.1 Definition of Cannon AFB Biological Resources

Biological resource within the Cannon AFB ROI associated with the West Flightline Alternative include those wild species that reside or may occur in some transient fashion on base and may be affected by project related construction and operations. The definition includes plants, wildlife, and their habitats.

3.6.2 Existing Conditions

The area of Cannon AFB lies within the Southwest Plateau and Plains Dry Steppe and Shrub Province ecoregion as defined by Bailey (1995). Prior to airfield construction, agricultural fields covered the area occupied by the base (Air Force 1997a). Agriculture is still the dominant land use surrounding the base. Lands within base boundaries are currently classified as Urban and Cultivated, although pre-settlement vegetation was Plains-Mesa Grassland (Dick-Peddie 1993). Only small areas of natural vegetation exist on base (DeBruin *et al.* 1995). Nearly the entire area of the base northwest of the runway/taxiway complex is full developed. In addition, large areas of the base on the southeast side are full developed. Biological surveys have defined four habitat types at Cannon AFB: improved/landscaped, semi-improved/mowed grassland, unimproved/disturbed grassland, and riparian/aquatic (USACE 1998). Landscaped habitats include lawns and planted areas within the fully developed portion of the base; the USACE (1998) provided a list of landscape plants at Cannon AFB. Semi-improved/mowed areas generally consist of lawn grasses and weeds, which are kept mowed to facilitate base training and enhance base aesthetics.

Unimproved/disturbed grasslands are not mowed and include Bermuda grass (*Cynodon dactylon*), windmill grass (*Chloris verticillata*), Johnsongrass (*Sorghum halapense*), silver bluestem (*Bothriochloa saccharoides*), common sunflower (*Helianthus annuus*) and ragweed (*Ambrosia psilostachya*) (USACE 1996). Because of the history of land use, dominance of exotic plant species, and the isolation and small size of remaining habitat patches, habitat quality at Cannon AFB is considered low.

Terrestrial wildlife at Cannon AFB generally consists of species associated with disturbed places, including species that benefit from the presence of humans. Such species include mourning dove (*Zenaida macroura*), great-tailed grackle (*Quiscalus mexicanus*), northern mockingbird (*Mimus polyglottos*), American robin (*Turdus migratorius*), European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), house mouse (*Mus musculus*), deer mouse (*Peromyscus maniculatus*), and red fox (*Vulpes vulpes*) (USACE 1995, 1996). Ten to 15 pairs of Mississippi kites (*Ictinia mississippiensis*) regularly nest in trees on the base's golf course.

Aquatic habitats at Cannon AFB include seasonally inundated playas (4.74 acres), ponds and basins (25.59 acres), and 2,913 linear feet of intermittent streams and drainages (Air Force 1996a). Because of the isolated nature of drainages within the Cannon AFB ROI, USACE made a determination that no jurisdictional waters occur on base (USACE 2006). None of these surface water features are regulated or afforded special protection status under the CWA or require permitting under Section 404 prior to actions that may result in dredging or the placement of fill material in them.

The two isolated mesic habitats are the South Playa Lake (4.56 acres) and a small area (0.18 acres) on the golf course. The South Playa Lake receives much of its water as run-off from the nearby airfield and is only seasonally flooded wetland. The golf course area also receives run-off water from developed portions of the base.

Other inundated areas are the North Playa Lake, one man-made basin near the Ammunition Storage Area that is temporarily flooded, and four ponds on the golf course. The North Playa Lake, historically a natural playa (an isolated, undrained basin in which floodwaters accumulate during rainy periods and subsequently evaporate), receives continuous effluent from adjacent sewage lagoon and thus remains permanently inundated.

The USACE conducted a biological survey of the North Playa Lake in 1995 (USACE 1995). Both the North and South Playa lakes attract waterfowl during migration and in winter and provide important transient or seasonal habitat in an otherwise arid region. Thirty-two species of waterbirds utilize North Playa Lake habitats as residents or seasonal migrants. These include a variety of grebes, herons, ducks, geese, shorebirds, and gulls (USACE 1995). Upland bird species in the area are likely occasional visitors. Additionally, North Playa Lake supports barred tiger salamanders (*Ambystoma tigrinum*) and small numbers of Woodhouse's toads (*Bufo woodhousei*). Small mammal species identified in the area are among those habitat generalists typical of disturbance communities. No active large mammal burrows have been detected on Cannon AFB (USACE 1995.)

The USFWS provided a list of endangered, threatened, and candidate species, and species of concern for Curry County (USFWS 2006). The NMDGF, New Mexico Natural Heritage Program (NMNHP), and New Mexico Rare Plant Technical Council (NMRPTC) web sites provided state listings of species of special concern (NMRPTC 1999, NMDGF 2006a, NMNHP 2003). Due to the degree of development on Cannon AFB, there is little potential for occurrence of listed species or other species recognized as sensitive on sites that could be affected by construction of project facilities on Cannon AFB. Federally and state-listed and candidate endangered or threatened species potentially occurring on Cannon AFB are listed in Table 3.6-1.

The USFWS reported three federally protected species having the potential to occur in Curry County, along with one candidate species. Additionally, several species have a special status in New Mexico, with a number of these not ranked federally.

The black-footed ferret is a federally and state-listed endangered species historically associated with prairie dog colonies across the western prairies. The black-footed ferret (*Mustela nigripes*) has not been documented in the state since 1934; in 1991 it was considered extirpated from the state (NMDGF 2006a) and is not considered further in this EIS. The black-tailed prairie dog is known to occur at Cannon AFB, but its population has declined drastically across its range in the prairie states. Population declines are attributed to habitat loss and modification, poisoning, and disease (sylvatic plague) (USFWS 2000). It is currently a species of concern.

The interior least tern, a federally and state-listed endangered species, breeds at Bitter Lake National Wildlife Refuge, 153 kilometers southwest of Cannon AFB near Roswell. This small breeding colony typically consists of three to seven pairs (NMDGF 2006a). These birds often use playa lakes for foraging and have the potential to occur at playa basins in the ROI. To date, no interior least terns have been observed at Cannon AFB (Air Force 1998a).

The bald eagle, a federally and state-listed threatened species, is not known to nest in Curry County. It is a migratory species and is a common winter resident along the Pecos River. One winter roost site occurs at Sumner Lake (Air Force 2001a) 113 kilometers west of Cannon AFB. On Cannon AFB, only the North Playa Lake contains potential bald eagle habitat, but eagles have not been previously observed there (Air Force 1998a). However, because bald eagles are migratory, they have the potential to occur at the North Playa Lake during fall, winter, or spring.

Table 3.6-1. Federally and State-Listed Threatened, Endangered and Candidate Species Identified for Curry County, New Mexico and Having Potential to Occur at Cannon AFB

Common Name and Scientific Name	*Status (Federal/ State)*[1]	*General Habitat Association*	*Likelihood of occurrence in the Cannon AFB Project Area*
Least tern (Interior Population), *Sterna antillarum*	E/E	Nest mainly on riverine sandbars or open sandy or gravel coastal beaches. May nest on dredge material. Long distance migrant.	No habitat present. Occurrence highly unlikely.
Bald eagle, *Haliaeetus leucocephalus*	T/T	Breeding habitat most commonly includes areas close to coastal areas, bays, rivers, lakes, that reflect the general availability of primary food sources including fish, waterfowl, and seabirds	Seasonal, incidental occurrence possible. No perching/roosting habitat present. Base not within riverine migration corridors.
Lesser prairie-chicken, *Tympanuchus pallidicinctus*	C/--	Mixed grass-dwarf shrub communities that occur on sandy soils; principally the sand sagebrush and bluestem. Year-round residents where they occur	No habitat present. Very low likelihood of occurrence.
Peregrine falcon, *Falco peregrinus*	--[2]/T	Bare rock/talus/scree, cliff, shrubland/chaparral, urban/edificarian, woodland - conifer, woodland – hardwood, woodland – mixed	No habitat present. Low likelihood of occurrence.
Baird's sparrow, *Ammodramus bairdii*	--/T	Forage among dense bunch grasses in northern prairie settings. Breed in ungrazed or lightly grazed mixed-grass prairie, wet meadows, local pockets of tallgrass prairie.	No foraging or breeding habitat present on base. Very low likelihood of incidental occurrence.
Bell's vireo, *Vireo bellii*	--/T	Dense brush, willow thickets, mesquite, streamside thickets, and scrub oak, in arid regions often near water, also adjoining uplands	No habitat present. Low likelihood of occurrence.

Notes: 1. Status: Federal/State E = Endangered, T= Threatened, C = Candidate, -- = not listed.
2. The peregrine falcon was delisted under the Federal Endangered Species Act in August 1999.

Sources: NMDGF 2006a, USFWS 2006.

In New Mexico, the lesser prairie-chicken inhabits prairies of sand bluestem and little bluestem grasses (*Bouteloua hallii* and *B. scoparium*), mixed with shinnery oak (*Quercus harvardii*) or sand sagebrush (*Artemisia filifolia*) (Giesen 1998). Population declines of prairie-chickens are due to habitat loss, degradation, and drought (Giesen 1998, NMDGF 2006b). There are several state-managed lesser prairie-chicken Conservation Areas in nearby Roosevelt County (Massey 2001). Lesser prairie-chickens have not been observed on Cannon AFB; no habitat is present.

Although the peregrine falcon was federally delisted in 1999, the State of New Mexico considers it a threatened species. Cliff nesting habitat is not present on base or in the vicinity. However, peregrines are migratory and could be rare transient visitors to Cannon AFB. A peregrine falcon was observed at North Playa Lake in spring 1997 (Air Force 1998a).

Baird's sparrows breed in the northern prairies and winter primarily in northern Mexico. They also may winter in New Mexico grasslands (NMDGF 2006a). One Baird's sparrow was observed in mixed grassland in the southeast part of Cannon AFB in spring 1997 (Air Force 1998a). It is likely a rare visitor to the ROI.

3.6.3 Environmental Consequences

Potential impacts to biological resources, including plants, wildlife and habitat is based on the following:

- Importance of the resource (i.e., legal, commercial, recreational, ecological, or scientific) of the resource;
- Proportion of the resource potentially affected relative to its occurrence in the region;
- Sensitivity of the resource to the Proposed Action's activities; and
- Duration of ecological ramifications.

Impacts to resources are significant if habitats of high concern are adversely affected over relatively large areas; if disturbances to small, essential habitats would lead to landscape-levels effects on the ecology; or if disturbances impact the abundance or distribution of federally or state-listed species. Permanent habitat loss and temporary disturbance due to construction are specific issues and concerns for biological resources. Habitat degradation caused by post-construction invasion of noxious weeds is also a consideration.

This section only discusses environmental consequences of construction and operations associated with the West Flightline Alternative and East and West Airfield Alternative at Cannon AFB. Environmental consequences associated with Melrose AFR and project-related airspaces are discussed in Sections 4.6.3 and 5.6.3, respectively.

3.6.3.1 West Flightline Alternative

Under the West Flightline Alternative, approximately 342 acres of land in current development would be converted to project-related uses. The area includes the current apron, taxiways, and associated buildings and hangars. Little vegetation or wildlife habitat is present in this area. Terrestrial communities affected by the West Flightline Alternative are mainly lawns, semi-improved/mowed grassland, and some unimproved/disturbed grassland surrounding buildings or pavement. Cannon AFB was developed on land in previous agricultural use; no intact native communities are present. Wildlife species affected by the loss or alteration of such

habitats would be those species inhabiting disturbed places or those typically associated with human habitation. Such species would only be temporarily displaced during construction and would ultimately re-establish home ranges, as before, within surrounding habitats. Re-vegetation, landscaping, and maintenance associated with proposed construction would minimize the establishment of invasive, non-native plant species and the proliferation of their seeds within soil seed banks.

No wetlands and other water bodies fall within the proposed construction area or adjacent to the proposed construction area. They would not be impacted by construction or operations associated with the West Flightline Alternative.

Under the West Flightline Alternative, the total number of Cannon AFB airfield operations would decrease by approximately 41 percent. Operations would shift from approximately 80 percent day to approximately 35 percent night (10:00 p.m. to 7:00 a.m.). Aircraft assets operating within the Cannon ROI would shift from primarily F-16 jet aircraft to predominantly a mix of large to medium-sized propeller-driven aircraft and tilt-rotor aircraft. These aircraft move more slowly and function in the vicinity of the airfield differently than current aircraft, primarily F-16s. Overall noise levels are expected to increase slightly under the West Flightline Alternative. Both the acoustical and visual characteristics associated with aircraft operations, as well as their temporal patterns, would also change under the West Flightline Alternative. Wildlife species, particularly waterfowl using the North Playa Lake, would experience a change in aircraft overflight patterns. However, because little wildlife habitat is present on base and resident and transient species occurring on base currently are habituated to intensive airfield operations, impacts to wildlife are expected to be negligible and less than significant.

No federally or state-listed species would be directly impacted by the West Flightline Alternative. All identified federally or state-listed species have little likelihood of occurrence at Cannon AFB, and, if present, would be more likely to occur as transients in open spaces peripheral to the project site and open water sources such as the sewage lagoons, North Playa Lake, and water impoundments associated with the base golf course. There is no critical habitat or essential resources for listed species present on Cannon AFB. Any disturbance effects would be minor or temporary and have no impact on species distribution or abundance. Impacts to biological resources of construction and operation of the West Flightline Alternative on Cannon AFB would be less than significant.

3.6.3.2 East and West Airfield Preferred Alternative

The East and West Airfield Alternative would use an additional portion of Cannon AFB for project-related facilities but is otherwise the same as the West Flightline Alternative. Under the East and West Airfield Alternative, approximately 284 additional acres in the southeast portion of the base would be completely developed through the construction of project-related buildings, taxiways, and aircraft parking areas. Terrestrial communities affected by the East and West Airfield Alternative are mainly semi-improved/mowed grassland, or unimproved/ disturbed grassland. Cannon AFB was developed on previously cultivated land; no intact native communities are present. Little or no shrub component is present within the construction footprint, which is vegetated primarily by grasses and weedy species. Wildlife species affected by the loss or alteration of such habitats would be those species inhabiting disturbed places or those typically associated with human habitation. Such species would only be temporarily displaced during construction and ultimately re-establish home ranges within surrounding habitats, including disturbed grassland and semi-improved habitats. Re-

vegetation, landscaping and maintenance associated with proposed construction would minimize the establishment of invasive, non-native plant species and the proliferation of their seeds within soil seed banks.

No water bodies fall within the proposed construction or are in proximity to the proposed construction area. Thus, no water bodies would be impacted by construction or operations associated with the East and West Airfield Alternative.

Noise effects on biological resources under the East and West Airfield Alternative would be similar to those for the West Flightline Alternative.

No federally or state-listed species would be directly impacted by the East and West Airfield Alternative. All identified federally or state-listed species have little likelihood of occurrence at Cannon AFB, and, if present, would be more likely to occur as transients in the open spaces peripheral to the project site and open water sources such as North Playa Lake and water impoundments associated with the base golf course. There is no critical habitat and no essential resources for these species present on Cannon AFB. Any disturbance effects would be minor and temporary and have no impact on species distribution or abundance. Impacts to biological resources of construction and operation of the East and West Airfield Alternative on Cannon AFB would be less than significant.

3.6.3.3 No Action Alternative

No Action would result in no movement of AFSOC assets to Cannon AFB although AFSOC would maintain and operate the properties. Construction projects would not take place as proposed. No training with AFSOC assets would occur. The 27 FW and its current complement of F-16s would be disestablished as previously planned. No impacts to biological resources on base are expected with the reduced activity of the No Action Alternative.

3.7 Cultural Resources

3.7.1 Definition of Resource

Cultural resources are any prehistoric or historic district, site, building, structure, or object considered important to a culture, subculture, or community for scientific, traditional, religious or other purposes. They include archaeological resources, historic architectural resources, and traditional resources. Archaeological resources are locations where prehistoric or historic activity measurably altered the earth or produced deposits of physical remains (e.g., arrowheads, bottles). Historic architectural resources include standing buildings and other structures of historic or aesthetic significance. Traditional resources are associated with cultural practices and beliefs of a living community that are rooted in its history and are important in maintaining the continuing cultural identity of the community.

Historic properties (as defined in 36 CFR 60.4) are significant archaeological, architectural, or traditional resources eligible for listing, or listed in, the National Register of Historic Places (NRHP). Historic properties are evaluated for potential adverse impacts from an action, as are significant traditional resources identified by American Indian tribes or other groups. In 1999, the DoD promulgated its American Indian and Alaska Native Policy, which emphasize the importance of respecting and consulting with tribal governments on a government-to-government basis. The Policy requires an assessment, through consultation, of the effect of proposed DoD actions having the potential to significantly affect protected tribal resources,

tribal rights, and Indian lands before decisions are made by the services. The ROI for cultural resources consists of Cannon AFB.

The ROI for cultural resources on Cannon AFB consists of those portions of the base that will be directly affected by ground-disturbing activities. Regional history that encompasses Cannon AFB from 12,000 years ago to the 20th century is presented in Sections 4.7.1 and 5.7.1.

A modern military presence was established in the region during World War II with the opening of Clovis Army Air Base in 1942. It was selected as one of three sites, including Ephrata, Washington, and Salina, Kansas, for a "super-airdrome."

On December 24th, 1942, the 409th Base headquarters and Air Base Squadron arrived at Clovis Air Base followed by the arrival of the 16th Bombardment Operational Wing, which arrived in January of 1943. In April of 1943, the base was renamed Clovis Army Air Field. From early 1943 to late 1945, the airfield served as a bombardment training base. From June through December 1943, the 302nd Bombardment Group trained B-24 personnel. B-17 crews from the 25th, 497th, 498th, 499th, and 500th Bombardment Groups trained at the airfield from February to April 1944. From 1945 to 1946, the airfield was home to B-29 Bombardment Groups.

Following the end of the war, Clovis Army Airfield operations began to decrease. Coinciding with personnel shortages, bombardment training was no longer a primary focus for the base. In July of 1946, the airfield was placed on a reduced status with complete inactivation occurring in May of 1947.

Control of the airfield changed hands numerous times during its period of inactivation, which lasted until 1951. In August of 1947, the Strategic Air Command took control, changing the name of the airfield to Clovis Air Force Base in 1948 before handing it over to Air Training Command in April of 1950, who then handed it over to Tactical Air Command (TAC) in July of 1951. The 140th Fighter Bomber Wing (140 FBW), flying the P-51 "Mustang" and made up of Air National Guard elements from Colorado, Wyoming, and Utah, was called to active duty as the first TAC unit at Clovis AFB (Air Force 2004b). The 140 FBW returned to Air National Guard control in 1952, replaced by the 50th Fighter Bomber Wing. In 1957, Clovis Air Base became a permanent Air Force installation and was renamed Cannon AFB in honor of the former commander of Tactical Air Command, John Kenneth Cannon (Air Force 2004b). During the late 1950s and early 1960s, Cannon AFB personnel and planes were deployed throughout the world. Crews deployed to Berlin during the Berlin Wall Crisis, and a decade later, to Vietnam and Thailand during the conflict there. In 1965, the mission for Cannon AFB began to change, focusing more on training F-100 pilots and mechanics. In 1968, Cannon AFB added further training for Forward Air Controllers and Air Liaison Officers. With this, Cannon AFB became the largest replacement training wing in TAC. During the late 1960s, with the arrival of different F-111 variants, the primary mission for Cannon AFB began to once again change back into a tactical one. The current F-16 aircraft were based at Cannon AFB starting in 1995.

After the Persian Gulf War, the NMANG transitioned to flying the F-16 Fighting Falcon; in 1991 this was the only fighter squadron to fly the F-16 equipped with Low Altitude Navigation and Targeting Infrared for Night (LANTIRN) pods.

3.7.2 Existing Conditions on Cannon AFB

In compliance with the NHPA, the Air Force has completed a Cultural Resources Management Plan (CRMP) for Cannon AFB and Melrose Range (ACC 2004a). The plan, developed in

consultation with the New Mexico State Historic Preservation Office (SHPO), summarizes cultural resources at the base and range, including NRHP-eligibility status; it also spells out a number of standard operating procedures; and it provides protocols for consultation between the Air Force and SHPO.

Although Cannon AFB occupies the location of an airfield dating to the 1920s, structures from that time were demolished during construction of the AFB, and no standing facilities remain from the pre-World War II era. Cannon AFB inventoried structures dating from the World War II and Cold War eras (ACC 2004a). Of the World War II era buildings still present, five may be eligible for the NRHP (Table 3.7-1). From the Cold War era (1946 through 1989), none of the 13 structures inventoried are NRHP-eligible (ACC 2004).

Table 3.7-1. Structures That May be Eligible for the National Register of Historic Places

Building number	*Description*	*Construction Date/Era*
002	Flagpole	1943/World War II
2107	Concrete storage magazine	1943/World War II
2111	Storage shed	1943/World War II
2113	Storage shed	1943/World War II
2115	Storage shed	1943/World War II

Source: ACC 2004a.

Archaeological survey on Cannon AFB has identified three archaeological sites, two prehistoric, and one historic. None of these sites are considered eligible for the NRHP. No traditional cultural resources have been located on Cannon AFB, and no Native American groups have indicated areas of specific interest.

3.7.3 Environmental Consequences

Impact analysis for cultural resources focuses on assessing whether the West Flightline Alternative or alternatives have the potential to affect cultural resources that are eligible for listing in the NRHP or have traditional significance for American Indian groups. Under Section 106 of the National Historic Preservation Act (NHPA), the proponent of the action is responsible for determining whether any historic properties are located in the area; assessing whether the proposed undertaking would adversely affect the resources, and notifying the SHPO of any adverse effects. An adverse effect is any action that may directly or indirectly change the characteristics that make the historic property eligible for listing in the NRHP. If an adverse effect is identified, the federal agency consults with the SHPO and federally recognized American Indian tribes to develop measures to avoid, minimize, or mitigate the adverse effects of the undertaking.

Direct impacts may occur by physically altering, damaging, or destroying all or part of a resource; altering characteristics of the surrounding environment that contribute to the resource's significance; introducing visual or audible elements that are out of character with the property or alter its setting; or neglecting the resource to the extent that it deteriorates or is destroyed. Direct impacts can be assessed by identifying the types and locations of proposed activity and determining the exact location of cultural resources that could be affected. Indirect

impacts generally result from increases in population that can lead to increased use of an area and are harder to quantify.

At Cannon AFB, the West Flightline Alternative and East and West Airfield Alternative include changes in the aircraft inventory, an overall reduction in airfield operations (both approaches and departures, and closed patterns), additional vehicles, and a number of construction and renovation projects. In compliance with Section 106 of the NHPA and the CRMP, the Air Force has initiated consultation regarding the proposed AFSOC Assets Beddown (refer to Appendix C).

3.7.3.1 West Flightline Alternative

Twenty-four buildings will be directly affected by the West Flightline Alternative. Table 3.7-2 lists the facilities, their date of construction, and NRHP eligibility. Recent inventory and evaluation have determined that none of these buildings is eligible for the NRHP under any criteria (ACC 2004a).

New construction will occur under this action. Most or perhaps even all of the area has been previously disturbed by prior construction and other Air Force activities. Survey of Cannon AFB has located three sites that lie outside the area that will be directly affected by construction. None of the archaeological sites is eligible for the NRHP.

The addition of personnel has the potential to indirectly, adversely affect archaeological sites, if recreation or use of an area were to cause damage to a historic property. However, since no archaeological historic properties (i.e., no NRHP-eligible archaeological sites) are present on Cannon AFB, the population increase will have no effect. Furthermore, because the five structures on Cannon AFB that may be eligible for the NRHP (Table 3.7-1) achieved eligibility while associated with airfield operations and the associated noise, changes in the noise environment will have no effect on historic properties.

There is always the possibility that previously unknown or unrecorded resources could be lie underground, sometimes underneath existing development. In the unlikely event that previously unrecorded or unevaluated cultural resources are encountered during construction, Cannon AFB will manage these resources in accordance with the Cannon AFB CRMP (ACC 2004a), adhering to federal and state laws, as well as Air Force regulations.

3.7.3.2 East and West Airfield Preferred Alternative

The East and West Airfield Alternative for Cannon AFB differs from the West Flightline Alternative only in facilities development, and there would be no effects to historic properties under this alternative. Rather than concentrating on the west side of the runway, development would also occur on the east side. There would be some variation in the buildings experiencing additions and/or alterations. However, because these actions would not alter the five structures on Cannon AFB that may be eligible for the NRHP, there would still be no effect on known eligible historic properties. No archaeological sites have been identified in the area of the East and West Airfield Alternative. In the unlikely event that previously unrecorded or unevaluated cultural resources are encountered during construction, Cannon AFB will manage these resources in accordance with the Cannon AFB CRMP (ACC 2004a), adhering to federal and state laws, as well as Air Force regulations.

Table 3.7-2. Buildings included with projects under the West Flightline Alternative at Cannon AFB

Building #	*Current Function*	*Construction Date*	*NRHP eligibility*
012	Target intelligence training	1969	Not eligible
022	Shop, aircraft, general purpose	1992	Not eligible
102	Squadron Operations	1958	Not eligible
109	Maintenance Dock	1991	Not eligible
125	Maintenance Dock	1989	Not eligible
126	Maintenance Dock	1990	Not eligible
133	Munitions load crew training	1993	Not eligible
155	Headquarters, Group	1966	Not eligible
160	Warehouse Supplies and Equipment Base	1993	Not eligible
196	Maintenance Dock	1969	Not eligible
197	Maintenance Dock	1990	Not eligible
198	Squadron Operations	1991	Not eligible
199	Aircraft Corrosion Control	1992	Not eligible
206	Warehouse Supplies and Equipment Base	1969	Not eligible
208	Maintenance Dock, Small Aircraft	1995	Not eligible
622	Avionics Shop	1974	Not eligible
624	Warehouse Supplies and Equipment Base	1992	Not eligible
679	Electronic and Communication Maintenance Pod Shop and Storage	1992	Not eligible
680	Shop, Jet Engine inspection and maintenance	1965	Not eligible
684	Shop, Aircraft General Purpose	1991	Not eligible
780	Flight Simulator Training	1994	Not eligible
790	Flight Simulator Training	1967	Not eligible
2332	Shop, Aircraft General Purpose	1991	Not eligible
5123	Pad, Power Check with Suppressor	1988	Not eligible

NRHP Eligibility Source: ACC 2004

3.7.3.3 No Action Alternative

No Action would result in no movement of AFSOC assets to Cannon AFB although AFSOC would maintain and operate the properties. As long as Cannon AFB is managed as an enclave, the base would continue to manage any cultural resources that could be present in accordance with the 2004 CRMP.

3.8 Land Use and Transportation

3.8.1 Definition of Cannon AFB Land Use and Transportation

The attributes of Cannon AFB and nearby land use addressed in this analysis include general land use patterns, land ownership, land management plans, and applicable plans and ordinances. General land use patterns characterize the types of uses within a particular area including human land uses, (e.g., agricultural, residential, commercial, industrial, institutional, and recreational) or natural land uses (e.g., forests, refuges, and other open spaces). Land ownership is a categorization of land according to type of owner; the majority of land ownership in the region is private. Land use plans and ordinances, policies, and guidelines establish appropriate goals for future use or regulate allowed uses.

Transportation resources include the infrastructure required for the movement of people, materials, and goods. For this analysis, transportation resources include the road network.

The ROI for this resource consists of Cannon AFB, the land immediately surrounding it, and access routes to the base.

3.8.2 Existing Conditions

Cannon AFB is located on 3,500 acres of federally owned land within Curry County, New Mexico. The city of Clovis, the county seat for Curry County, lies about 8 miles to the east of Cannon AFB. With a population of 32,667, it is the largest city within the support area of the Base. Curry County has a total land area of 900,905 acres with about 828,000 acres designated as farmland. The principal crops include corn, grain, sorghum, wheat, barley, oats, alfalfa, cotton, and various vegetables. In addition to farms used for crop growing, there are several large cattle ranches scattered throughout the area.

Cannon AFB is surrounded by agricultural, commercial, and residential land. There is virtually no off-base encroachment from the eastern, southern, or western agricultural land contiguous to the base. There is a sparsely populated residential and commercial development along U.S. Highway 60/84 northeast of the base, but no encroachment.

According to the General Plan, land uses within Cannon AFB are grouped for their functionality (Air Force 2002). In general, housing is located in the northern portion of the base; the airfield in the middle; and open space south of the flightline. The Air Force is currently revising the Base General Plan in anticipation of AFSOC assets beddown. Figure 3.8-1 represents the future land use map that is under consideration. In general, land uses addressed in the existing General Plan make recommendations for areas affected by both the potential for aircraft noise and aircraft accidents. Noise contours developed are used to describe noise exposure around the base and support compatible land use recommendations. Noise is one of the major factors used in determining appropriate land uses since elevated sound levels are incompatible with certain land uses. Figure 3.8-2 shows the existing noise contours at Cannon AFB. When noise levels exceed an L_{dn} of 65 dB, residential land uses are normally considered incompatible. Further, the percentage of persons highly annoyed by noise can increase by the varying noise levels.

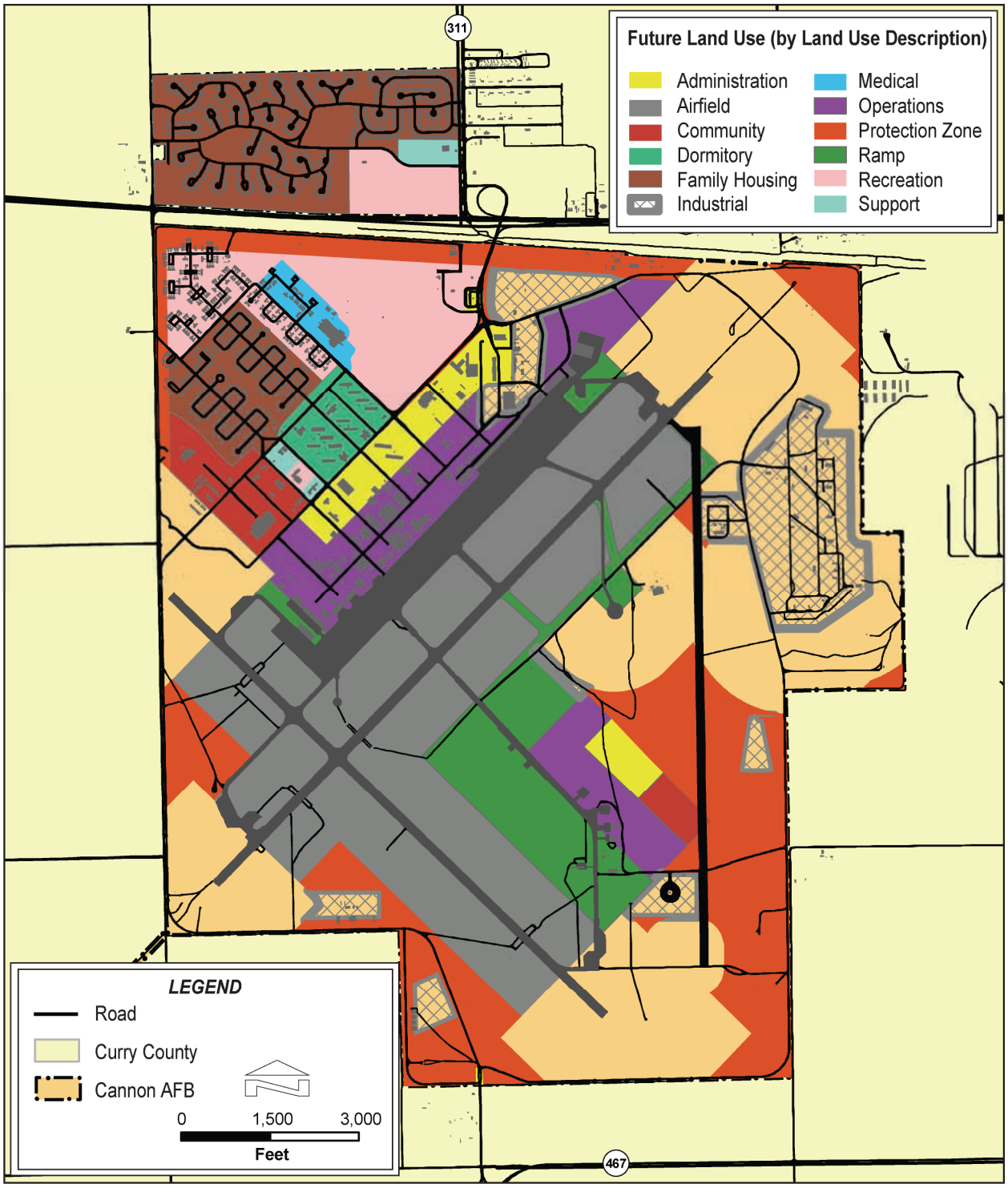


FIGURE 3.8-1. FUTURE LAND USE WITHIN CANNON AFB

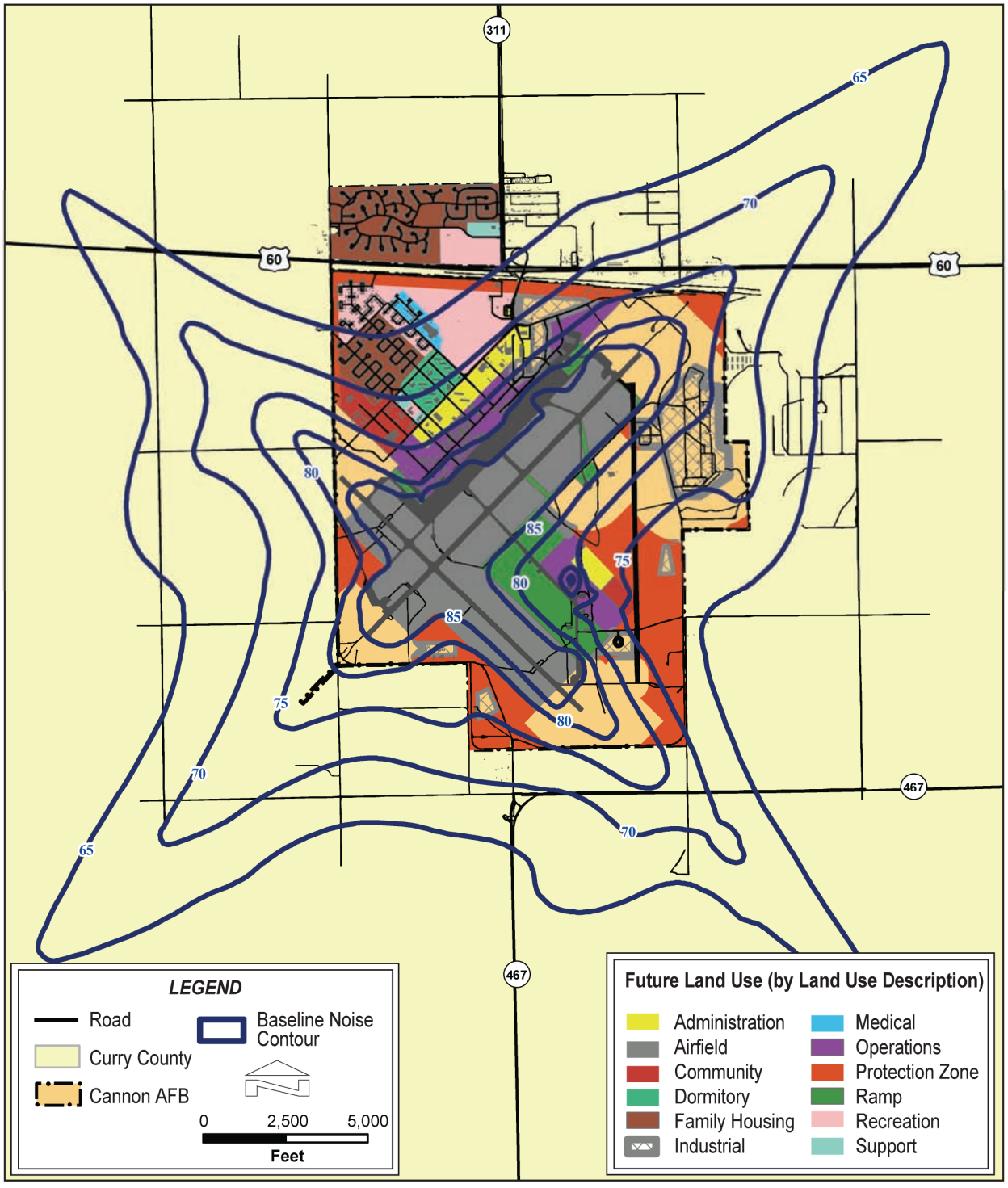


FIGURE 3.8-2. FUTURE LAND USE UNDER THE BASELINE ACTION NOISE CONTOUR

The Air Force has designated Air Installation Compatible Use Zones (AICUZs) around Cannon AFB to provide recommendations for compatible uses in areas subject to accident hazards. Airfield restrictions have been developed and placed on land use within APZs and runway CZs because of the increased risk of aircraft accidents within these areas. Cannon AFB has four CZs, one at each end of the runway (Figure 3.8-3). Cannon AFB has already acquired the property contained by the CZ areas off the end of Runways 04, 13, and 31, while much of Runway 22 CZ is owned and controlled by the Burlington Northern & Santa Fe Railroad. The local communities or county governments are responsible for adopting appropriate land use controls to prevent incompatible development. The property surrounding Cannon AFB airfield environs is managed and controlled by the Curry County Board of Commissioners. Curry County has no current zoning restrictions. In addition, Curry County has been purchasing restrictive easements for the property contained within the APZ. Restrictive easements limit the use of the property to compatible development. The restrictive easements also impose height restrictions on structures. Curry County does not have a comprehensive plan, but is currently working with the city of Clovis to prepare a plan for both jurisdictions (personal communication, Smith 2006).

Prime farmland is defined by 7 USC 4201 and CEQ 1508.27(b)(3) as those areas that contain the best combination of physical and chemical characteristics. Prime farmland is identified for resource conservation and growth management. Because Cannon AFB is not in agricultural production, no prime farmland is located on the installations. Because of New Mexico's arid climate in agricultural areas, no lands in New Mexico qualify as Prime Farmland unless irrigated with a dependable supply of irrigation water. The land surrounding Cannon AFB, while irrigated, could potentially qualify for prime agricultural land, but since construction would not occur outside of Cannon AFB boundaries, any prime farmland in the area would not be affected.

Transportation

Primary access to Cannon AFB is provided on the north side of the base from U.S. Route 60. U.S. Route 60 is a four-lane divided highway between Clovis to the east and for a distance of approximately 4½ miles to the west of the base. U.S. Route 60 becomes a 2 lane rural highway 4½ miles west of the Cannon AFB Main Gate and connects to Interstate 25 roughly 200 miles to the west. At the base Main Gate, State Route 311 continues to the north. State Route 311 is a 2 lane rural highway. Approximately 3 miles to the east of the Main Gate, U.S. 60 intersects State Route 467. Approximately 13½ miles to the west of the Main Gate, U.S. 60 intersects State Route 224. The nearest Interstate (I-40) is about 50 miles south of Cannon AFB. I-40 traverses the state east-west through Albuquerque.

U.S. 60 has been assumed to function as a multilane arterial highway as defined by the *Highway Capacity Manual 2000* (Transportation Research Board 2000). Access to the south is provided by State Route 467. State Route 467 connects to U.S. 60 to the north and to U.S. 70, at Portales New Mexico to the south. State Route 467 has been assumed to function as a two lane collector (class II) rural highway as defined by the *Highway Capacity Manual 2000* (Transportation Research Board 2000).

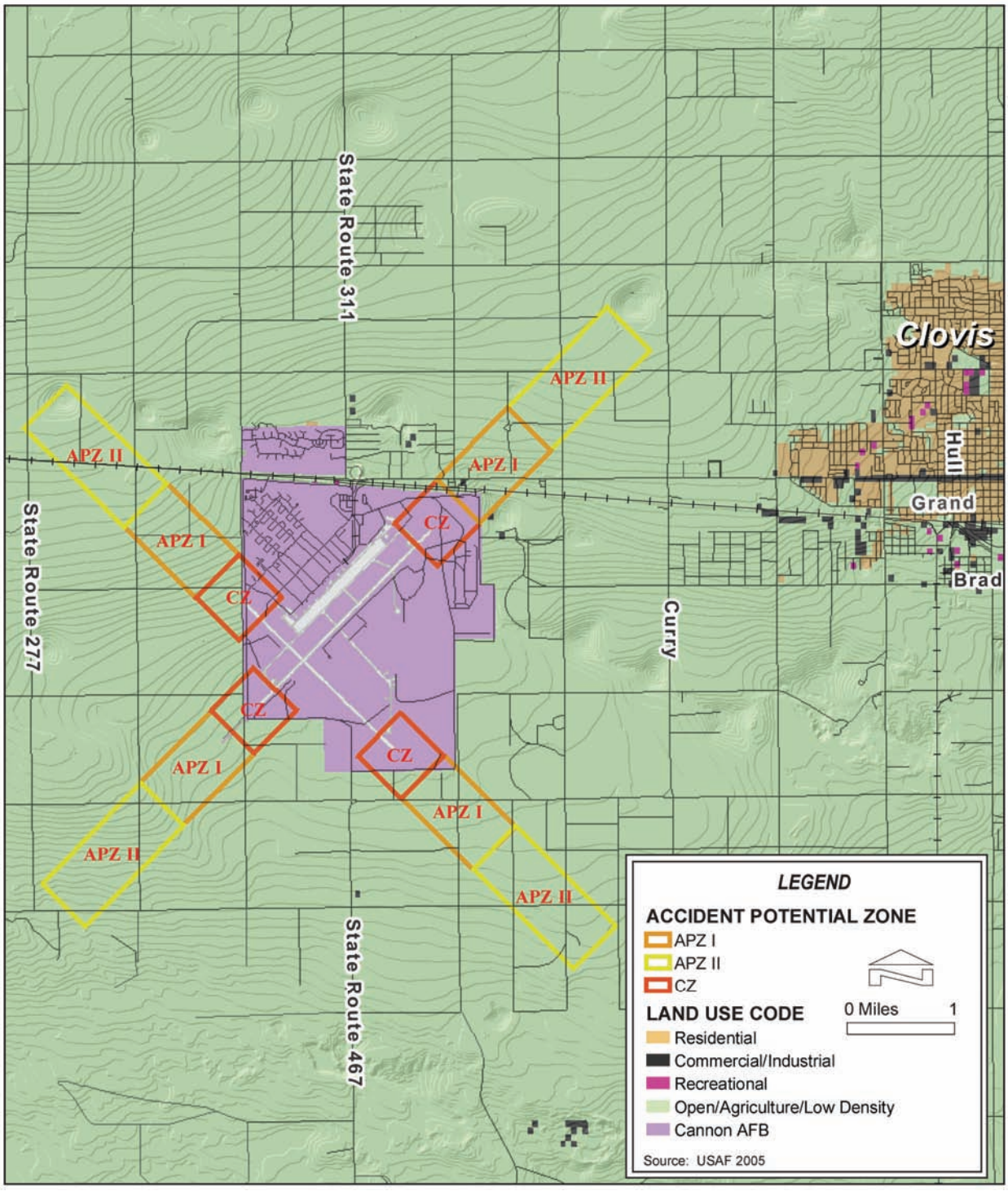


Figure 3.8-3. Current Land Use Around Cannon AFB

There are two gates that provide access to Cannon AFB: the Main Gate on U.S. 60 and the Portales Gate on State Route 467. The Main Gate is accessed by a partial clover leaf interchange for traffic westbound into the base from the direction of Clovis, and a diamond interchange for traffic leaving the base in the east bound direction. The observed traffic to the east of the base, between the Main Gate and Clovis, is approximately 3 times as large as the traffic observed to the west of the base Main Gate.

Using methods contained in *Trip Generation 7ed*, the peak traffic for the a.m. peak hour was estimated (Institute of Transportation Engineers 2003). With the existing base population of 4,467, the approximate number of peak hour (morning) trips is 1,021. This represents 982 vehicles at the Main Gate and 39 at the Portales Gate. With three lanes available at the Main Gate and one lane at the Portales Gate, the existing facilities are sufficient to pass the existing peak hour traffic into the base.

Traffic volume on routes surrounding Cannon AFB is low and the existing roadway level of service is high. Only one major transportation improvement in the vicinity of Cannon AFB has been identified, this improvement is a railroad overpass on State Route 467 (at milepost 16) that will be completed in spring 2007. This overpass may facilitate vehicular movement associated with the Portales Gate and support local users, shippers, and construction access to the base (personal communication, Kurtz 2006).

There are no fixed route public transit lines servicing Cannon AFB or Melrose AFR. Clovis Area Transit System provides curb-to-curb public transportation services on a reservation, demand-response basis. During exercises and air shows, Cannon AFB operates a set-route shuttle service with two to three buses. A small community airport provides Clovis with commuter service. The closest large commercial airports are the Rick Husband Amarillo International Airport (105 miles), Lubbock International Airport (107 miles), and Albuquerque International Sunport (217 miles).

3.8.3 Environmental Consequences

Land use impacts could be deemed significant if they would (1) be inconsistent or in non-compliance with applicable land use plans or policies; (2) preclude the viability of existing land use; (3) preclude continued use or occupation of an area; (4) be incompatible with adjacent land use to the extent that public health or safety is threatened.

As described in Chapter 2.0, the key elements of the proposal are facility construction, flight and training activities, and personnel changes. Established and recognized noise models have been applied to estimate the off base and on base noise conditions. These models are described in Appendix F. For the land use resource, consequences are associated with increases in noise due to a change in aircraft type and use. Potential effects to land use plans, land use patterns, and circulation due to construction or personnel increases are considered.

To assess potential environmental consequences associated with the transportation resource, increased utilization of the existing roadway system due to the potential increase of personnel is analyzed, as well as potential effects of construction activities. Anticipated impacts on the operational characteristics of those roadways, using levels of service (levels of congestion) and other metrics are identified. Consequences to the on base road network is also discussed. Potential impacts of the proposed alternatives on the existing base access facilities are also addressed.

3.8.3.1 WEST FLIGHTLINE ALTERNATIVE

Under the West Flightline Alternative, new facilities to house and maintain the AFSOC aircraft would be constructed. These facilities would involve construction and renovation projects implemented over the period from 2008 to 2013 (Table 2.1-3). The West Flightline development affects 342 acres consisting of the area covered by the construction footprints of the proposed facilities plus the surrounding lands where construction-related clearing and grading would occur.

The proposed aircraft and mission change, as well as facility construction, alteration, and demolition, would increase the intensity of land use within the base; however, the West Flightline Alternative would not introduce any new land uses at Cannon AFB, and would remain compatible with current uses at the base and the Base General Plan. The construction of new facilities would not occur in CZs or APZs. The construction would be consistent with the updated Base General Plan. None of the proposed new facilities would violate height restrictions around the runways (refer to Section 3.3, Safety, for a more detailed discussion of runway safety areas).

Noise from construction would be temporary and would take place only during daytime hours (see Section 3.2). Noise levels from these activities on adjacent properties would not exceed 65 A-weighted decibels (dBA). Aircraft noise would remain the dominant noise source in adjacent areas. Therefore, construction noise would cause minimal impacts to land uses.

The proposed beddown of AFSOC aircraft would affect land use in some areas beyond the airfield boundary. Aircraft noise is the primary source of these impacts. Figure 3.8-4 shows proposed noise contours, and Table 3.8-1 summarizes the acres affected by noise levels above 65 dBA on base and off base. The beddown of AFSOC aircraft would result in a different pattern for noise contours because different aircraft would be used and at different times of the day (and night). The FAA has developed noise exposure compatibility guidelines for various land use categories. An L_{dn} of 65 dBA is generally considered the threshold above which residential land uses (and other sensitive uses such as schools and hospitals) are not recommended.

TABLE 3.8-1. BASELINE NOISE CONTOUR ACREAGE AT CANNON AFB AIRFIELD AND VICINITY

	NOISE CONTOUR (DNL)			
	65-70 dB	***70-75 dB***	***75-80 dB***	***80 +dB***
On Base	505 acres	691 acres	743 acres	1,375 acres
Off Base	3,828 acres	1,572 acres	463 acres	49 acres

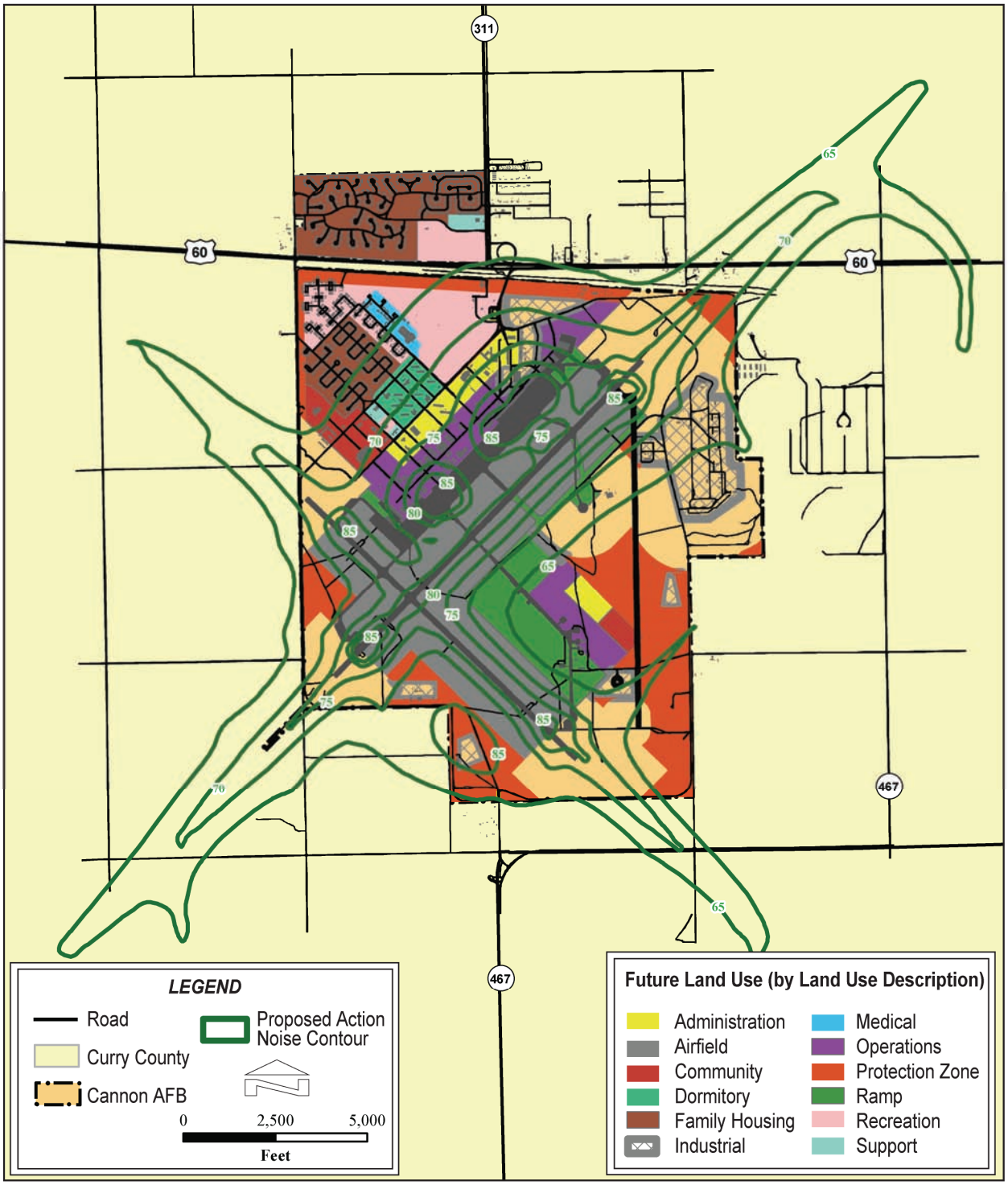


FIGURE 3.8-4. FUTURE LAND USE UNDER THE WEST FLIGHTLINE ALTERNATIVE NOISE CONTOUR

Table 3.8-2 shows that the total area affected by levels of 65 dBA or greater would increase on base from 505 acres to 992 acres. However, for all other noise contours the acreage affected would decrease. The greatest decrease of area affected would be off base in the 65 to 70 dB level where, under both alternatives, the area would decrease by 2,788 acres. At the 80 dB and above the area affected would decrease by 1,090 acres from baseline conditions. The 85 dB would no longer extend off base, decreasing the over all area affected by 49 acres. The changes in the noise environment are compatible with the existing land uses on and off base. The proposed noise contours fall within acceptable land uses on base. Off base, a greater area of the incompatible development would not fall into the 65 to 70 dB noise contour. Although this area would have a decrease in noise exposure, it is still exposed to average noise levels (DNL) above the 55 dB identified by the USEPA as being protective of the public health and welfare (USEPA 1974).

TABLE 3.8-2. PROPOSED NOISE CONTOUR ACREAGE AT CANNON AFB AIRFIELD AND VICINITY

	NOISE CONTOUR (DNL)			
	65-70 dB	***70-75 dB***	***75-80 dB***	***80 +dB***
On Base	992 acres	679 acres	536 acres	283 acres
Off Base	1,048 acres	180 acres	2 acres	0 acre

Note: Acreage affected would be the same for both alternatives as aircraft use would not change under either alternative.

Under the West Flightline Alternative, additional personnel would be assigned to Cannon AFB (see Table 2.1-7). It is not anticipated that this increase would adversely affect local or regional land use.

Transportation resources may be affected by the proposed addition of 1,213 additional military and civilian personnel that would be permanently stationed at the base by 2010. The projected traffic volumes for 2010 and five years after that point, 2015, would operate in a safe and efficient manner at an acceptable Level of Service (LOS) on the adjacent public roadways. There may be some impact on the function of the Cannon AFB Main Gate that could be addressed with procedural changes or additional lanes. This section discusses peak hour trip generation, gate access, traffic volume, and LOS on adjacent U.S. 60 and State Route 467, and the roadway network on base.

Peak hour trip generation. The number of personnel added to the base can be used to estimate the increase in traffic to be expected. Transportation engineering generally determines the expected function of the roadway in the design peak hour. The expected design peak hour traffic expected to be generated by the AFSOC assets beddown was estimated using trip generation methods (Institute of Transportation Engineers 2003). The expected traffic can vary depending on the time of the day and week. Traffic volumes are typically analyzed for the expected greatest level of traffic occurring on either morning weekday, evening weekday, Saturday or Sunday time period. The results of this calculation are shown in the Table 3.8-3.

TABLE 3.8-3. ANTICIPATED PEAK HOUR TRIP GENERATION FOR AFSOC ASSETS BEDDOWN AT CANNON AFB

Time Period	*Total Trips*	*Entering*	*Exiting*
Weekday a.m.	485	427	58
Weekday p.m.	363	134	337
Saturday	315	157	158
Sunday	218	109	109

The weekday peak morning hour would be the largest expected impact, since entering traffic would be slowed by the requirements of security for base access and would impact both the base access gates and the principal public roads.

It has been assumed that construction associated with the AFSOC assets beddown would start in the year 2007 and that construction would be complete by the year 2013. Traffic analyses were conducted for the year 2010 when the majority of AFSOC personnel would be assigned to Cannon AFB and for the year, 2015 after all construction is completed.

Gate Access. Cannon AFB has two gates - the Main Gate exiting onto U.S. 60 and the Portales Gate exiting onto State Route 467. Based on recent gate counts (presented in Table 3.8-4), approximately 96 percent of existing base traffic uses the Main Gate (personal communication, Neiman 2006). The new traffic was assumed to be prorated between the two base access points in the same proportion as the existing traffic, as depicted on Table 3.8-4.

TABLE 3.8-4. EXPECTED PEAK HOUR NUMBER OF VEHICLES ENTERING THE BASE

EXPECTED GATE USE – AM PEAK HOUR IS PEAK FOR GATE USAGE				
	Population	*Peak Hour Trips*	*ENTERING*	
			Main Gate	*Portales Gate*
Existing	4,467	1,021	982	39
Proposed	5,680	1,506	1,446	60

The capacity of an access gate is directly related to the type of processing or force protection condition being used. Checkpoint design capacity is approximately:

- 400 – 600 vehicles/hour/lane (use 500) for decal-only check.
- 300 – 400 vehicles/hour /lane (use 350) for identification and decal check.
- 400 – 600 vehicles/hour/lane (use 500) for identification and decal check using tandem processing.

It would likely be desirable to implement processes to alleviate congestion at the Main Gate, including:

- The use of tandem processing in the peak a.m. hour.
- The addition of additional lanes or gates.
- The use of staggered start times for shifts at the base.

With one lane available at the Portales Gate, the existing facilities would be expected to be sufficient to pass both the existing condition and the West Flightline Alternative traffic.

Traffic Volume. Traffic counts on U.S. Route 60 were obtained from the New Mexico Department of Transportation (personal communication, Pena 2006). Average Annual Daily Traffic (AADT) was available for the years 2003, 2004, and 2005. The measured traffic volume in 2005 was then projected to the years 2010 and 2015. A traffic growth rate of 3 percent was calculated between the years 2003 and 2004 and an anticipated traffic growth rate of 3 percent was used in the model. As depicted on Table 3.8-5, the anticipated traffic caused by the proposal was added to the expected traffic with and without the proposed increase in personnel in years 2010 and 2015.

TABLE 3.8-5. EXPECTED PEAK HOUR TRAFFIC (VEHICLES PER HOUR) ON U.S. ROUTE 60

	Baseline[1]	*With AFSOC Assets*
2005 Peak Hour Heavy Direction	767	
2005 Peak Hour Light Direction	192	
2010 Peak Hour Heavy Direction	889	1,293
2010 Peak Hour Light Direction	222	278
2015 Peak Hour Heavy Direction	1,030	1,439
2015 Peak Hour Light Direction	258	313

Notes: 1. Assumes current AADT of 3,833 vehicles per day.
Source: Personal communication, Pena 2006.

No traffic count data is available for State Route 467, so the highest volume of traffic needed to yield LOS A service on this roadway has been assumed. Table 3.8-6 depicts expected peak hour traffic on State Route 467.

TABLE 3.8-6. EXPECTED PEAK HOUR TRAFFIC (VEHICLES PER HOUR) ON STATE ROUTE 467

	Baseline	*With AFSOC Assets*
2005 Peak Hour	456	
2010 Peak Hour	**529**	**589**
2015 Peak Hour	**613**	**673**

VPH – Vehicles Per Hour

Level of Service. Generally the desired LOS for arterial roadways is LOS C or better, although in urban areas LOS D or even E is sometimes acceptable. The *Highway Capacity Manual* (Transportation Research Board 2000) discusses the LOS determination characteristics of arterial multilane roadways, as well as two lane highways. U.S. Route 60 is a multiple lane highway

and State Route 467 is assumed to be a class II or collector roadway. Table 3.8-7 summarizes LOS definitions for multiple lane and two lane highways.

Table 3.8-7. Level of Service definitions

Level of Service	*Multiple Lane Highways*	*Two Lane Highways*
A	Free flowing traffic at average travel speeds, a density of less than 11 passenger cars per mile per lane and vehicles are relatively unimpeded in their ability to maneuver within the traffic stream	Highest quality of traffic service, with motorists able to travel at their desired speed and with little restriction on their ability to pass slower traffic. Percent time following is 40 percent or less.
B	Reasonably unimpeded operation at average travel speeds, a density of between 11 and 18 passenger cars per mile per lane. Ability to maneuver within the traffic stream is only slightly restricted and most drivers find operation of the highway not stressful.	Condition where the drivers have some restrictions on their speed of travel and ability to change lanes to pass, but still represents comfortable and relatively low stress driving conditions. Percent time following is between 40 and 55 percent.
C	Stable operations; however, the ability to maneuver and change lanes is more restricted than in LOS B, and with a density of between 18 and 26 passenger cars per mile per lane. Most drivers find the operation of the highway somewhat stressful.	Condition of stable traffic flow that has significant restrictions on the ability of motorists to travel at their desired speed and to change lanes to pass. LOS C is somewhat stressful for most drivers. Percent time following is between 55 and 70 percent.
D	Borders the range in which small increases in flow may cause substantial increases in delay and decreases in travel speed. LOS D may be due to high volumes of traffic and has a density of between 26 and 35 passenger cars per mile per lane. Most drivers find the operation of the highway stressful.	Unstable traffic flow. Drivers are restricted into slow moving platoons and disruptions in the traffic flow can cause significant congestion. There is little or no opportunity to pass slower moving traffic. Most drivers find LOS D stressful. Percent time following is between 70 and 85 percent or less.
E	Characterized by significant delays. LOS E has a density of between 35 and 45 passenger cars per mile per lane. Most drivers find the operation of the highway very stressful.	Highest volume of traffic that can move on the roadway without a complete shut down. Most drivers find LOS E very stressful. Percent time following is greater than 85 percent.
F	Characterized by low traffic flow at low speeds. LOS F has a density of greater than 45 passenger cars per mile per lane. Almost all drivers find the operation of the highway very stressful. Intersection congestion is likely at critical signalized locations, with high delays, high volumes, and extensive queuing.	Heavily congested flow with traffic demand exceeding capacity. Traffic flows are slow and discontinuous.

A LOS analysis assessing the consequences of the increased volume associated with the AFSOC assets beddown was performed. Presently, the operation of U.S. 60 is at an acceptable level of LOS A. The additional volume would reduce the LOS of U.S. 60 to LOS B (refer to Table 3.8-8). LOS B would be an acceptable LOS for a roadway of this type. State Route 467 is at an acceptable LOS B and the proposed increase in volume is not expected to change the expected LOS. LOS B would be an acceptable LOS for a roadway of this type.

Table 3.8-8. Expected Roadway LOS for U.S. Highway 60

	2010		2015	
	HD	**LD**	**HD**	**LD**
Baseline	LOS A	LOS A	LOS A	LOS A
West Flightline Alternative	LOS B	LOS A	LOS B	LOS A

HD – Direction of heavier traffic
LD – Direction of lighter traffic

Road network on base. The volume of traffic would also increase within the existing Cannon AFB roadway system. It is possible that some existing transportation facilities within the base may require rehabilitation or upgrades to support the increase in traffic. Typical road improvements would include roadway widening, pavement strength improvements, intersection improvements, and signage.

Any new construction would be expected to provide for internal roadway networks; parking; pedestrian access to adjoining buildings and transit stops; sidewalks and sidewalk curb ramps at all crosswalks to accommodate persons with disabilities, bicyclists, and pedestrians. Right-of-way and geometric design of the parking lots and local road systems would be expected to be designed to acceptable engineering standards. New permanent and temporary facilities would be expected to be designed to current engineering standards.

3.8.3.2 East and West Airfield Preferred Alternative

Under the East and West Airfield Alternative, the transfer of aircraft and equipment to Cannon AFB would be as described in Section 2.1.1. Manpower authorizations would also be the same as under the West Flightline Alternative. The East and West Airfield Alternative differs in the approach to facility development. The East and West Airfield Alternative affects an additional 284 acres. Table 2.1-5 presents facilities development under this alternative.

Similar to the West Flightline Alternative, the proposed aircraft and mission change, as well as facility construction, alteration, and demolition would increase the intensity of land use within the base; but would not introduce any new land uses at Cannon AFB, and would remain compatible with current uses at the base. New facilities would not violate height restrictions around the runway. Both the siting and use of new munitions storage facilities would be constructed in accordance with Air Force regulations to ensure that new QD arcs are compatible with ongoing activities and land uses on the base (refer to Section 3.3, Safety, for a more detailed discussion of runway safety areas and explosive safety).

The noise analysis would be the same as under the West Flightline Alternative. Figure 3.8-2 shows the existing noise contours at Cannon AFB. Table 3.8-2 presents acreages affected by the proposed noise contours. As presented, the change in the noise environment would not affect

land uses on or off base. Portions of the 65 dBA noise contour already affect this area and with the change in the noise contours, a lesser area would be affected.

Other aspects of this alternative (such as construction, personnel increase, and transportation) are identical to the West Flightline Alternative and therefore anticipated effects would be the same as described in Section 3.8.3.1.

3.8.3.3 No Action Alternative

No Action would result in no movement of AFSOC assets to Cannon AFB although AFSOC would maintain and operate the properties. The F-16s would depart by FY 2008. If Cannon remained an enclave, future land uses proposed in the Cannon General Plan would not occur. Land ownership under this alternative would remain the same. Noise levels would decrease around the flightline; however, because Cannon AFB does not have conflicting land uses now nor would have in regards to the AFSOC beddown, then no impact would be expected. The general land use patterns would remain the same. The transportation network would experience less traffic volume than presently.

3.9 Socioeconomics

3.9.1 Definition of Resource

Socioeconomics is defined as the basic attributes and resources associated with the human environment, particularly population and economic activity. Economic activity typically encompasses employment, personal income, and regional industries. Changes to these fundamental components can influence other community resources such as housing availability, utility capabilities and public services.

Cannon AFB is situated in the high plains of eastern New Mexico, 7 miles east of the city of Clovis. Socioeconomic activities associated with the base are concentrated in Curry and Roosevelt counties, which, in addition to the base itself, comprise the ROI for this analysis.

3.9.2 Existing Conditions

3.9.2.1 Population and Housing

Cannon AFB

Cannon AFB supports a workforce population of 4,467 personnel, including 275 officers, 3,142 enlisted personnel, 730 civilian employees, and 320 contract employees. There are an estimated 4,437 dependents associated with base personnel, resulting in a total Cannon AFB-related population of 8,904 persons.

Military family housing at Cannon AFB includes 1,644 units (Cannon AFB 2006a). Family housing consists of six separate housing areas in four separate locations. There are 683 family housing units actually situated on base, 611 units across U.S. Highway 60/84 adjacent to the base, and an additional 250 and 150 units of government leased housing in the cities of Clovis and Portales, respectively. Cannon AFB has 12 dormitories accommodating up to 723 unaccompanied enlisted personnel. Temporary quarters provide an additional 99 bed spaces on base.

Curry and Roosevelt counties, which comprise the ROI, provide nearly all the housing and education support services for Cannon AFB. Cannon AFB houses 11.4 percent of the

population associated with base operation. Clovis houses 83.8 percent, Portales houses 4.2 percent, and the remaining 0.6 percent are housed at other locations.

Curry and Roosevelt Counties

The estimated 2005 population in the ROI was 65,176 persons, reflecting growth of 3.3 percent since 2000. The 2000 Census established the ROI population at 63,062 persons, an increase of approximately 7 percent from the 1990 population of 58,909 (U.S. Census Bureau 2000a). Of the 33 counties in New Mexico, Curry ranks 12th with a population of 46,059 persons and Roosevelt ranks 22nd with a population of 19,117 persons. Almost 75 percent of the ROI population resides in the city of Clovis, which includes most Cannon AFB residents. The population of Clovis was 33,357 persons in 2005, 7.7 percent more than the 1990 population of 30,954. The population of Portales, the population center in Roosevelt County, was 11,295 persons in 2005 compared to 10,690 persons in 1990.

According to the 2000 Census, there were 23,405 households in the ROI with an average household size of 2.62 persons. Population density in the state averages 15.0 persons per square mile (U.S. Census Bureau 2000b). Curry County has a higher density, 32.0 persons per square mile; this is due to the population center of Clovis, which has 1,458.9 persons per square mile. The population density of Roosevelt County, in which Melrose AFR is located, is 7.4 persons per square mile, with a majority of the people concentrated in the city of Portales.

Detailed information describing the housing contained in the region is presented in the 2000 U.S. Census of Population and Housing. This is the most comprehensive source of information describing the housing stock in the ROI. In 2000, there were 19,212 housing units in Curry County and 7,746 housing units in Roosevelt County. Of the total number of housing units, 12.7 percent in Curry County and 15.1 percent in Roosevelt County were mobile homes (U.S. Census Bureau 2001).

The vacancy rates for the two counties were 12.7 and 14.3 percent, respectively. In 2000, there were 2,446 vacant housing units in Curry County and 1,107 vacant units in Roosevelt. The vacancy rate for rental housing is about twice the homeowner vacancy rate. Owner-occupied housing accounts for 60 percent of all housing units in the ROI; rental units comprise the remaining 40 percent. Some of these vacant units are assumed to be substandard.

Between 2000 and 2005, housing units in Curry County increased by a total of 1.2 percent and in Roosevelt County increased by a total of 1.8 percent. The number of new units constructed between 2000 and 2004 were 235 in Curry County and 471 in Roosevelt County.

3.9.2.2 Economic Activity

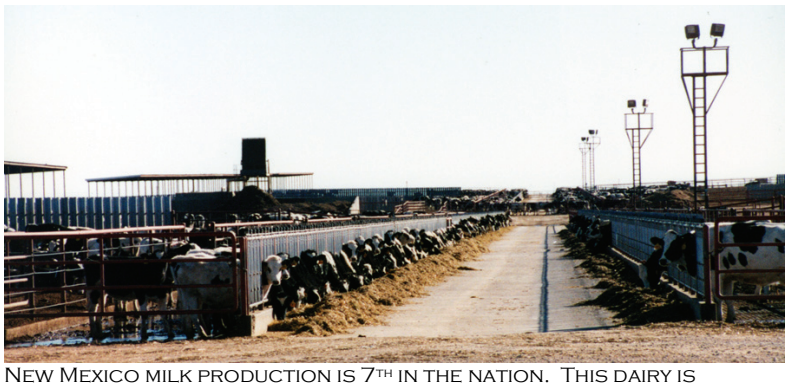
Cannon AFB

The total annual economic impact generated by Cannon AFB in FY 2003 was estimated at $211.2 million (Cannon AFB 2006b). Military and civilian payroll totaled $116.2 million. Contracts and purchases of goods and services amounted to $41.4 million annually.

Curry and Roosevelt Counties

A number of factors have influenced economic activity and employment in New Mexico in recent years, contributing overall to moderate growth despite some industry-specific declines. Since the early 1990s, New Mexico's numerous U.S. military sites and related enterprises have experienced reduced federal defense spending, resulting in a loss of more than 8,500 jobs in the

past decade (University of New Mexico 2001). The mining and manufacturing sectors, particularly copper and potash mining and textile manufacturing, declined during the 1990s, losing hundreds of relatively high-wage jobs. High-tech manufacturing, on the other hand, has shown significant growth since 1990. Employment in this sector, which contributed an estimated 30,000 total jobs in 2000, has helped offset federal job losses during the same period.



NEW MEXICO MILK PRODUCTION IS 7TH IN THE NATION. THIS DAIRY IS IMMEDIATELY SOUTH OF CANNON AFB AND EAST OF THE TRAINING AIRSPACE.

The 1990s were a period of expansion for the ranching industry in New Mexico, particularly dairy operations. Agriculture, food processing and food-related industries together employ over 100,000 people in New Mexico and contribute $2 billion in annual crop and livestock sales (New Mexico Department of Agriculture 2004). Milk production in New Mexico has increased 400 percent since 1990, ranking the state 7th in the nation in milk production, 5th in the nation in production per cow, and first in the nation in herd size (New Mexico State University 2004). The dairy industry has noticeably grown in the past decade in Chaves, Curry, and Roosevelt counties.

Additional industry trends in recent years include the influx of call centers to the state, due to favorable legislation, and the growth of the gaming industry, particularly Native American-owned casinos. By 2000, these two industries contributed 12,000 and 6,000 jobs, respectively (University of New Mexico 2001). There also were substantial job gains in the retail sector due to the proliferation of superstores across the state. While job growth was moderate overall, the losses in relatively high-paying federal, mining, and manufacturing jobs compared to the gains in high-tech manufacturing and relatively low-paying call center, gaming, and retail jobs resulted in slow growth in the state's average wage level.

The economy of the specific region comprised of Curry and Roosevelt counties is supported by a combination of government, services, and agricultural employment. The civilian labor force in the ROI amounted to 30,864 persons in 2005 (University of New Mexico Bureau of Business and Economic Research 2006). Over time, employment in the region has experienced increases and decreases. The total number of employed persons was 26,513 in 1980, increasing to 28,945 workers in 1990 (U.S. Census Bureau 2000a). Total employment in the ROI decreased to 24,433 workers in 2000, and increased again to 29,530 jobs in 2005. The 2000 Census identified approximately 2,700 employees in construction, extraction, and maintenance occupations. The unemployment rate, following national trends, rose to 7.2 percent in 2000, up from 6.0 percent in the early 1990s, but has since fallen to 4.3 percent in 2005. Unemployed persons in the ROI numbered 1,334 in 2005.

3.9.2.3 EDUCATION

A variety of public and private schools provide education to Clovis and Roosevelt counties. In 2000, there were 14,704 students aged 3 and over. The estimated Cannon AFB dependent population enrolled in school amounts to 2,546 students, comprising 17.3 percent of the ROI

student population. Table 3.9-1 presents the number of students by grade level in the two counties, and the estimated student population associated with Cannon AFB personnel.

TABLE 3.9-1. STUDENTS IN ROI

School	*Curry County*	*Roosevelt County*	*Cannon AFB*
Preschool	850	308	159
Kindergarten	770	344	153
Elementary (1-8)	6,152	2378	1,166
High School (9-12)	2,885	1017	533
Total	**10,657**	**4,047**	**2,011**

Source: U.S. Bureau of Census 2000a

There are eight public school districts serving the ROI population surrounding Cannon AFB, with a total enrollment of 12,744 students in the 2005-2006 school year (see Table 3.9-2). Public school enrollment accounts for 85 percent of the student population, with the remaining students attending private schools or homeschooled. Student-teacher ratios in the two county school districts range from 9.5 in Elida Municipal Schools to 16.1 in Clovis Municipal Schools. The average school in the ROI has 303 enrolled students and 20 teachers.

Approximately 95 percent of students associated with Cannon AFB personnel attend schools in Curry County. The majority of these dependents attend Clovis schools, which is by far the largest district in the ROI with over 8,305 students enrolled in the district's 18 schools.

TABLE 3.9-2. PUBLIC SCHOOLS DATA FOR CURRY AND ROOSEVELT COUNTIES (2005-2006)

	Enrollment	*Schools*	*Student-Teacher Ratio*
Curry County			
Clovis Municipal Schools	8,305	18	16.1
Grady Municipal Schools	147	3	9.7
Melrose Public Schools	248	3	11.2
Texico Municipal Schools	526	3	14.8
Roosevelt County			
Dora Consolidated Schools	231	2	10.5
Elida Municipal Schools	141	2	9.5
Floyd Municipal Schools	253	3	11.9
Portales Municipal Schools	2,893	8	15.6
ROI Total	**12,744**	**42**	**15.3**

Source: New Mexico Public Education Department 2006

3.9.2.4 INFRASTRUCTURE

Potable Water. Cannon AFB obtains potable water for the base distribution system from five wells with a production capacity of 2.8 million gallons per day (MGD). For the years 2005 and 2006, average daily demand equaled 0.90 MGD. Wells 2, 3, 8, and 12 pump water to treatment

plant number 1, where water is chlorinated before it enters a 271,000-gallon above-ground tank. Four boost pumps at the main water plant can deliver water to the main distribution system at a capacity of 5,300 gallons per minute. Well 7 delivers water to treatment plant 2, where it is chlorinated and stored in a 50,000-gallon underground tank. Two booster pumps at this location deliver water to the distribution system. A sixth well, Well 5, delivers water directly to the distribution system after being chlorinated.

There are a total of six potable water storage tanks with a total capacity of 871,000 gallons of water. There are three non-potable wells that are used for golf course irrigation, to fill the fountain pond, and for fire support and training.

Potable water is provided to the city of Clovis by New Mexico American Water, a privately owned company. The system operated by New Mexico American Water includes approximately 45 groundwater wells, a distribution and pumping system, and 10.65 million gallons of potable water storage facilities. The average daily demand for the system ranges from 6.5 to 7.0 MGD with summer peak demands increasing to 11 MGD (personal communication, Wright 2007).

The city of Portales currently derives its supply of potable water from two wellfields that consist of approximately 30 wells. These wells meet the current average daily demand of 3.8 MGD from the approximately 5,800 customers in the city and surrounding area. Summer daily demands of 6.0 MGD can be met from the wells that have a maximum production capability of 6.8 MGD and storage that equals 9.25 million gallons (personal communication, Howell 2007).

Water levels in the existing wells for both systems continue to decline between 1 to 2.7 feet per year as a result of regional dependency on groundwater by both municipal and agricultural users. New Mexico American Water is adding six new wells to their system to maintain production capacity and the city of Portales is adding 1.2 MGD of capacity with three new wells in 2007. The city of Portales also has adopted a comprehensive Water Conservation Plan that provides numerous conservation measures to its customers to assist in reducing water consumption. Both water systems would utilize surface water provided from the Ute Reservoir pipeline when it becomes available after 2020.

Wastewater System. The on-base wastewater treatment plant has a maximum design flow of 1.13 MGD. For the years 2005 and 2006, average daily flows equaled 0.47 MGD. The plant consists of a new grit and grease collection device, influent pump station with emergency generator, sequence batch reactors, aerobic digester, chlorine contact chamber, sludge drying beds, and a composting area. The plant was modified in early 2007 to include a grit and grease collection system. The grit and grease collection system entrance works facility is a stand alone system and replaces the existing entrance works system. The existing entrance works will remain intact and can be utilized as required. A new manhole with two 24-inch knife gate valves is located at the front end of the grit and grease collection device; these valves can be operated to allow flow into the existing entrance works facility, or into the grit and grease system. The preferred method of operation will utilize the grit and grease collection system, but the old entrance works will remain to be utilized as a backup option when required for emergency use, or maintenance operations. The waste water collection system consists of approximately 228,000 linear feet of piping. Main and secondary lines range from 4 to 24 inches in diameter. Lines are constructed from concrete or asbestos cement, vitrified clay, polyvinyl chloride (PVC), high-density polyethylene, and castor ductile iron piping.

Storm Sewer. Stormwater runoff on base is conveyed through a drainage system consisting of culverts, storm sewers, and ditches. Stormwater flows are generally to the south and east. Flightline runoff is conveyed through storm sewer at both ends, southwest and northeast, and allowed to enter natural watercourses. Stormwater at the southwest end of the flightline flows through four sewers ranging in size from 27-inch to 48-inch and outlets to a depression with no outlet. At the northeast end of the flightline stormwater is routed through a pair of storm sewers, size unknown, before being outlet to a natural watercourse near the small arms range.

Electrical Distribution. Cannon AFB receives electrical power from Xcel Energy. A 115 kilovolt transmission circuit terminates in the 25 megawatt base substation on Arcadia Street. This transmission line can be energized from either of two Xcel substations: the Clovis substation located east of the base, or the Blackwater Draw substation located south of the base. Source selection is made at an Xcel switching station on SR 60/84. Base demand in FY 2005 was approximately 55,400 megawatt hours, which equaled about 58 percent of capacity.

Natural Gas. Public Service of New Mexico provides natural gas to Cannon AFB via pipeline to a substation 1 mile north of the base. From the substation, Cannon AFB owns the pipeline and underground natural gas distribution lines ranging from 1 to 6 inches in diameter. Currently, there are no natural gas lines running to the south side of the flightline. In FY 2005, the base consumed about 244,220 cubic feet.

3.9.3 ENVIRONMENTAL CONSEQUENCES

Personnel changes at Cannon AFB as well as expenditures for facility construction, operations, and maintenance will be major factors in the socioeconomic character of Curry and, to a lesser extent, Roosevelt counties. Table 3.9-3 presents the personnel changes projected for the years 2006 through a steady state of 2010. No Action is included in the table to reflect base status under the Base Realignment and Closure (BRAC) 2005 directive.

TABLE 3.9-3. PROJECTED CANNON AFB MANPOWER AUTHORIZATIONS

	No Action	*FY 2006*	*FY 2007*	*FY 2008[1]*	*FY 2009[1]*	*FY 2010[1]*
Officer	11	275	190	439	702	755
Enlisted	105	3,142	2,171	2,743	4,020	4,185
Civilian[1]	34	730	505	407	417	420
Contractor	0	320	320	320	320	320
Total	150	4,467	3,186	3,909	5,459	5,680

Note: 1. These numbers apply to both action alternatives.

Existing demographic and economic characteristics in Curry and Roosevelt counties were analyzed to assess the potential socioeconomic impacts of the proposed AFSOC beddown. The beddown, described in detail in Chapter 2.0, involves two factors that may affect socioeconomic resources: personnel changes and facility renovation and construction. Socioeconomic impacts would occur if changes associated with the beddown of AFSOC assets substantially affected demand for housing or community services, such as schools, or substantially affect the region's economy.

During scoping, commenters noted that Air Force personnel and their families at Cannon AFB are very involved in the community. Persons associated with Cannon AFB regularly volunteer for community activities. Concern was expressed that a drawdown could affect volunteer

organizations in Clovis and Portales. As noted in Table 3.9-3, there is a projected reduction in base personnel between 2006 and 2008. During this period, there could be fewer Air Force-related personnel volunteering for community service activities. In 2009, personnel numbers are projected to be back to 2006 levels. The personnel numbers suggest a short-term reduction in available volunteers followed by an increase. There could be a short-term one to two-year effect, but there is not likely to be any long-term negative effect on volunteers from Cannon AFB who support the communities. Under the No Action Alternative, from Table 3.9-3, there would be a substantial reduction in Air Force personnel and an anticipated substantial reduction in local volunteers.

3.9.3.1 West Flightline Alternative

The beddown of AFSOC assets would have construction-related and personnel-related consequences. Each is addressed separately, followed by a combined consequences discussion.

Construction-Related Consequences

Facility modifications under the West Flightline Alternative would include renovation, construction, or infrastructure improvement projects implemented over a 5-year period. Table 3.9-4 presents the annual expenditures projected at Cannon AFB to support the transfer of AFSOC assets under the West Flightline Alternative. The proposed construction activity would generate a number of direct construction-related jobs and additional secondary jobs through the multiplier effect of regional purchases (indirect effect) and payroll spending (induced effect), as depicted in Table 3.9-5. Construction activity also would contribute to regional economic output and regional household income (as related to increased employment levels). These potential effects would be temporary, however, lasting only for the duration of the construction activity.

Table 3.9-4. Proposed Construction, Renovation, and O&M (FY2007 $M)

Fiscal Year	*AFSOC Construction/ Renovation*	*AFSOC O&M (Request)*	*Cannon Other*	*Area II (Utilities)*
2008	9	146	0	1
2009	9	92	0	3
2010	15	73	20	5
2011	163	70	34	0
2012	41	77	30	0
2013	73	72	12	0

Table 3.9-5. Annual Construction-Related Socioeconomic Effects

	FY 2008	*FY 2009*	*FY 2010*	*FY 2011*	*FY 2012*	*FY 2013*
Economic Effects (Annual Total)						
Employment (jobs)						
Direct	1,976	1,300	1,401	3,424	1,888	2,009
Indirect	332	221	239	558	313	330
Induced	481	320	346	827	458	486
TOTAL	2,789	1,841	1,986	4,809	2,659	2,825
Payroll ($thousands)						
Direct	$63,568	$42,135	$45,612	$109,594	$60,546	$64,349
Indirect	$8,188	$5,504	$6,011	$13,797	$7,708	$8,141
Induced	$11,572	$7,685	$8,330	$19,894	$11,005	$11,688
TOTAL	$83,328	$55,324	$59,953	$143,285	$79,259	$84,178
Output ($thousands)						
Direct	$156,000	$104,000	$113,000	$267,000	$148,000	$157,000
Indirect	$22,260	$15,000	$16,406	$37,451	$20,934	$22,103
Induced	$37,676	$25,022	$27,121	$64,773	$35,832	$38,054
TOTAL	$215,936	$144,022	$156,527	$369,224	$204,766	$217,157
Demographic Effects (Cumulative Increase from FY07)						
Population (persons)	2,916	3,301	3,924	7,444	8,000	8,295
Housing (units)	1,395	1,579	1,877	3,560	3,826	3,967
School Enrollment (students)	567	642	763	1,447	1,555	1,612

Total employment (equal to the sum of direct, indirect, and induced employment) related to construction activity under the West Flightline Alternative would vary from an estimated 2,789 jobs in 2008 to 2,825 jobs in 2013 (see Table 3.9-5). Employment levels would fluctuate over the 6-year construction period, peaking at 4,809 jobs in 2011. At the peak, there would be demand for 3,424 direct workers likely to be involved in construction or related fields.

Construction and renovation projects under the West Flightline Alternative would represent an increase in annual economic activity generated by Cannon AFB in the local area and region. Increased demand for construction personnel and construction materials has the potential to increase short-term costs for local construction projects.

The two-county construction industry would not be expected to accommodate the labor demand of the proposed projects. The anticipated increase in regional economic activity associated with the Cannon AFB construction projects would likely have two effects with regard to the local workforce. First, labor force participation within the region would likely increase in response to enhanced job prospects. Second, laborers outside the region could be motivated to relocate (i.e., in-migrate) to the region.

Depending on the flow of funding, the demand for labor could be cyclical or intermittent, and could generate both relocation into the area by construction workers and their families (i.e., in-migration) and weekly commuting from communities outside the ROI. Because the supply of

existing skilled laborers in the region would be insufficient to meet anticipated demand, it is assumed that a significant portion of the workforce would come from outside the area. It is assumed that roughly half of the needed laborers would relocate (i.e., in-migrate) to the area during 2008, the initial construction year. Population in-migration would fluctuate over the next 5 years in accordance with the varying level of base-related construction activity. After 2013, the final construction year, construction-related socioeconomic effects would come to an end.

The estimated population in-migration and associated increase in housing demand and school enrollments are presented at the bottom of Table 3.9-5. Estimates of these demographic effects are based on the assumed migration ratios, described in the previous paragraph, and family size and student data from the U.S. Census. The broader socioeconomic consequences of these anticipated effects will be discussed in detail below under Combined Consequences.

OPERATIONS-RELATED CONSEQUENCES

For the purpose of this analysis, personnel numbers represent Air Force manpower authorizations rather than actual persons. Actual personnel are often between 80 and 90 percent of authorized personnel. As with expenditures, personnel changes under the West Flightline Alternative not only result in direct employment effects, but also result in payroll-related induced effects. Indirect effects are related to business-to-business activity rather than household spending; therefore, no indirect effects would be anticipated with regard to personnel changes at Cannon AFB.

Economic and demographic effects associated with personnel changes under the West Flightline Alternative are presented in Table 3.9-6. Also included are the anticipated socioeconomic effects under No Action, which are discussed below in the relevant No Action section. The baseline year for the analysis is FY 2006, for which current personnel levels at Cannon AFB (i.e., direct jobs) and associated socioeconomic conditions are presented. Transition of the base under the West Flightline Alternative initially would yield a decline in the employment level during 2007 and 2008, as current personnel are re-assigned prior to and concurrent with the arrival of AFSOC personnel. By FY 2010, the proposed steady-state personnel level would be achieved and projected to remain stable at 5,680 base personnel.

Table 3.9-6. Annual Personnel-Related Socioeconomic Effects

	No Action	*West Flightline Alternative*					
		FY 2006	*FY 2007*	*FY 2008*	*FY 2009*	*FY 2010*	*FY 2011*
Economic Effects (Annual Totals)							
Employment (jobs)							
Direct	150	4,467	3,186	3,909	5,459	5,680	5,680
Indirect/Induced	89	2,569	1,811	2,134	2,930	3,044	3,044
TOTAL	239	7,036	4,997	6,043	8,389	8,724	8,724
Payroll ($thousands)							
Direct	$10,899	$381,712	$266,458	$315,637	$436,595	$453,952	$453,952
Indirect/Induced	$1,725	$61,986	$43,741	$51,526	$70,675	$73,423	$73,423
TOTAL	$12,624	$443,698	$310,199	$367,163	$507,270	$527,375	$527,375
Output ($thousands)							
Direct	$11,640	$419,886	$297,345	$350,460	$480,029	$498,615	$498,615
Indirect/Induced	$3,326	$201,284	$141,887	$167,232	$229,569	$238,514	$238,514
TOTAL	$14,966	$621,170	$439,232	$517,692	$709,598	$737,129	$737,129
Total Demographic Effects							
Population (persons)	300	8,904	6,360	7,842	10,943	11,392	11,392
Housing (units)	150	4,467	3,186	3,909	5,459	5,680	5,680
School Enrollment (students)	68	2,011	1,430	1,802	2,544	2,652	2,652

Estimated annual population effects and associated housing demand and school enrollments are presented at the bottom of Table 3.9-6. These demographic effects related to proposed personnel changes are based on current family size data at Cannon AFB, student population ratios in Curry and Roosevelt counties, and the assumption of one household per employed person. In 2000, there were 1.05 jobs per household in the ROI. The early transition period would result in a population decline in fiscal year 2007, and associated reduction in the demand for housing and number of enrolled students in area schools. Personnel levels will grow, however, from 2008 to 2010, expanding the population, housing demand, and student enrollment to planned stable levels in 2011 and after. The broader socioeconomic consequences of these anticipated effects will be discussed in detail below under Combined Consequences.

Combined Consequences

The combined socioeconomic effects of construction activity and personnel changes associated with the proposed AFSOC transition at Cannon AFB are presented in Table 3.9-7.

Employment. Total employment declines by an estimated 2,039 total jobs in 2007 and then begins a steady increase in job creation through 2011. Employment drops back somewhat in 2012 and 2013 as the peak construction period concludes. By 2014, construction activity would be complete and long-term employment levels would stand at the anticipated stable level associated with Cannon AFB personnel. The projected 2014 employment levels are 5,680 direct jobs and 3,044 indirect and induced jobs, yielding a total long-term employment level of 8,724 jobs and an overall increase of 1,688 jobs over total baseline (FY 2006) employment of 7,036 jobs.

TABLE 3.9-7. COMBINED SOCIOECONOMIC EFFECTS OF WEST FLIGHTLINE ALTERNATIVE

	FY 2006	*FY 2007*	*FY 2008*	*FY 2009*	*FY 2010*	*FY 2011*	*FY 2012*	*FY2013*	*FY2014*	**Total Change**
Economic Effects (Annual Totals)										
Employment (jobs)										
Direct	4,467	3,186	5,885	6,759	7,081	9,104	7,568	7,689	5,680	**1,213**
Indirect	47	47	379	268	286	605	360	377	47	**0**
Induced	2,522	1,764	2,568	3,203	3,343	3,824	3,455	3,483	2,997	**475**
TOTAL	7,036	4,997	8,832	10,230	10,710	13,533	11,383	11,549	8,724	**1,688**
Payroll ($thousands)										
Direct	$381,712	$266,458	$379,205	$478,730	$499,564	$563,546	$514,498	$518,301	$453,952	**$72,240**
Indirect	$1,310	$1,310	$9,498	$6,814	$7,321	$15,107	$9,018	$9,451	$1,310	**$0**
Induced	$60,676	$42,431	$61,788	$77,050	$80,443	$92,007	$83,118	$83,801	$72,113	**$11,437**
TOTAL	$443,698	$310,199	$450,491	$562,594	$587,328	$670,660	$606,634	$611,553	$527,375	**$83,677**
Output ($thousands)										
Direct	$419,886	$297,345	$506,460	$584,029	$611,615	$765,615	$646,615	$655,615	$498,615	**$78,729**
Indirect	$3,757	$3,757	$26,017	$18,757	$20,163	$41,208	$24,691	$25,860	$3,757	**$0**
Induced	$197,527	$138,130	$201,151	$250,834	$261,878	$299,530	$270,589	$272,811	$234,757	**$37,230**
TOTAL	$621,170	$439,232	$733,628	$853,620	$893,656	$1,106,353	$941,895	$954,286	$737,129	**$115,959**
Demographic Effects (Net Annual Change)										
Population (persons)	0	-2,544	4,398	3,486	1,072	3,520	556	295	0	**10,784**
Housing (units)	0	-1,281	2,118	1,734	519	1,683	266	141	0	**5,180**
School Enrollment (students)	0	-581	939	816	229	684	108	57	0	**2,253**

Population. Although the construction activity is anticipated to take place over a period of 6 years and then come to an end, the multi-year nature of the employment opportunities generated would be likely to induce a percentage of relocation of workers and their families from larger urban areas outside the region. The anticipated in-migration of new residents would experience two highs, the first in 2008 when AFSOC personnel begin arriving at Cannon AFB, and the second in 2011 during the peak construction year (see Table 3.9-7). Consequently, population change in the region would be expected to fluctuate over the period from 2007 to 2013. The long-term anticipated increase in regional population would be an estimated 10,784 persons.

Housing. The overall anticipated increase in personnel assigned to Cannon AFB would be expected to require 1,213 housing units. In addition, the relocation of secondary workers and their families to the region would generate demand for 3,967 housing units, bringing the total increase in long-term housing demand to 5,180 units (see Table 3.9-7). There were over 3,200 housing units estimated to be vacant in Curry and Roosevelt in 2005; however, the quality of these units is unknown, as is the number of seasonal or recreational homes that may be included in that number. By assuming 50 percent of the vacant units are available for lease or purchase and are of suitable condition for occupancy, it is estimated that 1,600 housing units would be available in the ROI, resulting in a potential shortfall of 3,580 housing units.

Cannon AFB has entered into a housing privatization effort that could result in the demolition and replacement of 1,248 homes. Economic activity associated with this demolition and construction could add $50 million per year for 2 years in FY 2010 and FY 2011. Although such construction is frequently accomplished by large corporations with a transient workforce, the stimulation would place increased pressure on available temporary housing and rental housing. It is likely that demand for additional housing would exceed supply in the short term.

Education. Incoming AFSOC personnel and relocating construction and other workers would bring their families with them, including their school-age children. The estimated number of potential school enrollments associated with the beddown of AFSOC assets would follow the same trend as population and housing, an initial decline in 2007 as the base transition begins, followed by two highs in 2008 and 2011 (see Table 3.9-7). The long-term change in school enrollments is expected to be 2,253 students, representing an increase of 15 percent in the ROI student population. It is estimated that 60 percent of the new students would be of elementary school age, 25 percent high school, and the remaining 15 percent pre-school and kindergarten.

Based on current school size and student-teacher ratios, it is anticipated that more classroom space and teachers could be needed to accommodate the anticipated increase in student population. Based on past residence choices, an estimated 95 percent of the Cannon-related population and 70 percent of the secondary population would reside in Curry County and attend the four county school districts, primarily Clovis. The remaining 5 percent of the Cannon population and 30 percent of the secondary population would be expected to reside in Roosevelt County and attend area schools there, primarily Portales.

Utilities and Infrastructure. The West Flightline Alternative includes construction of infrastructure improvements to support both the infill development and new facilities on Cannon AFB. Water and sewer lines to the base are adequate to meet current and projected demand. Water treatment for the existing and new population would need to be improved to meet personnel and equipment water demands. As a result of growth associated with the beddown of AFSOC assets at Cannon AFB, average daily demands have the potential to

increase by 1.8 MGD by FY 2013. This additional demand would be split among the cities of Clovis and Portales and the bases water system depending on the housing locations chosen by AFSOC personnel. With this gradual increase in potable water demand over the next five years, all three existing systems would be able to plan for, and accommodate this increase with minimal effects of the level of service provided to the systems customers.

3.9.3.2 East and West Airfield Preferred Alternative

Economic and demographic effects under the East and West Airfield Alternative would be comparable to those anticipated under the West Flightline Alternative, but construction expenditures are somewhat higher under the East and West Airfield Alternative from 2010 to 2013, resulting in marginally higher socioeconomic effects during those years (see Table 3.9-8). The general nature of the consequences related to employment, population, housing, and education would be similar to those described under the West Flightline Alternative. The primary difference would be in utility requirements. Development across the base on the east side (East Side Development Area) would include a number of new facilities, as well as a large aircraft-parking ramp, which would require considerable lighting power. The connected transformer load for the new facilities could exceed the capacity of a 4,160-volt feeder. A new 115 kilovolt – 12.47 kilovolt base substation would be needed near the property line east of the Development Area. Sanitary sewer lines, water lines, and a new storm sewer would be required under the East and West Airfield Alternative. A new 14,500-foot gas line also would be required.

3.9.3.3 No Action Alternative

No Action would result in no movement of AFSOC assets to Cannon AFB although AFSOC would maintain and operate the properties. Table 3.9-9 presents the socioeconomic effects related to 2006 baseline Cannon AFB activity, the effects associated with projected enclave status, and the resulting change in socioeconomic effects. The overall loss of 6,797 jobs would consist of 4,317 Cannon AFB positions plus 2,480 indirect and induced jobs. A loss of 2,480 jobs in Curry and Roosevelt counties would be expected to raise the current unemployment rate of 4.3 percent by almost triple to a projected 12.3 percent.

As military families were relocated and base housing was maintained as full as possible, the off-base housing vacancy rate would be expected to exceed 25 percent, more than double the vacancy rates experienced in 2000. This would tend to depress the housing market and substantially reduce the value of the existing housing stock.

Schools would face an expected decline in enrollment amounting to 1,943 students, as presented at the bottom of Table 3.9-9. This enrollment decline, representing almost 13 percent of the existing student population, would place pressure on districts to reduce budgets, possibly cutback the number of schools and increase the commute distances of remaining students.

As a result of these anticipated consequences, No Action would be projected to create a substantial socioeconomic effect upon the overall economy of primarily Curry County and secondarily, Roosevelt County.

TABLE 3.9-8. COMBINED SOCIOECONOMIC EFFECTS OF THE EAST AND WEST AIRFIELD ALTERNATIVE

	FY 2006	*FY 2007*	*FY 2008*	*FY 2009*	*FY 2010*	*FY 2011*	*FY 2012*	*FY2013*	*FY2014*	**Overall Change**
Economic Effects (Annual Totals)										
Employment (jobs)										
Direct	4,467	3,186	5,885	6,759	7,391	9,745	7,887	8,009	5,680	**1,213**
Indirect	47	47	379	268	339	709	413	430	47	**0**
Induced	2,522	1,764	2,568	3,203	3,420	3,979	3,532	3,560	2,997	**475**
TOTAL	7,036	4,997	8,832	10,230	11,150	14,433	11,832	11,999	8,724	**1,688**
Payroll ($thousands)										
Direct	$381,712	$266,458	$379,205	$478,730	$509,655	$584,069	$524,725	$528,548	$453,952	**$72,240**
Indirect	$1,310	$1,310	$9,498	$6,814	$8,651	$17,691	$10,320	$10,747	$1,310	**$0**
Induced	$60,676	$42,431	$61,788	$77,050	$82,286	$95,732	$84,977	$85,662	$72,113	**$11,437**
TOTAL	$443,698	$310,199	$450,491	$562,594	$600,592	$697,492	$620,022	$624,957	$527,375	**$83,677**
Output ($thousands)										
Direct	$419,886	$297,345	$506,460	$584,029	$636,615	$815,615	$671,615	$680,615	$498,615	**$78,729**
Indirect	$3,757	$3,757	$26,017	$18,757	$23,793	$48,221	$28,227	$29,380	$3,757	**$0**
Induced	$197,527	$138,130	$201,151	$250,834	$267,878	$311,660	$276,642	$278,871	$234,757	**$37,230**
TOTAL	$621,170	$439,232	$733,628	$853,620	$928,286	$1,175,496	$976,484	$988,865	$737,129	**$115,959**
Demographic Effects (Net Annual Change)										
Population (persons)	0	-2,544	4,398	3,486	1,210	4,178	650	342	0	**11,721**
Housing (units)	0	-1,281	2,118	1,734	585	1,998	311	164	0	**5,628**
School Enrollment (students)	0	-581	939	816	256	812	126	67	0	**2,435**

Table 3.9-9. Socioeconomic Effects of No Action

	FY 2006	*No Action*	*Change*
Economic Effects			
Employment (jobs)			
Direct	4,467	150	-4,317
Indirect/Induced	2,569	89	-2,480
TOTAL	7,036	239	-6,797
Payroll ($thousands)			
Direct	$381,712	$10,899	-$370,813
Indirect/Induced	$61,986	$1,725	-$60,261
TOTAL	$443,698	$12,624	-$431,074
Output ($thousands)			
Direct	$419,886	$11,640	-$408,246
Indirect/Induced	$201,284	$3,326	-$197,958
TOTAL	$621,170	$14,966	-$606,204
Demographic Effects			
Population (persons)	8,904	300	-8,604
Housing (units)	4,467	150	-4,317
School enrollments (students)	2,011	68	-1,943

3.10 Environmental Justice

3.10.1 Definition of Resource

Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations. In addition to environmental justice issues are concerns pursuant to EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, which directs federal agencies to the extent permitted by law and appropriate, and consistent with the agency's mission, (a) make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children; and (b) ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

For purposes of this analysis, minority, low-income, and youth populations are defined as follows:

- *Minority Population*: Persons of Hispanic origin of any race, Blacks, American Indians, Eskimos, Aleuts, Asians, or Pacific Islanders.
- *Low-Income Population*: Persons living below the poverty level.
- *Youth Population*: Children under the age of 18 years.

Estimates of these three population categories were developed based on data from the U.S. Bureau of the Census. Total and minority population figures are based on recent demographic data released from Census 2000 (U.S. Census Bureau 2000a). The census does not report minority population, per se, but reports population by race and by ethnic origin. This data was used to estimate minority populations potentially affected by implementation of the West Flightline Alternative. Low-income and youth population figures were also drawn from the Census 2000 Profile of General Demographic Characteristics (U.S. Census Bureau 2000a).

Environmental justice analysis applies to adverse environmental impacts. Potential disproportionate impacts to minority or low-income populations are assessed only when adverse environmental consequences to the human population are anticipated, otherwise no analysis is required. The same is true for analysis of special risks to children, which would be driven by adverse environmental impacts. If adverse impacts are not anticipated, no special risk to children analysis is required. Environmental factors assessed in relation to determination of environmental justice concerns often include air quality, safety, hazardous materials, and noise. In the event that adverse environmental impacts to the human population were anticipated, the effects would be identified and the impact footprint would be mapped for the specified ROI.

3.10.2 Existing Conditions

Disadvantaged groups within the ROI, including low-income and minority communities, are specifically considered in order to assess the potential for disproportionate occurrence of impacts (see Table 3.10-1). Based on 2000 Census data, the incidence of persons and families in Clovis and Roosevelt counties with incomes below the poverty level was just slightly higher than state levels (U.S. Census Bureau 2000a). In the ROI during 2000, 20.0 percent of persons

and 25.3 percent of children were living below the poverty level, compared to 18.4 percent of persons and 24.7 percent of children in the State of New Mexico as a whole.

Minority persons represent 40.1 percent of the Clovis and Roosevelt county populations. Hispanic or Latino persons account for most of the minority population in the ROI, representing 31.2 percent of the ROI population and 77.8 percent of the minority population. By comparison, minority persons represent 55.3 percent of the state population, with Hispanic or Latino persons accounting for 76.1 percent of the state minority population. The youth population, which includes children under the age of 18, accounts for 28.0 percent of the ROI population, compared to 28.0 percent at the state level.

TABLE 3.10-1. 2000 POPULATION AND ENVIRONMENTAL JUSTICE DATA

		MINORITY PERSONS		PERSONS BELOW POVERTY		CHILDREN UNDER 18	
Area	*Population*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Curry County	45,044	18,583	41.3	8,327	19.0	13,561	30.1
Roosevelt County	18,018	6,719	37.3	3,928	22.7	5,060	28.1
State of New Mexico	1,819,046	1,005,551	55.3	328,933	18.4	508,574	28.0
Total ROI	**63,062**	**25,302**	**40.1**	**12,255**	**20.0**	**18,621**	**29.5**

Notes: 1. The U.S. Census calculates percent low-income for individual counties based on total county populations that differ slightly from the county populations reported in the first column.
2. Population figures for each category are from different reporting years as described in the previous section. Therefore, except for minority population, the percentage figures are not based on the total population presented in this table but from the relevant data year.

Source: U.S. Census Bureau 2000a

3.10.3 ENVIRONMENTAL CONSEQUENCES

No disproportionately high or adverse impacts to minority or low-income populations are expected. In addition, there are no known concentrated AOCs where children might be subject to special health or safety risks. In order to address the possibility of environmental justice concerns, potential health and safety factors were analyzed to determine whether any disproportionately high or adverse human health or environmental impacts could affect the human population. In addition, potential environmental health or safety hazards were examined to assess potential special risks to children. The analyses conducted for air quality, safety, hazardous materials, and noise indicate that no adverse environmental impacts to the human population are anticipated under the West Flightline Alternative or the East and West Airfield Alternative. As a result, no disproportionate environmental justice impacts would occur, nor would there be any special health or safety risks to children. With regard specifically to noise, changes in noise contours associated with the West Flightline Alternative or East and West Airfield Alternative are not expected to affect populations to the north of the base.

The economic stimulation associated with the AFSOC beddown (see Section 3.10.2) would be expected to benefit all residents including minority and low-income as the regional economy expanded. There is no projected disproportionate effect upon children although some classroom crowding could occur if economic expansion and growth exceeded school capacity.

Growth related pressures could place some strain on schools, but this effect is not projected to have any long-term impact upon children.

3.10.4 No Action Alternative

No Action would result in no movement of AFSOC assets to Cannon AFB although AFSOC would maintain and operate the properties. This Alternative could result in substantial economic downturn in Curry and, to a lesser extent, Roosevelt counties. During times of economic hardship, minority and low-income populations may face a more difficult time due to increasing unemployment and greater competition for the few remaining jobs. Children can be affected by loss of family income and a reduction in basic services associated with a declining economic area.

These demographic and employment factors suggest the No Action Alternative has the potential to disproportionately impact minority and low-income job seekers and could have a secondary impact upon children.

4.0 MELROSE AIR FORCE RANGE AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the affected environment and potential environmental consequences at Melrose Air Force Range (AFR) and associated Restricted Areas (R-5104 and R-5105), which are depicted on Figure 2.2-1. In compliance with the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) guidelines, and 32 Code of Federal Regulations (CFR) Part 989, the description of the affected environment focuses on those resources and conditions potentially subject to impacts. The affected environment is described for ten resource topics: Airspace Management, Noise, Safety, Air Quality, Physical Resources (including Hazardous Materials and Waste), Biological Resources, Cultural Resources, Land Use and Ranching (including Transportation), Socioeconomics and Environmental Justice. These resources are extensively interrelated and consequently, each resource topic relies upon the findings of relevant other analyses. For example, noise analyses are reflected in the analysis of land use, socioeconomics, and biological resources.

The sections for each resource topic begin with an introduction that defines the resources addressed in the section, defines key terms as necessary and describes the region of influence (ROI) within which the effects from an alternative action are anticipated to occur. The ROI varies from resource to resource, but in general, effects are expected to be concentrated on the range under the Restricted Airspace. Section 3.0 describes primary reasons why the ROI might differ among resources.

Following the introduction for each resource topic, information is presented about existing environmental conditions in the ROI. This information provides a frame of reference about conditions that prevail currently or existed in the recent past. Applicable laws and regulations for each resource are presented in Appendix D.

For each resource, the Two-Target Preferred Alternative, Three-Target Alternative, and No Action Alternative, described in Section 2.2, are assessed for their potential to impact the natural and human environment. In some instances a brief methodology is provided to explain how the analysis of impacts was conducted and to describe what would constitute a significant impact.

The impacts described in this section represent a best estimation of the consequences of training Air Force Special Operations Command (AFSOC) and associated assets at Melrose AFR. The impact analysis for each alternative includes direct and indirect, as well as short-term and long-term impacts. The impacts of each alternative are compared against the baseline conditions. Cumulative impacts and irreversible and irretrievable commitment of resources are described in Chapter 6.0.

4.1 Airspace Management

4.1.1 Definition of Resource

Airspace management is defined as the direction, control, and handling of flight operations in the "navigable airspace" that overlies the geopolitical borders of the United States (U.S.) and its territories. "Navigable airspace" is airspace above the minimum altitudes of flight prescribed by regulations under United States Code (USC) Title 49, Subtitle VII, Part A, and includes airspace

needed to ensure safety in the takeoff and landing of aircraft, as defined in Federal Aviation Administration (FAA) Order 7400.2E (49 USC). This navigable airspace is a limited natural resource that Congress has charged the FAA to administer in the public interest as necessary to ensure the safety of aircraft and its efficient use (FAA Order 7400.2E 2000).

The FAA has designated four types of airspace above the U.S. They are Controlled Airspace, Special Use Airspace (SUA), Other Airspace, and Uncontrolled airspace. Controlled airspace is designated around Melrose AFR to support military operations at the range.

The ROI for airspace management are those airspace units that support operations at the Melrose Bombing, Gunnery, and Electronic Combat Range complex, known as Melrose AFR.

4.1.2 Existing Conditions

Increased Night missions and live fire will change Melrose AFR use.

Restricted airspaces, R-5104A, R-5104B, and R-5105, support training activities on Melrose AFR (see Figure 4.1-1). R-5104A, which overlies Melrose AFR and extends from surface up to but not including 18,000 feet above mean sea level (MSL), provides maneuvering area for air-to-ground activities. R-5104B extends from FL180 to FL230. Currently Cannon Air Force Base (AFB)-based F-16s account for 60 percent of the 3,720 sortie-operations conducted within the R-5104A/B areas. Approximately 23 percent of the sortie-operations are conducted during environmental night (10:00 p.m. to 7:00 a.m.). R-5105 abuts R-5104A directly to the north, but does not overlie the range and must be activated concurrently with R-5104A for air-to-ground training. R-5105 extends from surface up to 10,000 feet above MSL. Cannon AFB-based F-16s account for 100 percent of the 1,470 sortie-operations conducted within the R-5105 area. Each Restricted Area is designated airspace that supports ground or flight activities that could be hazardous to non-participating aircraft. A Restricted Area is airspace designated under 14 CFR Part 73, within which the flight of aircraft, while not wholly prohibited, is subject to restriction. Most restricted areas are designated "joint-use" and IFR/VFR operations in the area may be authorized by the controlling Air Traffic Control (ATC) facility when it is not being utilized by the using agency (Pilot/Controller Glossary [P/CG] 2004). This airspace is described in Table 4.1-1.

The Taiban Military Operations Area (MOA), immediately to the west of the restricted airspace, is often scheduled with the restricted airspace to support training on Melrose AFR.

4.1.3 Environmental Consequences

4.1.3.1 Two-Target Alternative

Airspace management would remain unchanged from current conditions for the existing restricted airpaces and scheduling issues associated with the joint military-civil use of the airspace in its current configuration would continue. Airspace use would change to support live-fire training by AFSOC aircraft. Approximately 40 percent of the training activity would occur between 10:00 p.m. and 7:00 a.m. The introduction of a 50-acre landing zone (LZ)/drop zone (DZ) would result in increased air-to-ground activity on Melrose AFR. Management of Melrose AFR would also continue as under current conditions.

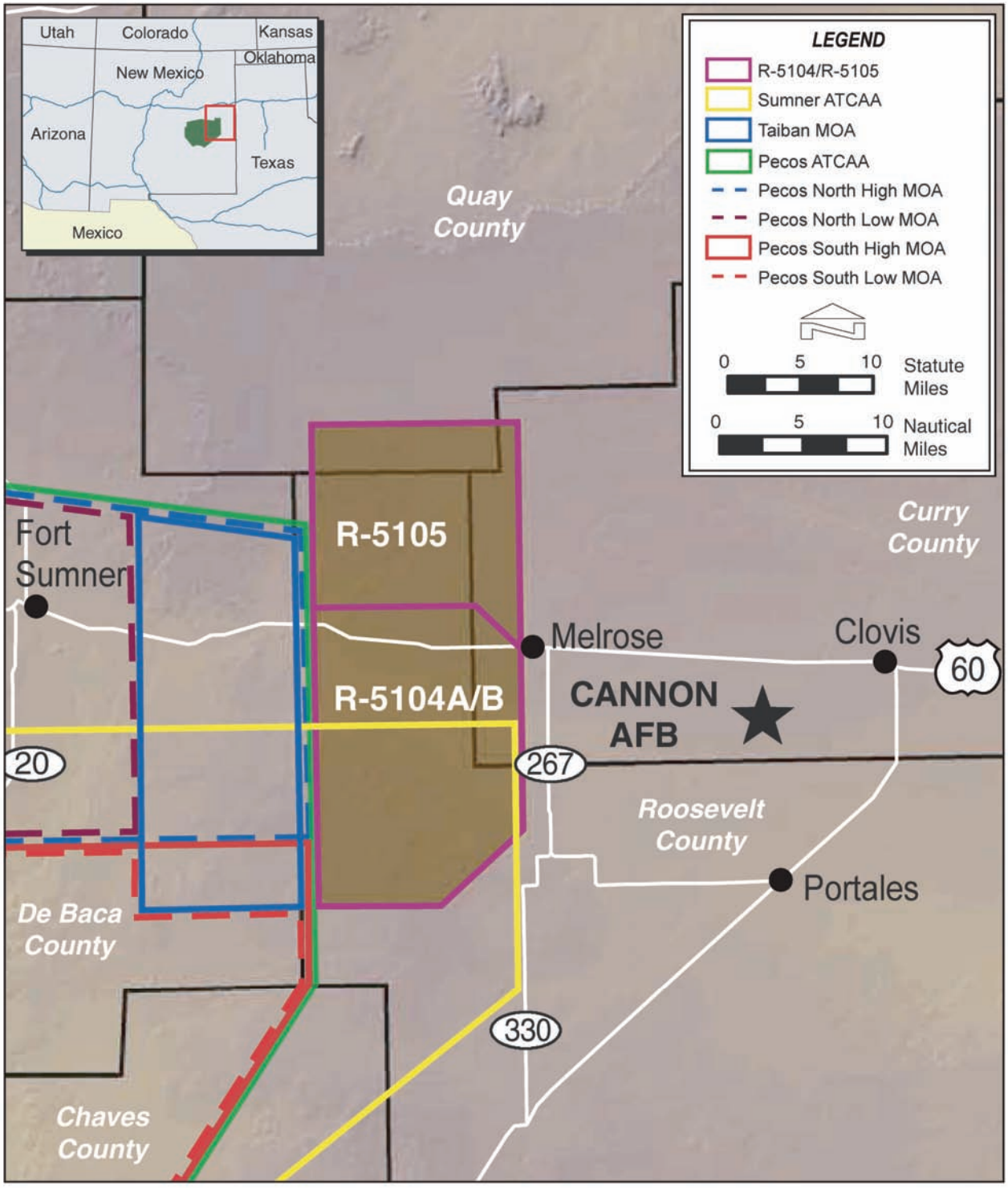


Figure 4.1-1. Airspace Associated with Melrose AFR

Table 4.1-1. Restricted Area Identification and Description

Airspace	Altitudes		Published Hours of Use		Controlling ARTCC
	Minimum	*Maximum*	*From*	*To*	
R-5104A	Surface	UTBNI 18,000 MSL	8:00 a.m. (Mon-Fri)	Midnight (Mon-Fri)	Albuquerque
R-5104B	18,000 MSL	23,000 MSL	As requested in conjunction with R-5104A		Albuquerque
R-5105	Surface	10,000 MSL	8:00 a.m. (Mon-Fri)	Midnight (Mon-Fri)	Albuquerque

Notes: 1. UTBNI = Up to but not including.
2. MSL = mean sea level

Source: Air Force 2000b, Department of Defense (DoD) 2003.

The proposed Certificate of Waiver or Authorization (COA) would specify a corridor to be established to connect the Cannon Class D airspace with R-5104 by traversing the Class E airspace between Cannon AFB and Melrose AFR to provide for predator unmanned aerial system (UAS) launch and training. This corridor would be parallel to, and south of, Highway 60 and would extend approximately 20 miles at an operating altitude from 10,000 to 16,000 feet MSL.

During the scoping and public comment periods, commenters expressed concern with potential UAS operations outside of the restricted airspace associated with Melrose AFR. A limited COA between Cannon AFB and Melrose AFR to provide for launch and control of UAS between the two locations could affect civil aviation transit of the area between Cannon AFB and Melrose AFR. AFSOC proposes establishing a transit area between Cannon AFB and the restricted airspace associated with Melrose AFR. The Predator UAS is only authorized to fly in the National Airspace System under a Certificate of Waiver or Authorization (COA) issued by the Federal Aviation Administration (FAA). Compliance with the COA is mandatory and would be expected to establish an equivalent level of safety to the "see and avoid" requirements of FAR 91.113. Some general aviation pilots may be reluctant to traverse a COA potentially occupied by a UAS.

General aviation transiting the airspace between Cannon AFB and Melrose AFR could avoid COA airspace when it was potentially occupied by a UAS. Avoidance could be accomplished by flying above or below the COA airspace. Commercial activity in this area is at altitudes above those proposed for UAS transit and are not expected to be affected by such a corridor.

4.1.3.2 Three-Target Alternative

Under the Three-Target Alternative, aircraft operations and day/night proportion of training would be as described for the Two-Target Alternative. Environmental consequences associated with airspace management would be identical to those identified under the Two-Target Alternative.

4.1.3.3 No Action Alternative

Under the No Action Alternative, there would be no movement of AFSOC assets to Cannon AFB and no Cannon-based AFSOC training would occur in the airspace associated with Melrose AFR. There would be continued use of the airspace and range by aircraft from New

Mexico Air National Guard (NMANG) and by other transient users. Total range use would decline with the deactivation of the 27th Fighter Wing (27 FW).

4.2 Noise

4.2.1 Definition of Resource

The ROI for Melrose AFR includes the range and the restricted areas (R-5104 and R-5105). A general discussion of the noise metrics used for noise modeling is provided in Section 3.2.1 and a more thorough explanation is provided in Appendix F.

Aircraft operations within restricted airspace generate noise levels different from community noise environments. Aircraft operations at airfields tend to be continuous or patterned, while sortie-operations in training airspace are sporadic. Noise from military overflights also differs from community noise due to the low altitude and turning characteristics of military aircraft maneuvers. High-speed military aircraft can exhibit a rate of increase in sound level (onset rate) of more than 150 decibels (dB) per second. Table 4.2-1 presents the sound level (in dB) for a variety of aircraft types. A 10 dB difference is perceived as a doubling of sound, thus an F-16A is perceived as approximately twice as loud as a C-130 under takeoff power and approximately three times as loud as a CV-22 flying at a comparable altitude (see Table 4.2-1). The Day-Night Average Sound Level (L_{dn}) metric is adjusted to account for the surprise or startle effect of the onset rate of aircraft noise on humans with an adjustment of up to 11 dB added to the normal Sound Exposure Level (SEL). The adjusted L_{dn} averaged over the busiest month period is designated as Onset Rate Adjusted Day-Night Average Sound Level (L_{dnmr}). Figure 4.2-1 depicts baseline aircraft noise levels under Restricted Airspace and the Taiban MOA. Baseline noise levels calculated for Melrose AFR were L_{dnmr} 48 to 51 dB. These baseline noise levels result from current aircraft training.

Table 4.2-1. Sound Exposure Level (SEL) in Decibels under the Flight Track for Aircraft at Various Altitudes in the Airspace[1]

Aircraft	*Configuration[1]*	*Power*	*Airspeed (KIAS)*	*300 feet AGL*	*500 feet AGL*	*1,000 feet AGL*	*2,000 feet AGL*	*5,000 feet AGL*	*10,000 feet AGL*
F-15C	Mid-speed training route	81% NC	520	116	112	107	101	91	80
F-22A[2]	Cruise power	70% ETR	520	120	114	108	101	89	77
F-16A	Mid-speed training route	87% NC	450	110	107	101	95	85	74
C-130H	Takeoff power	850 CTIT	180	99	95	90	84	76	68
V-22B[3]	Airplane mode	0 deg. nacelle	210	94	91	87	82	73	65
B-1B	Training route	101 RPM	550	116	112	107	101	92	82

Notes: 1. Used SEL_Calc program for fixed-wing aircraft noise calculations and assumed standard acoustical conditions.
2. Projected based on F-22A composite aircraft.
3. Used Rotorcraft Noise Model for V-22 noise calculations.

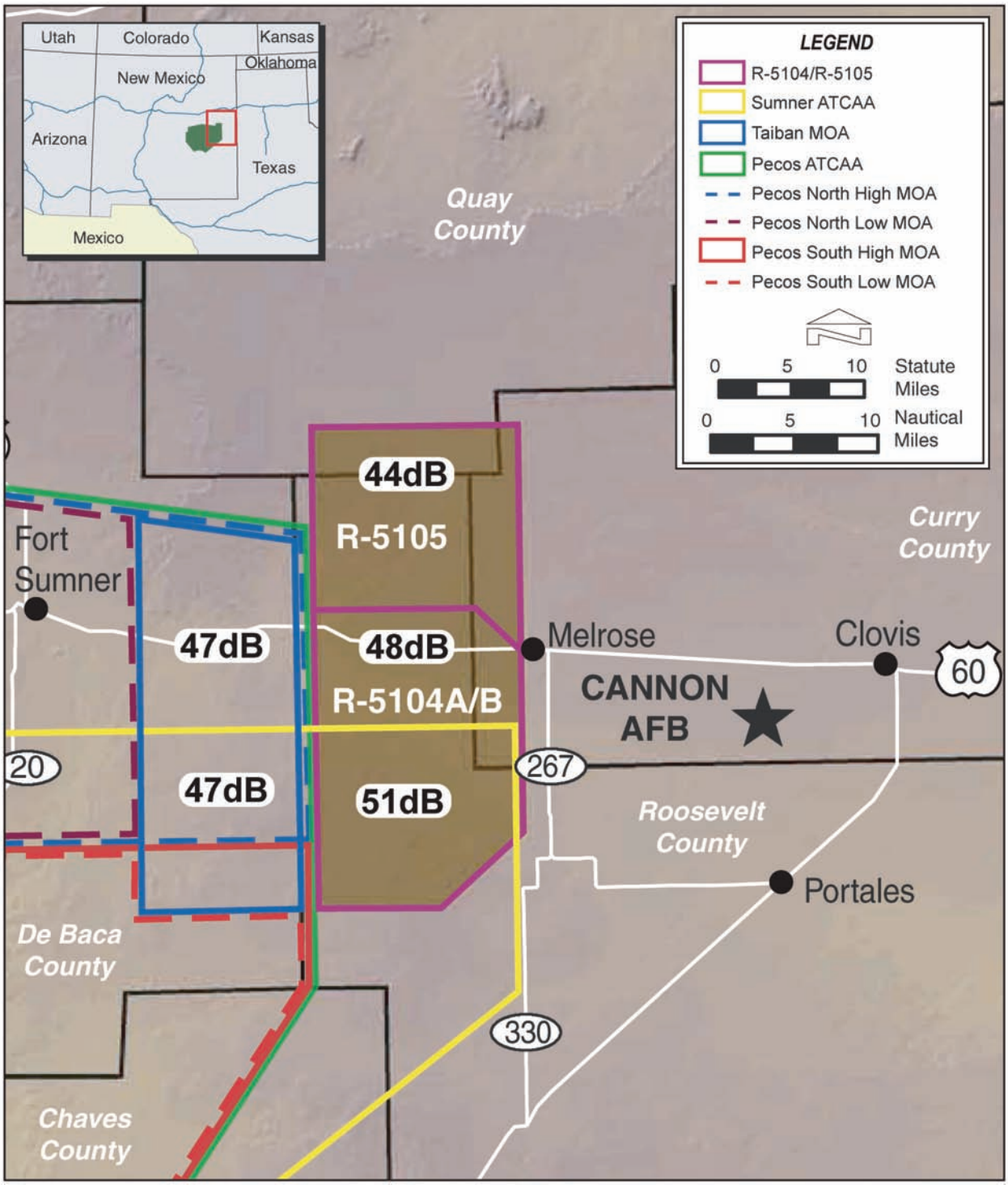


FIGURE 4.2-1. BASELINE AIRCRAFT NOISE LEVELS IN L_{DNMR} UNDER RESTRICTED AIRSPACE AND TAIBAN MOA

Source: Air Force 2006

Noise levels resulting from aircraft operating in the restricted airspace were calculated with the U.S. Air Force (Air Force) noise modeling program Military Operating Area and Range Noise Model (MR_NMAP). Resultant noise levels were based on the number of sortie-operations, time of day the sortie-operations occurred, altitudes of the aircraft during the sortie-operations, engine power setting, and airspeed. The noise assessment included all local and transient aircraft.

Noise at Melrose AFR would also include impulse noise from munitions being fired and from blast noise. Blast noise contours were developed using the Department of Defense's (DoD's) BNOISE program to describe noise produced by munitions use on Melrose AFR. BNOISE Version 2, used in this study, is a collection of computer programs that together can produce C-weighted Day-Night Average Sound Level (CDNL). CDNL is defined in units of C-weighted decibels (dBC) and is the metric used to define high-energy impulsive noise.

Impulse noise produced by artillery fire and detonation of air-to-ground or ground-to-ground live ammunition is analyzed differently than noise sources produced by aircraft engines. This is because of the higher energy created at low frequencies by these blasts. The low-frequency component can induce structural vibrations, which may generate additional annoyance to people beyond the audibility of the sound created by the blast.

The definition of CDNL is similar to L_{dn} except that C-scale is used to weigh the impulsive sound levels. Results of surveys related to community annoyance to A-weighted L_{dn} and CDNL found that an L_{dn} of 65 dBA equates to the same percentage of annoyance (approximately 15 percent) as a CDNL of 62 dBC (Table 4.2-2).

TABLE 4.2-2. NOISE ZONE DEFINITIONS

Criteria	NOISE ZONE		
	I	*II*	*III*
A-Weighted Average Noise Levels (Continuous Noise)	< 65 dBA	65 - 75 dBA	> 75 dBA
C-Weighted Average Noise Levels (Impulsive Noise)	< 62 dBC	62 - 70 dBC	> 70 dBC
Percent of Population Highly Annoyed	<15%	15% - 39%	>39%

Key: < = less than. > = greater than.
dBA = decibels (A-weighted).
dBC = decibels (C-weighted).
Source: U.S. Army Center for Health Promotion and Preventive Medicine 2005.

Impulse noise from munitions can consist of three components: the firing of the projectile from the weapon, the ballistic wave from the projectile traveling through the air, and the detonation of the projectile, if it contains a high-explosive (HE) charge. When a projectile containing HE material is fired from an aircraft, the noise resulting from the firing, the projectile traveling through the air, and the detonation of the projectile are calculated. An HE projectile that strikes the ground would have detonation. If the projectile is non-HE, only the noise resulting from the firing of the projectile is calculated.

Similar to NOISEMAP, the BNOISE2 computer program processes files to generate a grid file that is a collection of noise levels at equally spaced points. The NMPLOT program uses the "grid" file to draw contours of equal CDNL for overlay onto land use maps.

4.2.2 Existing Conditions

As noted during scoping, a number of ranches and other residences are located under the restricted airspace and the Taiban MOA. These residences are currently subject to overflight by training aircraft entering or exiting Melrose AFR. Figure 4.2-1 depicts baseline aircraft noise levels under Restricted Airspace and the Taiban MOA. Baseline noise levels calculated for Melrose AFR were L_{dnmr} 48 to 51 dB. Training aircraft from Cannon AFB, NMANG, and transient users of the range account for the aircraft activities in the Melrose AFR restricted airspace. The average operational parameters reflect the noise modeling of the F-16 aircraft, whose contributions to the noise environment are dominant. Other aircraft that use the range infrequently include A-10s, F-15s, F/A-18s, F-22As, German Air Force Tornados, B-1Bs, B-52s, C-130s, and various helicopters (Air Force 2006).

4.2.3 Environmental Consequences

4.2.3.1 Two-Target Alternative

Under the Two-Target Alternative, noise levels on Melrose AFR and associated Restricted Areas would change from baseline conditions as depicted in Table 4.2-1. This is largely attributed to the different array of aircraft that would be based at Cannon AFB, including the AC-130H, MC-130H/P/W, CV-22, C-47, UH-1, and Predator UAS. The range and restricted airspace would experience a substantial reduction in F-16 training as the 27 FW is disestablished. The range would continue to see activity from B-1B bombers based at Dyess AFB, the 150th NMANG F-16s, and other transient users including A-10s, F-15s, F/A-18s, F-22As, German Air Force Tornados, B-52s, C-130s, and various helicopters (Air Force 2006).

The majority of the projected AFSOC training aircraft would be C-130 variants and CV-22s. The currently dominant aircraft training in the airspace is the F-16. Comparing the SEL in dB demonstrates that a jet F-16 is approximately twice as loud as a turboprop C-130 and approximately three times as loud as a CV-22 flying at a comparable altitude (see Table 4.2-1). SEL is measured on a logarithmic scale and noise levels are perceived as doubling with approximately a 10 dB increase (see Appendix F). AFSOC aircraft would spend more time training at lower altitudes and more time training after 10:00 p.m. when there is a 10 dB noise penalty added.

Figure 4.2-2 presents aircraft noise levels under the Restricted Airspace and Taiban MOA that would result from AFSOC training aircraft. Noise levels in these areas would noticeably increase. While AFSOC aircraft have lower noise levels than F-16 aircraft, AFSOC aircraft fly longer sorties at lower altitudes, and more after 10:00 p.m. at night. This results in an increase in noise levels that could be noticed by residents under, or in proximity to, the airspace. The 58 dB L_{dnmr} noise levels represent the use of training airspace as much as possible before 10 p.m The estimated noise levels are below the 65 dB level normally viewed by FAA as a level of potentially significant noise. Nevertheless, residents within the area affected would notice the increased noise and could be annoyed by aircraft noise in the airspace.

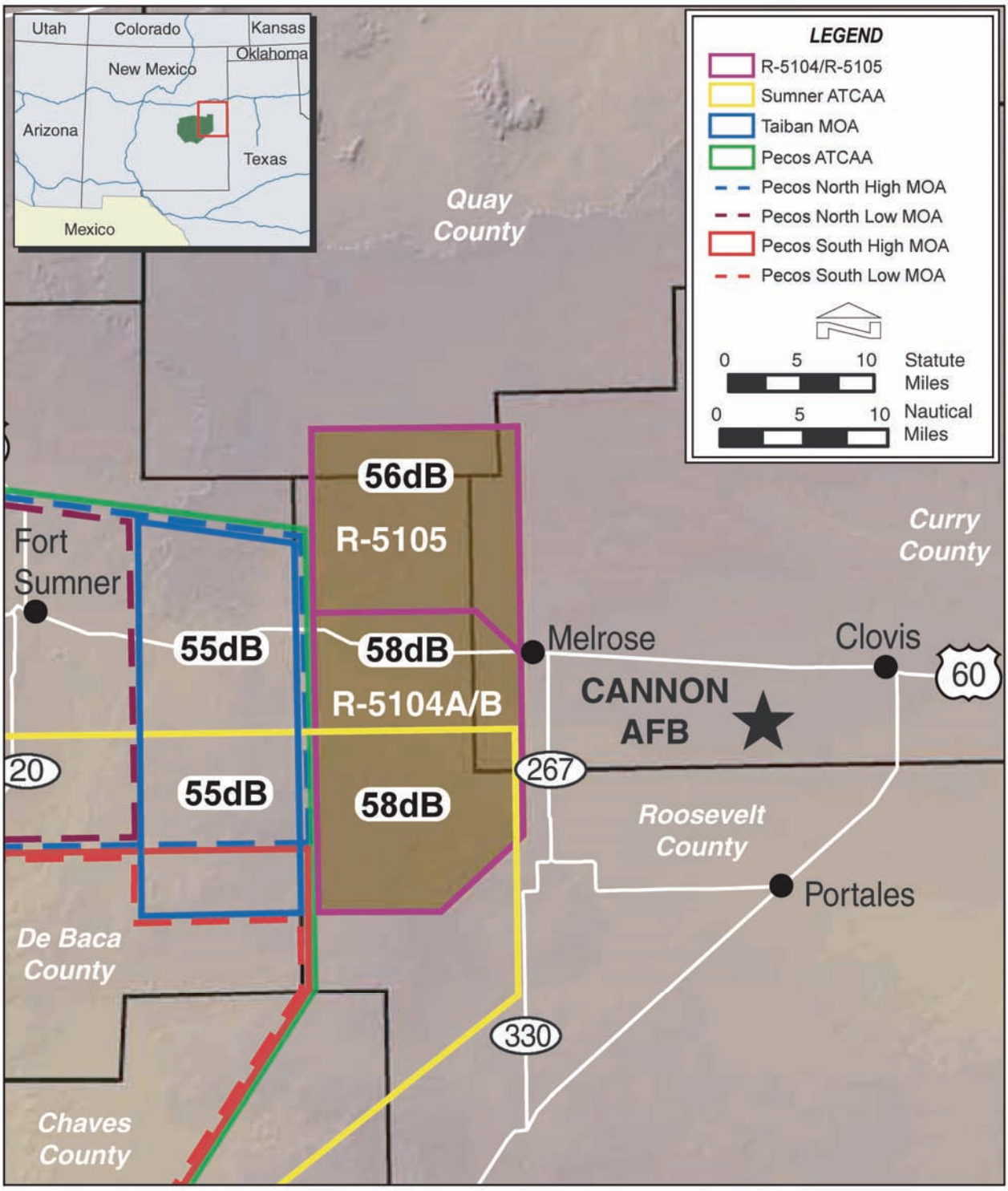


Figure 4.2-2. Two-Target Alternative Aircraft Noise Levels in L_{DNMR} under Restricted Airspace and Taiban MOA

Impulse noise from AFSOC munitions use on Melrose AFR would consist of delivery of 105 millimeter (mm) howitzer HE and a variety of smaller ordnance. Impulse noise was estimated using the BNOISE model. Impulse noise produced by artillery fire and detonation of air-to-ground or ground-to-ground live ammunition is analyzed differently from non-impulse noise (see Appendix F).

The 30 mm, 40 mm, and 105 mm ammunition is fired from the air by AC-130 gunships. The 105 mm howitzer is the weapon with the greatest impulse noise. Because of its size, the firings of 105 mm rounds are expected to dominate the noise environment. Using the munitions data presented in Chapter 2.0, the BNOISE2 computer program was used to calculate the noise exposure for the ranges. The 62 dBC contour equates to the A-weighted 65 dB contour.

The projected 2,500 rounds of 105 mm HE and fragmentary (frag) munitions plus 12,500 rounds of 105 mm inert munitions are projected to create a 62 dBC contour as presented in Figure 4.2-3. The 62 dBC contour would be nearly entirely contained within the range. A 62 dBC noise level is approximately comparable to an L_{dn} 65 noise level and is a noise level used to address the potential for significant impacts.

The 62 dBC contour extends approximately 2.5 miles from the center of the HE target areas presented in Chapter 2.0. All CDNL 62 contours would be contained within approximately 1 mile of the boundaries of Melrose AFR, resulting in below Noise Zone I impacts to off-range property proximate to the range (see Table 4.2-2).

Experience with 105 mm training at Eglin AFB demonstrates that off-range property within approximately 6 miles of the orbiting gunship could experience a "rap-rap-rap" impulse sound comparable to knock on a wooden door when the 105 mm are fired and feel a vibration comparable to distant thunder when the HE shells struck the earth. Such impulse noises would not be expected to cause damage to a structure or its contents. The 62 dBC contour would remain nearly entirely on the range and would not produce significant impacts to residences outside the range. Nevertheless, such impulsive noises could cause annoyance to residents when the noise was heard or felt, especially during night hours after 10 p.m. A review of Figure 4.2-3 demonstrates one residence within 4.2 miles of the northeast 1-kilometer target box and one residence within 4.3 miles of the southwest target box. An estimated seven residences are within 5.2 miles of the boundary of a target box.

Animals generally avoid specific impact areas that can be viewed as a threat. Animals also generally demonstrate an ability to habituate to noise levels not perceived as a threat. Scoping commenters expressed concerns about effects of impulse noise on range cattle during times when they are in an enclosed area. Penned cattle, approximately 3 or more miles from the impact area, would not likely be affected by HE rounds due to the reduced noise and vibration beyond those distances. Five cases of penned range cattle suffering damage or loss within a 14-year period have been attributed to jet aircraft low-level overflight (Air Force 2006). A startle effect could occur to penned cattle in close proximity to live fire on the Melrose AFR, although impacts would not be expected beyond 3 miles from the target location.

The expanded small arms range would be used for a variety of munitions that could result in noise levels heard off-range. This small arms noise could result in annoyance to residents east of the range but would not be at levels potentially causing a significant impact.

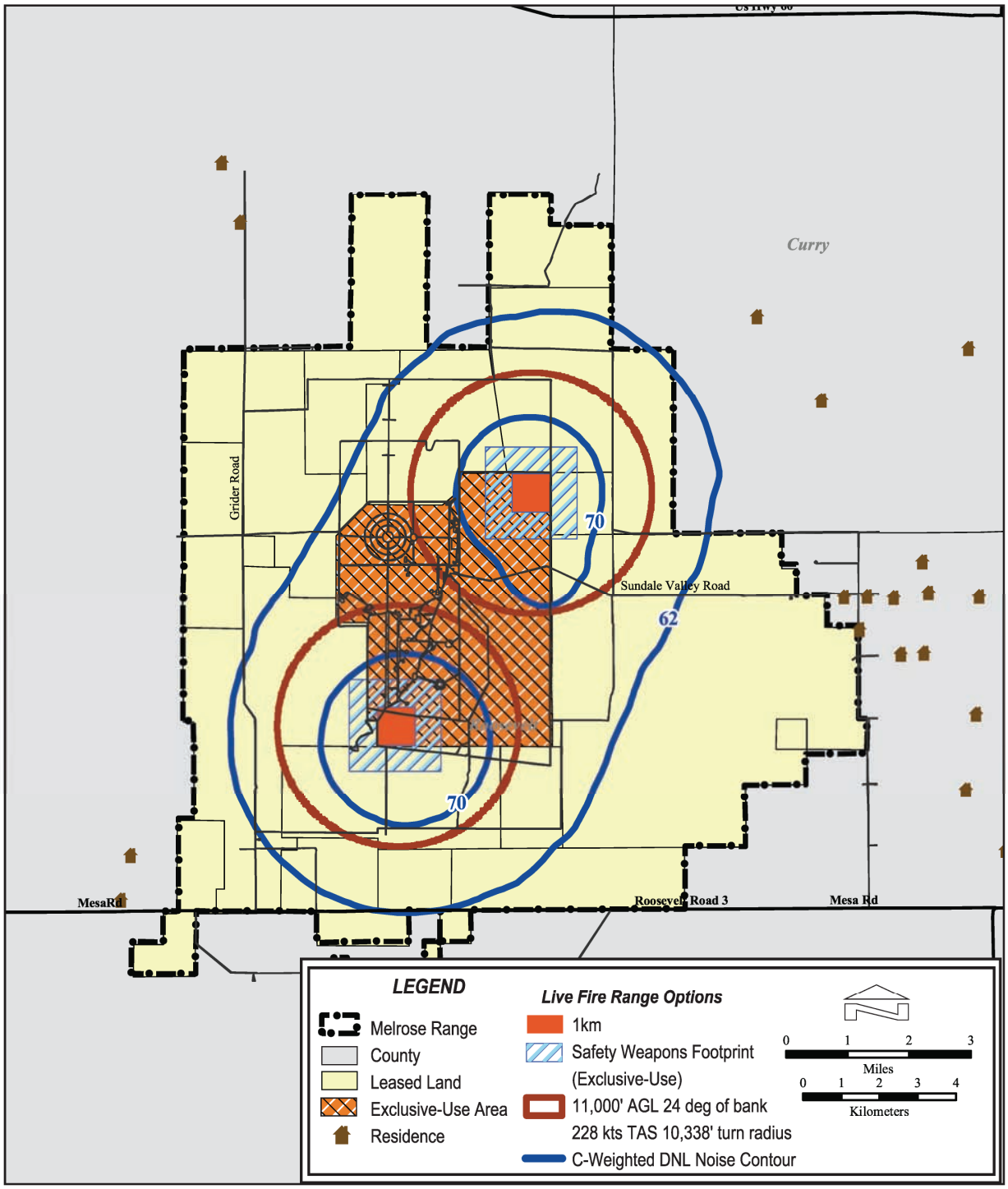


FIGURE 4.2-3. IMPULSE NOISE MAP FOR THE TWO-TARGET ALTERNATIVE ON MELROSE AFR

The Two-Target Alternative involves construction on Melrose AFR although construction noise is not anticipated to extend beyond the boundaries of the range. Aircraft overflight and noise associated with munitions use will dominate the noise environment for Melrose AFR.

4.2.3.2 Three-Target Alternative

Under the Three-Target Alternative, aircraft operations and day/night proportion of training would be as described for the Two-Target Alternative. Aircraft noise would not be greater than the L_{dn} 58 as described for the Two-Target Alternative. However, noise associated with munitions use would be different since three target areas would be located on Melrose AFR, as presented in Figure 2.2-4.

AFSOC TRAINING WOULD INCLUDE ENHANCED RANGE MANAGEMENT TO REDUCE THE POTENTIAL FOR FIRE.

Because training would be distributed among three targets, impulse noise would be distributed over a wide area. Figure 4.2-4 presents the 62 dBC contour, which would be nearly entirely within the range for the Three-Target Alternative. The consequences in terms of noise levels and impacts would be comparable to those described for the Two-Target Alternative except that three locations would result in a greater area on the range impacted by impulse noise than under the two locations. A review of Figure 4.2-4 demonstrates one residence to be 3.2 miles from the southwest 1-kilometer target box. One residence to the east and one to the northwest are within 4.0 miles from target boundaries. An estimated total of 10 residents are within 5.2 miles of the boundary of a target box.

One location within the 62 dBC contour would be the small arms range. The aircraft munitions noise would dominate noise in the area of the small arms range.

4.2.3.3 No Action Alternative

Under the No Action Alternative, no beddown of AFSOC assets would occur at Cannon AFB and no Cannon AFB-based AFSOC training would occur at Melrose AFR at this time. The noise environment for Melrose AFR would be reduced without the contribution of the 27 FW F-16 aircraft due to the Base Realignment and Closure (BRAC) directive to disestablish the 27 FW.

4.3 Safety

4.3.1 Definition of Resource

This section addresses ground, flight, and explosive safety associated with operations conducted at Melrose AFR. These operations include activities and operations conducted on the range itself, as well as training conducted in regional military training airspace. Ground safety considers issues associated with operations and maintenance activities that support base operations, including fire response. Flight safety considers aircraft flight risks. Explosive safety discusses the management and use of ordnance or munitions associated with airbase operations and training activities conducted in various elements of training airspace.

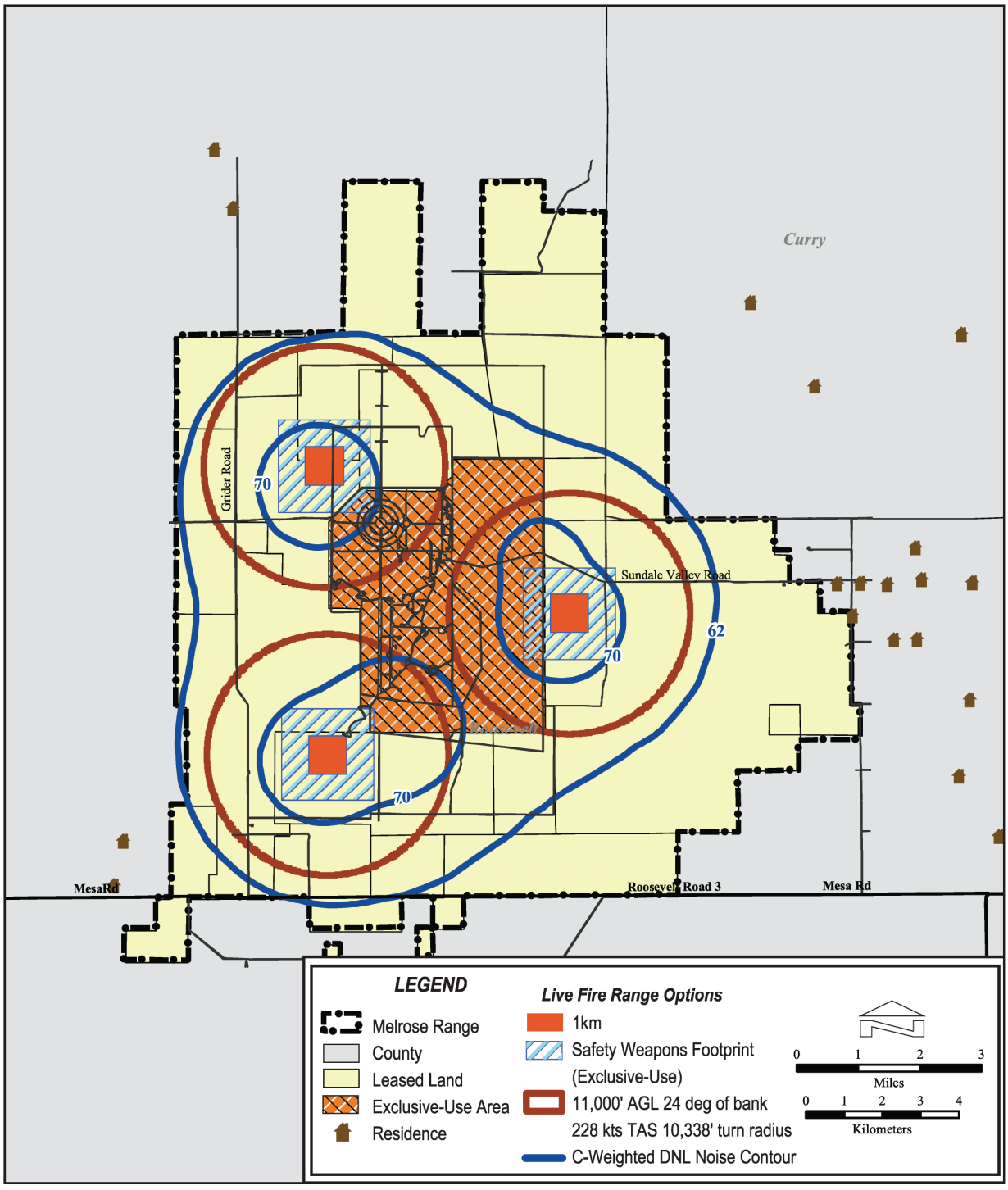


FIGURE 4.2-4. IMPULSE NOISE MAP FOR THE THREE-TARGET ALTERNATIVE ON MELROSE AFR

Range management involves the development and implementation of those processes and procedures required to ensure that Air Force ranges are planned, operated, and managed in a safe manner. The focus of range management is on ensuring the safe, effective, and efficient operation of Air Force ranges. The overall purpose of range management is to balance the military's need to accomplish realistic testing and training with the need to minimize potential impacts of such activities on the environment and surrounding communities (Air Force 2001c, 2001d, 2001e).

4.3.2 Existing Conditions

4.3.2.1 Ground Safety

Melrose AFR is currently managed in accordance with requirements and procedures prescribed in Air Force Instruction (AFI) 13-212, Volumes 1, 2, and 3. Specific direction on different range activities is contained in AFI 13-212, Volume 1, *Range Planning and Operations*, Volume 2, *Range Construction and Maintenance*, and Volume 3, *SAFE-RANGE Program Methodology* (Air Force 2001c, 2001d, 2001e). Cannon AFB's Supplement to AFI 13-212 also assigns responsibilities and provides detailed processes and procedures to the range control officer (RCO) regarding range scheduling, maintenance, explosive ordnance disposal, range decontamination and debris disposal, entry into, operations within, and exit from the airspace directly supporting range operations (Cannon AFB 2000).

These instructions address a wide range of ground safety considerations that include land ownership and control, weapons employment safety, range scheduling, range maintenance, explosive ordnance disposal (EOD), range decontamination and debris disposal, and environmental stewardship of the range.

The Cannon AFB Fire Department provides an on-site fire response and suppression capability on Melrose AFR. Fire Department response units are on site any time the range is active. While the assigned fire suppression equipment has proven to be adequate, large earth-moving equipment, which is on site to support range operations, is also available for fire suppression requirements. In addition, the Cannon AFB Fire Department is a party to mutual aid support agreements with city and volunteer fire departments near the base and Melrose AFR. Cannon AFB would continue mutual aid support agreements and other assistance to local communities, and receive support as required. As in the past, Cannon AFB would work with non-military fire departments to alert private citizens about the potential for injury should they handle or disturb aircraft or munitions debris. These agreements reduce human health risks and risks from wildfires. The base commander would continue to direct the base fire department to assist in any local or regional fire emergency.

New Mexico normally experiences two fire seasons annually that correspond to the two driest times of the year. The worst of the two seasons is usually the windy spring season when the state receives almost no rain, live vegetation is starved for moisture, and strong dry winds occur. Fires during this season are most often caused by human activity or lightning from dry thunderstorms (thunderstorms with little or no rain). The second fire season usually begins with another dry period during the fall, when many grasses and other small plants begin to die and dry out, providing ready fuel for fire. Atmospheric moisture levels are reduced and dry thunderstorms again become a fire threat (New Mexico State University 2000). Based on the records kept by the New Mexico's Forestry Division for the years 1996-2000, the state had an

annual average of 792 wildfires which consumed approximately 153,700 acres per year on state and private lands.

The Melrose AFR senior fire official consults daily with the RCO to evaluate regional fire risk. They monitor weather and fire conditions from resources available on the Southwest Area Fire Intelligence website and provide recommendations to operations personnel. These recommendations address the need to alter flight operations and, if the risk is excessive as determined on a situational basis, impose restrictions on range operations. These restrictions could range from limiting the type of ordnance used to the complete curtailment of ordnance use. Prior to flight operations, aircrews review and adhere to fire restrictions regarding the use of ordnance on the range.

Melrose AFR has experienced fires resulting from spotting charges and flares. On November 30, 2005, a training munition released by a B-1B aircraft at Melrose AFR started a fire that burned 26,000 acres of grazing and farmland and damaged or destroyed privately owned structures, fencing, wells, livestock, animal feed, and crops. In general, fires that have occurred on the range tend to be small and remain contained within the target impact areas, which are generally devoid of vegetation or are surrounded by firebreaks. In addition to on-site fire spotting and fire suppression capabilities, fire risk on the range can be managed by controlled burning and development and maintenance of fire breaks. Fire risk is reduced by suspending the use of heat- and spark-producing ordnance when fire risk is elevated (Air Force 1997b). The Air Force follows established procedures for claims in the event that an Air Force-caused fire should occur and subsequently damage farmlands, livestock, or infrastructure. Cannon AFB, with cooperation from the U.S. Forest Service, has developed a Wildland Fire Management Plan that establishes policy, procedures and responsibilities for Wildland Fire Management and also outlines procedures, controls, and duties specific to Fire Suppression Operations at Cannon AFB. This document complies with National Fire Protection Association (NFPA) Standard 1051, *Standard for Wildland Fire Fighter Professional Qualifications*, NFPA Standard 1143, *Standard for Wildland Fire Management*, NFPA 1144, *Standard for Protection of Life and Property from Wildfire*, AFI 32-2001, *The Fire Protection Operations and Fire Prevention Program,* and AFI 32-7064 *Integrated Natural Resources Managemen*t Chapter 12 Wildland Fire Management requirements. Implementation of this plan will provide for projected equipment and manpower increase to (3) engines, (1) tender and (1) command/control vehicle, and 9 personnel covering 24/7 operations. The range contractor provides grader support. Also, since the 2005 Melrose AFR fire, Cannon AFB has implemented the following additional measures:

- Installed new dedicated radio frequency/repeater for emergency response.
- Created and implemented a fire condition Risk Analysis/Decision Matrix.
- Installed new fire danger weather sensor which integrates real time weather with fire conditions.
- Purchased new wildland response vehicle for both off-road and on-road responses.
- Firefighters are all certified to National Wildland Coordinating Group/NFPA requirements.
- Trained mutual aid fire departments in National Incident Management system process.

A "Weapon's Safety Footprint," and its extent and configuration, is a ground safety consideration. When an air-to-ground weapon containing high explosives (live ordnance) detonates, the radius of

blast damage and fragmentation of the weapon's case must be considered. When a training (inert) air-to-ground weapon impacts on or near the target, different concerns exist. The inert weapon may have a spotting charge that sets off a shotgun-sized charge with smoke to mark where the bomb struck. If the ordnance does not detonate, it may skid, bounce, or burrow under the ground for some distance from the point of impact, coming to rest at some distance from that point. The military has analyzed extensive historic data and continues to incorporate weapons safety data into safety programs. Melrose AFR currently meets safety requirements in accordance with AFI 13-212.

Range operations require that the surface area encompassing the weapon safety footprints be protected by purchase, lease, or other restriction to ensure the safety of personnel, structures, and the public from expended rockets, missiles, or target debris (Air Force 2001c). The lands associated with the Melrose AFR Complex meet these requirements.

White phosphorus rockets typically used in Combat Search and Rescue (CSAR) mission training and defensive training flares are the only live ordnance currently approved for use on Melrose AFR. No other air-launched live, HE, or other ordnance is currently used on Melrose AFR. AFI 13-212 safety requirements address all ordnance currently delivered on Melrose AFR. Specific operational limitations and constraints for current use of the range have been documented in detailed range operating procedures. These operational parameters are unique to targets, aircraft, ordnance used, and delivery profiles employed under the auspices of Air Combat Command (ACC). All aircrew using the range must be knowledgeable of and comply with all requirements specified in these operating procedures (Cannon AFB 2000). These parameters will change under AFSOC's Cannon Addendum to AFI 13-212, subsequent to issuance of the Air Force's Record of Decision (ROD).

4.3.2.2 Flight Safety

Baseline conditions for flight safety issues presented in Section 3.3.2.2 is applicable to flight safety issues that would be encountered at Melrose AFR.

4.3.2.3 Explosive Safety

Cannon AFB controls, maintains, and stores all ordnance and munitions required for mission training. Ordnance is handled and stored in accordance with Air Force explosive safety directives (AFI 91-201), and all munitions maintenance is carried out by trained, qualified personnel using Air Force-approved technical data. Ample storage facilities exist and all facilities are approved for the ordnance stored.

Current training does not have aircraft loaded with any ordnance configured with HE warheads. Inert training bombs and several different types of rockets are delivered on Melrose AFR, as well as training projectiles fired from the F-16's 20 mm cannon.

Ordnance expenditure during training is limited to ranges within Restricted Airspace. Air Force safety standards require safeguards on weapons systems and ordnance to ensure against inadvertent releases. All munitions mounted on an aircraft, as well as the guns, are equipped with mechanisms that preclude release or firing without activation of an electronic arming circuit.

System malfunctions or material failures could result in either an accidental release of ordnance or the release of a dud component that fails to operate properly. Studies have shown that the probability of such an accidental release occurring, the probability of it occurring where person or property could be affected, and the possibility of injury to a person or damage to property on the ground is so infinitesimally small that the risk associated with the occurrence can be essentially discounted (Air Force 1999).

RR-188 chaff and M-206 or equivalent flares have been assessed for use in the airspace adjacent to Melrose AFR (Pecos MOAs, Taiban MOA, and Pecos and Sumner Air Traffic Control Assigned Airspace [ATCAAs]). Within the restricted airspace associated with Melrose AFR, other types of flares and ordnance can be deployed. RR-188 chaff may also be used along the northern portions of VR-100/VR-125 (Air Force 2001a). Use is governed by detailed operating procedures to ensure safety.

Chaff consists of small fibers of aluminum-coated mica packed into approximately 4-ounce bundles. Chaff is ejected from an aircraft to reflect radar signals. When ejected, chaff forms a brief electronic "cloud" that temporarily masks the aircraft from radar detection. Although chaff may be ejected from the aircraft using a small pyrotechnic charge, the chaff itself is not explosive (Air Force 1997b). RR-188 chaff is specifically designed to not interfere with FAA radars. Refer to Appendix A for more details on the characteristics of chaff.

Defensive flares consist of small pellets of highly flammable material that burns rapidly at extremely high temperatures. Their purpose is to provide a heat source other than the aircraft's engine exhaust to mislead heat-sensitive or heat-seeking targeting systems and decoy them away from the aircraft. The M-206 flare is essentially a pellet of magnesium that ignites upon ejection from the aircraft and burns completely within approximately 3.5 to 5 seconds. The M-206 flare burns up within approximately 400 feet from release point (Air Force 1997b; Appendix B). Flare use in the Cannon AFB airspace outside of restricted airspace is governed by a minimum release altitude restriction of 2,000 feet above ground level (AGL) and is limited by fire risk conditions to minimize fire risk. Refer to Appendix B for more details on the characteristics of M-206 flares.

4.3.3 Environmental Consequences

Live ordnance projected to be used on Melrose AFR as part of AFSOC training include 30 mm, 40 mm, and 105 mm HE rounds from AC-130 gunships. Use of these munitions would require establishment of new targets and new range operational and safety procedures as well as establishment of new safety zones for these targets. An expanded small arms range would require operational and safety procedures to protect personnel operating on the range.

4.3.3.1 Two-Target Alternative

Ground Safety

The uses of Melrose AFR for live fire, including HE rounds, and increased use of inert munitions training activities have the potential to increase the frequency of fires. In addition, as a result of the unique way that CV-22s can turn their engines to "helicopter" mode on landing, engine exhaust could ignite dry grasses in potential LZs. These LZs would need to be cleared of vegetation and/or treated to reduce the risk of fire. As part of the program to upgrade facilities at Melrose AFR, AFSOC has included plans for expanded fire control capabilities at the range. This action along with adoption of increased firebreaks and enhanced fire management practices would improve the fire management efforts on Melrose AFR.

Range managers are required to assess risks associated with weapons employment and establish mission parameters that minimize potential safety hazards. Specific weapon safety footprints must be assessed against each intended target to ensure that they can be safely employed (Air Force 2001c). These assessments have been accomplished by 27 FW staff and allowable ordnance delivery profiles have been documented in Cannon AFB Supplement 1 to

AFI 13-212 (Cannon AFB 2000). Although remote, there is always the possibility that ordnance could significantly miss a target, either through human error or equipment malfunction. However, a more likely possibility is that ordnance would impact the ground, and then bounce, slide, or tumble along the ground, sometimes for extended distances. Based on extensive data collection and analyses, weapons safety footprints have been developed that describe (at a 95 percent confidence level) the geographic area that will contain 99.99 percent of delivered ordnance and its associated debris. These footprints are specific to ordnance type, aircraft type, and delivery methods and profiles.

A variety of safety footprints have been calculated for proposed Melrose AFR targets. The approximate 1 kilometer square target area used for 105 mm, 30 mm, and 40 mm rounds would require a safety footprint that extends out beyond the box by an additional 2,296 feet. This safety box is depicted on Figure 2.2-2.

A 10,338 foot diameter circle describes the gunship orbit for the highest altitude from which firing could occur. Gunship firing at the ground targets would be within this orbit. For safety reasons, lands within this orbit would be restricted access lands during firing to protect any activities on the ground from accidentally dropped objects. Figure 2.2-2 presents the orbit for the highest altitude gunship training.

Special Operations Forces (SOF) conducting ground training and involved in insertion/extraction exercises would not use areas where unexploded ordnance (UXO) are known to be present. Training operations will be conducted in accordance with Melrose AFR operational instruction (AFI 13-212V1 Cannon Air Force Base Addenda A-A) and AFSOC safety procedures. Training of AFSOC personnel will require use of small arms, smoke devices, simulated and live explosives, and flares. A listing of these devices is shown in Table 2.2-4.

SOF personnel would use the variety of weapons on the expanded small arms range. Ground safety would dictate scheduling of air-to-ground use of specific targets to avoid users of the small arms range, and safety would dictate scheduling of the service of existing air-to-ground targets consistent with small arms training.

FLIGHT SAFETY

The Two-Target Alternative would add additional low-altitude flights in the Restricted Areas that support operations at Melrose AFR. However, the aircraft involved in training are multi-engine, train with more than one pilot, and possess radar and other flight control and navigation systems to enhance the low level capabilities of the aircraft. Aircraft mishap rates for the C-130 models that will fly the majority of the low-level flights have a very low mishap rate (less than 1 Class A mishap per 100,000 flight hours). This is not expected to increase with the implementation of the AFSOC beddown and training and no significant adverse environmental consequences are anticipated. Flight safety for CV-22 and other aircraft is presented in Section 3.3.2.2.

EXPLOSIVE SAFETY

AFSOC training would generally occur within the 60,010 acres that constitute Melrose AFR. The existing Air Force Instruction (AFI) 13-212, Volume 1 and 2 would be updated with a new AFSOC supplement to reflect AFSOC's new role as range manager, subsequent to transfer of the range from ACC. The AFSOC Cannon Local Range Supplement will be developed to reflect the more substantive range changes that are the subject of this EIS, subsequent to issuance of the Air Force's Record of Decision (ROD). The AFSOC Cannon Local Range Supplement would

incorporate revised operating instruction based on the existing AFI supplement, AFI 13-212 Volume 1 Cannon AFB *Melrose Weapons Range (*refer to Appendix G*)*.

A new AFSOC supplement to the operating instruction (AFI 13-212) would address issues such as, but not limited to:

- Continuing direct control over all range targets;
- Ensuring targets are thoroughly cleaned of potential environmental hazards before being sited on range;
- Maximizing the use of hard targets, such as metal plates and surplus tanks, to minimize generation of wastes and target residue;
- Establishing scheduled range maintenance and periodic clean-ups of the range in accordance with AFI 13-212;
- Ensuring that all personnel receive required explosive ordnance briefings and safety training.

Military aircraft are currently authorized to use RR-188 chaff (or equivalent), a variety of defensive flares in Restricted Areas (R-5104, R-5105), and M-206 (or equivalent) defensive flares in Taiban MOA, Sumner ATCAA, and in the Pecos MOA/ATCAA. Flares expended over Melrose AFR would be in accordance with AFI 11-214. Flare use in MOAs is currently authorized above 2,000 feet AGL under conditions not designated at, or above, high fire risk.

Use of training flares where approved within Cannon AFB-managed airspace would continue to be incorporated by AC/MC-130 and CV-22 aircraft with the following management practices:

- The minimum altitude for flare release in SUA will continue to be 2,000 feet AGL (flares burn out after falling approximately 400 feet).
- When the National Fire Danger Rating System indicates high fire conditions or above, the minimum altitude for flare release would be raised to 5,000 feet AGL.
- Cooperation with local agencies for mutual aid response to fires will continue.

AFSOC training would increase the use of chaff and flares in restricted airspace and the total annual chaff and flare use by Cannon AFB-based aircraft would decrease from current use.

4.3.3.2 Three-Target Alternative

Ground and Flight Safety

Implementation of the Three-Target Alternative would have consequences comparable to those described for the Two-Target Alternative in the amount of ordnance expended or sortie-operations conducted at Melrose AFR. The primary difference between this alternative and the Two-Target Alternative would be the addition of three target areas for AC-130 gunships. Under this alternative, three target areas would be established within the existing range boundaries. Consequences and management actions to provide for ground safety would be as described in the Two-Target Alternative.

The eastern approximate 1-kilometer square target of the Three-Target Alternative is less than 500 feet from the proposed small arms range. The safety footprint extends out 2,256 feet beyond the approximate 1-kilometer square target area and overlaps many of the small arms range

firing points and some of the potential small arms range targets. The Three-Target Alternative could result in a UXO safety risk to personnel using the small arms range following use of the eastern target for live-fire training with HE munitions. An EOD safety team sweep of the small arms range prior to use could be required after the eastern target was used for HE training.

Explosive Safety

As noted under the Two-Target Alternative discussion, the existing AFI 13-212, Volume 1 and 2 would be updated with a new AFSOC supplement to address the use of live ammunition and the range residue associated with this change in use. The potential for fires originating from live-fire training or the release of inert ordnance would be greater than under existing conditions. Chaff and flare use would be as described for the Two-Target Alternative. With the placement of additional fire management resources at Melrose AFR and observance of expanded fire management practices, the risk that fire would leave the boundary of the range would be expected to diminish.

4.3.3.3 No Action Alternative

Under the No Action Alternative, no beddown of AFSOC assets would occur at Cannon AFB and no Cannon-based AFSOC training would occur at Melrose AFR at this time. Safety risks on Melrose AFR would be somewhat reduced without the contribution of the 27 FW F-16 aircraft due to the BRAC directive to disestablish the 27 FW. Continued use of Melrose AFR by transient aircraft, including the NMANG F-16s, would continue the requirement for existing safety measures on the range.

4.4 Air Quality

4.4.1 Definition of Resource

This section discusses air quality considerations and conditions in the area around Melrose AFR including portions of Curry, Quay, De Baca, and Roosevelt counties in the State of New Mexico. The definition of the Melrose AFR air quality regulations are identical to those presented in Section 3.4.1 for the Cannon AFB project region.

4.4.2 Existing Conditions

The definition of the Melrose AFR regional air quality and attainment status are the same as those presented in Section 3.4.2 for the Cannon AFB project region.

Climate. The general climate for the region surrounding Melrose AFR is arid or semi-arid, with light precipitation, abundant sunshine, low relative humidity, and a relatively large annual and diurnal temperature range (Western Regional Climate Center [WRCC] 2006a).

Winds at Cannon AFB, approximately 25 miles northeast of the Melrose AFR are generally moderate in strength and persistent, with an annual average of 12 miles per hour (mph). All months maintain an average wind speed of between 10 and 14 mph, with a maximum occurring in April (WRCC 2006b). Winds generally come from the west from late fall through spring, and then switch to a more southerly direction during the summer and early fall months (WRCC 2006c). Wind speeds and direction can vary greatly on a shorter time-scale from frontal passages, severe storms, and interaction with local topography.

Winters in the area are cool and dry. January, on average, is the coldest month, and the month with the least precipitation. For the city of Melrose, approximately 10 miles northeast of the

Melrose AFR, average high and low temperatures for January are 53 degrees Fahrenheit (°F) and 23°F, and the average monthly precipitation is 0.41 inches. Conversely summers are much warmer and wetter, with July being the warmest month, and August being the wettest. Average high and low temperatures for July are 92°F and 63°F, and the average recorded rainfall in August is 2.88 inches. The average annual precipitation in Melrose is 16.32 inches. Snowfall is fairly common during the winter months, with a peak monthly average of 3.4 inches in December. The annual average snowfall for Melrose is 13.7 inches (WRCC 2006e).

Prevention of Significant Deterioration (PSD) Class I Areas. Mandatory PSD Class I areas for the State of New Mexico are listed under 40 CFR 81.421. The nearest PSD Class I area is the Salt Creek Wilderness Area, located approximately 60 miles southwest of Melrose AFR.

Current Air Emissions. Air emissions at Melrose AFR primarily occur from (1) aircraft that originate from Cannon AFB and conduct training exercises over the range, (2) the ordnance dropped from aircraft, and (3) fugitive dust (particulate matter) generated from the ground impact of ordnance. Table 4.4-1 summarizes the estimated annual emissions produced at Melrose AFR. These data were calculated by comparing the current baseline sorties with the sorties reported in the *1998 Environmental Assessment for Proposed Force Structure Change and Foreign Military Sales Actions at Cannon AFB, New Mexico* (Air Force 1998b). The ratio of sorties for each region was then multiplied by the emissions reported in that document to estimate current baseline emissions. Only aircraft emissions that occurred below 3,000 feet AGL are included in this analysis, as this is the average height of the surface mixing layer. Any emissions released above this level would not transport downward and affect ground-level air quality conditions.

TABLE 4.4-1. BASELINE EMISSIONS FOR MELROSE AFR

	ANNUAL EMISSIONS (TONS PER YEAR)					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Ordnance [1]		0.02	<0.01	<0.01	1.58	1.05
Aircraft Flying Operations [2]	0.81	6.87	101.95	3.37	1.62	1.60
Total	**0.81**	**6.89**	**101.95**	**3.37**	**3.20**	**2.65**

Notes:
1. Calculations based on 16,635 dummy bombs being dropped annually and using the USEPA's emissions factors for ordnance (USEPA AP-42, 2006). These dummy bombs are assumed to be classified in the "ground burst simulator" category, with an approximate net explosive weight of 0.141 pounds per bomb. VOC is actually expressed as Total Non-Methane Hydrocarbons.
2. Emissions from aircraft flying operations at the Melrose AFR include all activities under 3,000 feet AGL in the following areas: R-5104A, R-5105, and the Taiban MOA. Emissions where calculated by using the emissions from the 1998 *Environmental Assessment for Proposed Force Structure Change and Foreign Military Sales Actions at Cannon AFB, New Mexico*, and multiplying them by the ratio of current baseline sorties, to sorties documented in the 1998 Environmental Assessment (EA).

VOC = volatile organic compound
CO = carbon monoxide
NO_x = nitrogen oxides
SO_x = sulfur oxides
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

4.4.3 ENVIRONMENTAL CONSEQUENCES

Air pollutant emissions produced from the Two-Target Alternative were quantitatively estimated, then compared to the criteria identified below to determine their significance. Air quality impacts from the beddown of AFSOC assets would occur from (1) combustive emissions generated by the operation of aircraft assigned to Cannon AFB, (2) combustive and fugitive

dust emissions due to the use of ordnance during training exercises, and (3) combustive and fugitive dust emissions from equipment usage during fire break construction and maintenance.

As previously discussed, Section 169A of the Clean Air Act (CAA) established the PSD regulations to protect air quality in regions that already meet the National Ambient Air Quality Standards (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 the Salt Creek Wilderness Area, located approximately 60 miles southwest of Melrose AFR. Since the project site is such a long distance from this Class I area, the Two-Target Alternative would produce less than significant air quality impacts to this area.

4.4.3.1 Two-Target Alternative

The Two-Target Alternative would involve the transition of use of the Melrose AFR and Taiban MOA to meet training requirements for the AFSOC aircraft to be assigned to Cannon AFB. The 27 FW would be disestablished and aircraft currently stationed at Cannon AFB would no longer train over the Melrose AFR.

Operational Emissions

Upon implementation of the Two-Target Alternative, air emissions at the Melrose AFR and Taiban MOA would change due to an increase in number of sorties flown and the fact that the airspace would produce emissions at different rates than that of the aircraft currently assigned to the area. An increase in ordnance usage and fire break construction and maintenance activities at the Melrose AFR also would contribute to an increase in air emissions.

Future chaff and flare use in the Melrose AFR and Taiban MOA are not included in this analysis because these materials, although substantially increasing in quantity over the range, would not be frequently at altitudes that could contribute to the overall emissions.

To determine the change in emissions from proposed aircraft operations, a composite set of criteria pollutant emission factors were developed based on a weighted average of annual sorties for each type of aircraft stationed at Cannon AFB. These composite emission factors were then compared with the emission factors of the current fleet of aircraft to develop an emission factor ratio. In addition, the numbers of annual sorties were compared with the baseline annual sorties to develop another ratio to take into account the increase in use. The baseline emissions were then multiplied by the ratio representative of the difference in emission factors and by the ratio representing the increase in sorties.

Factors used to estimate project aircraft emissions were obtained from the *Air Emissions Inventory Guidance Document for Mobile Sources at Air Force Installations* (Air Force Institute for Environment, Safety, and Occupational Health Risk Analysis 2003) and the USEPA NONROAD 2005 emissions model (USEPA 2005). Table 4.4-2 summarizes the estimated change in aircraft emissions due to the Two-Target Alternative. These data show that there would be an increase in emissions of criteria pollutants from current levels, but these increases would not exceed any emission significance thresholds. Therefore, the Two-Target Alternative would produce less than significant air quality impacts within and around the Melrose AFR and Taiban MOA project region.

Table 4.4-2. Net Change in Emissions - Melrose AFR/Taiban MOA - Two-Target Alternative

Source	Tons Per Year					
	VOC	*CO*	*NO_x*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Aircraft Operation	16.28	14.88	58.68	15.93	19.40	19.23
Air and Ground Ordnance[1]	0.03	16.81	0.29	0.00	10.01	3.28
Fire Break Grading[2]	0.02	0.14	0.34	0.05	4.06	0.86
Total	**16.33**	**31.83**	**59.31**	**15.98**	**33.47**	**23.37**
Significance Thresholds	**100**	**100**	**100**	**100**	**100**	**100**

Notes: 1. VOC emissions are not included in ordnance emissions. Emissions from ordnance were estimated by using the emission factors from the USEPA's AP-42 document for a 5.56 mm ball cartridge and applying that to the projected total number of pieces of ordnance expected to be used annually.
2. Grading for firebreak construction/maintenance would occur on 6 acres per day and 50 days per year.

4.4.3.2 Three-Target Alternative

Implementation of the Three-Target Alternative would result in the same amounts of ordnance usage and sorties flown at Melrose AFR, compared to the Two-Target Alternative. As a result, emissions from aircraft operation and ordnance usage would be nearly identical to those estimated for the Two-Target Alternative and as presented in Table 4.4-2. The primary difference between the Three-Target Alternative and the Two-Target Alternative would be the addition of a target area for AC-130 gunships. It is expected that this additional target area would require a firebreak and therefore construction and maintenance of this feature would increase emissions from grading equipment and fugitive dust by an additional one-half of the emissions (fire break grading) identified in Table 4.4-2. With the addition of these emissions, total annual emissions from the alternative would not exceed any significance threshold. Therefore, implementation of the Three-Target Alternative would produce less than significant air quality impacts within and around the Melrose AFR and Taiban MOA project region.

4.4.3.3 No Action Alternative

Under the No Action Alternative, there would be no beddown of AFSOC assets and no Cannon-based AFSOC training would occur at the Melrose AFR or Taiban MOA at this time. As with either Action Alternative, the No Action Alternative would produce less than significant air quality impacts within and around the Melrose AFR and Taiban MOA project region.

4.5 Physical Resources

4.5.1 Definition of Resource

This section discusses the Melrose AFR ROI. Descriptions of topography and geology are described in a regional context to depict the setting. Soils and water resource information provided is site-specific, focusing on the properties that would be most likely affected by activities planned. Hazardous material and waste management focuses on Melrose AFR.

4.5.2 Existing Conditions

4.5.2.1 Earth Resources

Melrose AFR is located on a southeastward-sloping regional plateau known as the Southern High Plains. Within this area of the plateau, the topography is typified by flat, featureless terrain having almost no relief. Characteristically, the High Plains have a smooth and gently sloping or undulating surface on which scattered, normally dry, flat bottomed depressions are the dominant relief feature. Elevations at Melrose AFR range from approximately 4,200 feet above sea level in the northeast portion to over 4,600 feet above sea level in the southwest portion. There are several drainages and small canyons on Melrose AFR including Sheep Canyon. The largest topographic feature of Melrose AFR is the mesa, a northeast trending, flat-topped hill rising over 4,660 feet above sea level. The mesa is located on the southwest side of the range.

The semi-arid climate of the region contributes to the development of thin topsoil with low organic content, underlain at relatively shallow depths by a leached clay-carbonate hardpan or "caliche." Caliche forms as calcium carbonate and is leached from overlying sediments. Within the region, tightly cemented layers of caliche are present in a number of soil horizons as well as in the Ogallala aquifer below (Air Force 2001a, Air Force 1997a).

The soils on Melrose AFR have a permeability that ranges from moderate in the loam soils to high in the sand soils. The soils are highly susceptible to erosion from the persistent winds of the plains. The soils include the following associations.

- Tivoli-Springer-Brownfield sands are deep, loose, sandy soils. This association is found in the north part of the area.
- Amarillo-Clovis loamy fine sands association is a moderately deep to deep sandy soil. This association is found south of the Tivoli-Springer-Brownfield sands in the north-central part of the area.
- Amarillo-Clovis fine sandy loam is a moderately deep to deep soil. This association is found in the area below the Mesa and in the east-central part of the area.
- Amarillo-Clovis loam is a deep to moderately deep hardland soil. This association is found in the southeast part of the area.
- Potter-Mansker association is a very shallow to moderately deep calcareous soil. This association is found on top of the Mesa in the southwest part of the area (Air Force 1997a).

They can be generally characterized as slightly alkaline to alkaline (pH of 7.1 to 8.2) although these values range from a low of 6.6 to a high of 9.0. These soils are deep to moderately deep in profile and are moderately well to well drained. Additionally, the soils are characterized by typically coarse-textured material.

Generally speaking, the soils underlying the bombing range have very poor water-holding capacities, as consistent with the relative lack of surface water features within the region. As a consequence, depth to groundwater generally exceeds 100 feet (North Plains Groundwater District 2007).

Melrose AFR is underlain by several hundred feet of unconsolidated sediments deposited over sandstone known as the Triassic redbeds. This stratum forms the basement of the Ogallala

aquifer, which is developed within the overlying late Miocene to early Pliocene sediments. The Ogallala Formation sediments are comprised of unconsolidated and poorly sorted gravel, sand, silts, and clays (Air Force 2001a, Air Force 1997a).

4.5.2.2 Water Resources

Within this region of New Mexico, precipitation averages about 12 inches per year, most of which occurs during summer thunderstorms. Regional drainage consists of poorly developed ephemeral streams due to the low annual precipitation and high evaporation rates (Air Force 2001a, Air Force 1997a). The most prominent surface water features on Melrose AFR occur in the long shallow valleys of the Canada del Tule and Sheep Canyon draws and several smaller drainages carrying runoff from the Mesa. The Canada del Tule seasonal draw carries runoff from the southeastern half of the range and flows through it in the northeasterly direction. Historically, the draw carried water to Tule Lake, located northeast of the range; however, due to the numerous impoundments along its course, flow has decreased and surface water flow north of Sundale Valley Road is not evident. The Sheep Canyon drainage area consists of one major ephemeral drainage that flows northeast from the Mesa (the topographical high point on Melrose AFR, approximately 4,600 feet MSL (Air Force 1996).

These drainages do not typically contribute actual flow to the three river valleys into which they eventually drain (the Red or the Brazos). This is because much of the precipitation that falls is lost to infiltration and/or evaporation (Air Force 1996a). Stormwater runoff from the southeastern half of Melrose AFR is generally carried by the Canada del Tule draw and the Mesa is drained from the northeast by the Sheep Canyon drainage. Much of the runoff on Melrose AFR is captured in numerous impoundments that are used as sources of water for livestock. Small playas are present throughout the level portions of Melrose AFR.

Other surface water features on Melrose AFR include four periodically flooded areas (outside the Restricted Leased Area), 10 wildlife watering impoundments (three of which are on the existing Exclusive-Use area), 23 steel-rimmed stock tanks, and five other small man-made impoundments used to support livestock operations (inside the Restricted Leased Area). The steel-rimmed tanks average about 19 feet in diameter and 18 inches in depth. They are all located on the restricted leased land. The other small impoundments are less than 0.01 acre and average about 8 feet in depth. There are also several groundwater supply and monitoring wells located throughtout Melrose AFR. Within the Exclusive-Use Area and at selected points around the range, there are a series of groundwater monitoring wells that have been established in association with monioring of past activities on the range. Also found within the Restricted Leased and Unrestricted Leased Areas are a number of groundwater supply wells that service irrigation systems or stock tanks.

No jurisdictional waters of the U.S., including wetlands, are located within the Exclusive-Use Area, the Restricted Leased Area, or the Unrestricted Leased Area of Melrose AFR. All surface water features are either isolated or components of isolated drainages. Scattered earthen stock tanks occur in areas supporting grazing. No permanently flooded areas are located on the range.

4.5.2.3 Hazardous Materials and Waste Management

Hazardous Materials Management. Melrose AFR is operated by a contractor who monitors and maintains the televised ordnance scoring system, bombing and gunnery targets, and access

roads. Small quantities of hazardous materials, such as paints, are used at the range and are managed through the base hazardous materials management program.

Hazardous Waste Management. Melrose AFR qualifies as a "conditionally exempt, small quantity generator" due to the monthly waste generations within the main compound and up on the mesa. Generation of RCRA hazardous and universal waste may include liquid or solids accumulations in containers for processes used to clean parts and equipment, and/or battery replacements. Hazardous waste reduction includes non-regulated solid waste filters.

Range clean up at Melrose AFR typically consist of metal fragments from inert ordnance, targets, and training ammunition. Under current practice, munitions safely recovered and removed from the targets are then stored in the holding container designation area. Current practices are necessary for compliance with AFI 13-212, which requires the range clearance of munitions debris on a regular basis. Tactical and conventional targets are cleared every 75-use days, annually, and every five years in accordance with the distance requirements of AFI 13-212. Every five years all impact areas are cleared to their boundary.

The Cannon AFB EOD team inspects all munitions debris. Occasionally, the small spotting charge in the training munitions fails to detonate or bomb casings on larger bombs do not fragment. EOD explosively exposes the filler of inert bombs to ensure no explosive filled munitions are transferred to the recycling contractor. If necessary, EOD personnel will safe all hazardous munitions remains in place. Practice munitions with spotting charges that fail to function properly are collected and the spotting charge is disposed of on the range, rendering it safe, EOD then supervises the collection and disposition of the debris. Solid waste (i.e., scrap munitions) is currently being stored in several locations within the target impact area at Melrose AFR. Scrap munitions include inert (non-explosive) ordnance. The EOD team has primary responsibility to ensure all inert ordnance and ordnance residue is rendered useless; therefore, such debris is subjected to double-inspection or a mechanized process to ensure ammunition, explosives, and other dangerous articles are not released to the public. These safety measures ensure protection of human health and the environment and proper disposition of safe ordnance debris according to appropriate Defense Reutilization and Marketing Office (DRMO) directives, as directed by Memorandum of Agreement with DRMO, or through an option for direct commercial sales.

Storage Tanks. There are currently four Air Force-owned aboveground storage tanks (ASTs) located at Melrose AFR; there are no underground storage tanks (USTs) at the range (personal communication, Smith 2006).

Resource Conservation and Recover Act (RCRA)/Defense Environmental Restoration Act (DERA) Program. As part of an on-going examination of past waste management practices at Melrose AFR, Cannon AFB has identified three Solid Waste Management Units (SWMUs) and four Areas of Concern (AOCs) associated with past military activities and maintenance and disposal activities. The sites are located within the existing impact area and have been investigated and groundwater monitoring is being conducted. Cannon AFB is requesting that the New Mexico Environment Department (NMED) consider that these seven sites be classified as No Further Action (NFA) given that the sites are located within an active range.

4.5.3 Environmental Consequences

The limited areas of proposed construction on Melrose AFR, and the great depth to bedrock and to the aquifer in the locations of the proposed facilities, make it unlikely potential impacts could

occur to geologic resources or groundwater. The potential impacts to physical resources, primarily soil and water, are from munitions and chaff or flare materials falling to the ground.

In August 1997, Headquarters Air Combat Command (ACC) conducted a study of the environmental effects of using self-protection chaff and flares in military aircraft training (Air Force 1997b). This physical resources section considers the effects of munitions and chaff and flare deposition on resources identified in Section 3.4, including soil chemistry, the potential for materials and debris to accumulate in water bodies and sediments, potential flare caused fires, and residual materials to leach toxic chemicals or change the chemical composition of surface areas. The impact would not be considered significant if toxic chemicals would not be released or if accumulated residual materials would not alter soil or water.

4.5.3.1 Two-Target Alternative

Earth and Water Resources

Due to the relatively flat terrain at Melrose AFR, little cut and fill would be needed to prepare the sites for facility construction. In any construction, the natural soil horizons would be disturbed if they have not already been disturbed from previous bombing range activity. There would be few hazards or limitations to construction of buildings or roads on the soil types at the locations of the proposed facilities. Potential secondary effects from surface-disturbing activities, such as increases in stormwater runoff or offsite sedimentation, would be minimized through the installation and maintenance of standard construction practices and landscaping including dust suppression and soil stabilization measures.

While soils would be changed by construction activities, the effects would be localized and would not result in significant secondary impacts to wind or water resources because standard construction practices would be implemented. No significant impacts to soil, water, or geologic resources would result from range construction.

With the establishment of an approximate 1 kilometer by 1 kilometer impact area in the northeast and southwest corners of the existing impact area, additional safety weapons footprints (Exclusive-Use) would surround these impact areas. As shown in Figure 4.5-1, these safety weapons footprints do not interfere with the operation of existing groundwater wells on Melrose AFR.

Munitions. Munitions use on the range would change the range from a primarily inert munitions range to a live munitions range. HE shells from 105 mm, 40 mm, and 30 mm weapons, practice rounds containing lead, and incendiary rounds would be used on new Melrose targets. The training would increase chemicals from munitions, lead, and other heavy metals on the range. Expanded EOD range clearance would be required in accordance with AFI 13-212, including the new AFSOC supplement.

Under the Two-Target Alternative, HE munitions use on the range could add up to 1,321 acres needing EOD clearance. The two approximately 1 kilometer by 1 kilometer impact areas would be swept by EOD to remove UXO. Up to an additional 3,200 acres would be affected by lead munitions from the small arms range.

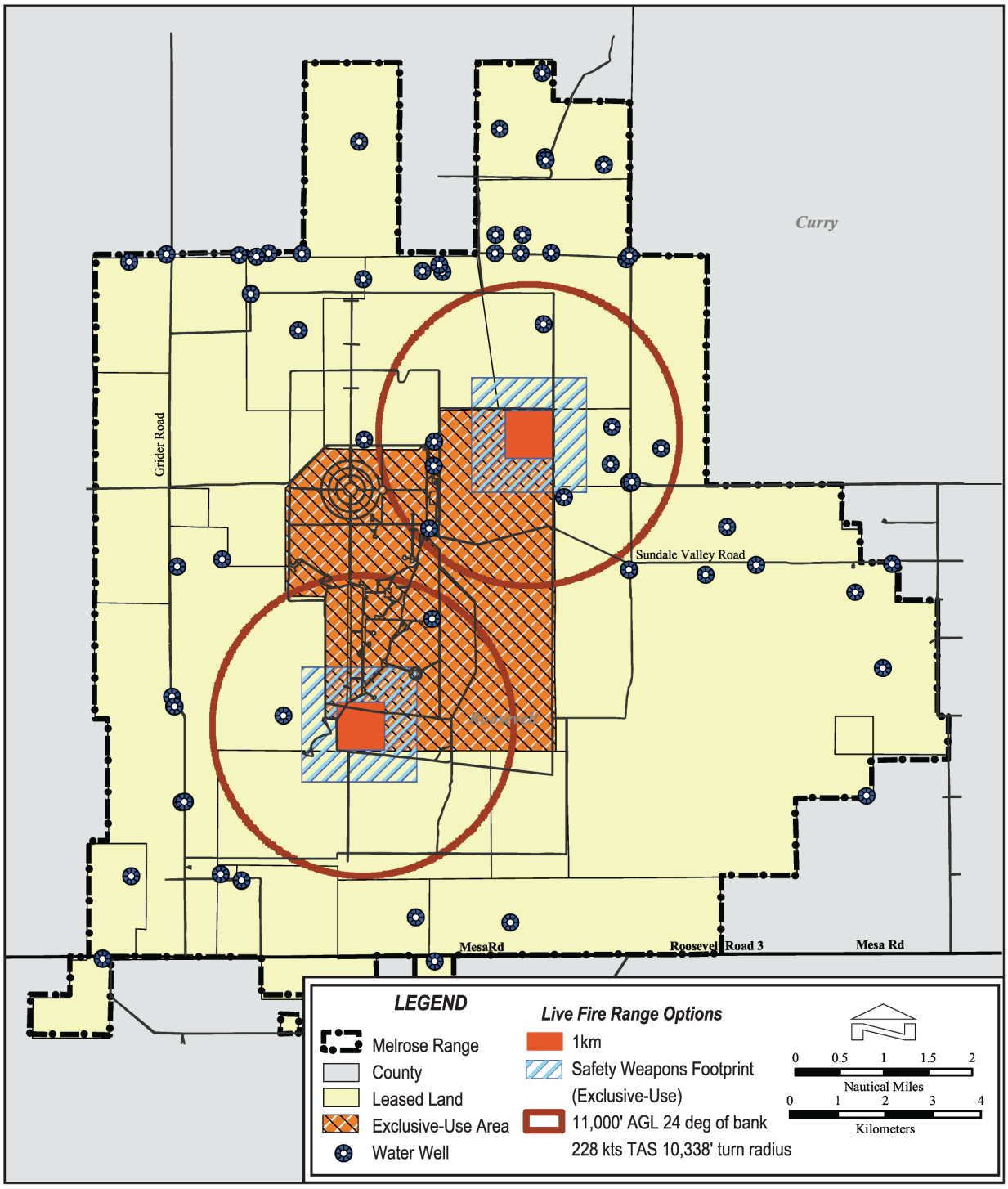


Figure 4.5-1. Groundwater Wells Near Two-Target Alternative On Melrose AFR

The components of munitions have the potential to negatively affect soil and water chemistry. Annual EOD clearance would reduce the extent of metal buildup and associated degradation of soils. HE chemical residues and lead residues would increase on Melrose AFR. The depth to groundwater would be expected to reduce the potential for chemicals or heavy metals to migrate off the range. Such chemicals or heavy metals could eventually affect soils or water resources on Melrose AFR.

Disturbance of the approximately 1 kilometer by 1 kilometer areas from munitions and target use, maintenance and EOD clearance activities have the potential to increase soil erosion with these areas. Soils on Melrose AFR are highly susceptible to wind erosion and depending on the amount, intensity and timing of precipitation, and the amount and condition of vegetative cover within the target areas, there is the potential for an increase in soil erosion from the target areas. This is not an unusual condition in southeastern New Mexico when vegetation does not cover these soil types.

Chaff. Chaff consists of aluminum-coated silica fibers 1 inch or less in length, and approximately the thickness of very fine human hair. Chaff disperses widely when deployed. Ultimate disposition depends upon the altitude of release and the prevailing winds at different altitudes at the time of release. A conservative estimate is that all chaff (including nylon or plastic parts and felt spacers) used in the Restricted Airspace would be deposited on the ground under the airspace. In reality, some chaff is expected to drift in air currents and land in areas not beneath the airspace, resulting in lower concentrations of chaff beneath the airspace. The chaff and flare end caps and other plastic or aluminum-coated wrapping residual materials would average one piece per approximately 2.83 acres per year under the airspace. Chaff filaments are estimated to average less than 0.20 ounces per acre per year. Training flight patterns, as well as winds, could result in variable deposition under the airspace. Higher percentages of chaff releases could occur toward the center of the Restricted Airspace and a correspondingly lower percentage of chaff releases could occur toward the edges of the airspace. Chaff particles landing beyond the boundaries of the airspace are expected to be widely dispersed and are not expected to be detectible or to impact environmental resources. In rare instances, chaff does not deploy correctly and rather than disperse in an electronic "cloud," the fibers may clump together and fall to the ground beneath the airspace. When this occurs, a tuft or clump of chaff can be discernible to the naked eye, but these chaff clumps would not accumulate in soil or water in quantities that could negatively affect or damage these resources.

The component of chaff that has the potential to negatively affect soil or water chemistry is aluminum, which tends to break down in acidic and highly alkaline environments. Laboratory and field analyses (Air Force 1997a) indicate that the pH of water in the soil or in a water body is the primary factor that determines the stability of the aluminum coating of chaff. The coating is the most soluble and likely to release aluminum if the soil or water pH is less than 5.0 (extremely acidic) or greater than 8.5 (strongly alkaline). In arid conditions such as those found in the ROI, soil pH tends to be neutral to high, but there is usually not enough water in the soil to react with the aluminum (Air Force 1997a). As described in Section 3.5, water bodies in the ROI are neutral to slightly alkaline, less than the threshold necessary to deteriorate the aluminum coating. Chaff that falls into surface water would be chemically stable. No impact to water bodies would be anticipated, even in the case of a highly unlikely event such as an entire clump of undispersed chaff falling into a small, confined water body.

Data on the chemical properties of the soils for Roosevelt County that encompass Melrose AFR were reviewed (Natural Resources Conservation Service [NRCS] 2002a). According to these data, there are three soil series that have a pH in the surface layers ranging between 7.9 and 9.0. These soil series represent a very small percentage of the total area that could be affected, and all but one have a very low potential for soluble chemicals in the soil being lost to surface runoff or leaching into groundwater (Air Force 1997a). The low percentage of soils in the ROI with a high enough pH to react with aluminum, in combination with the low soil water content, result in conditions that would be extremely improbable for aluminum concentrations to be produced from chaff particles that weather on the ground. No significant impact to physical resources would occur due to the increased deployment of chaff.

Flares. The M-206 flares used in training missions are designed to be fully consumed before reaching the ground, with a failure rate estimated to be less than 1 percent (Air Force 1997b). In rare cases when a dud flare or some of the materials from the burned flare reach the ground, the components that have the greatest potential to affect soil and water chemistry are minute quantities of chromium, magnesium, aluminum, boron, and barium. However, only magnesium and boron showed levels in sufficient concentrations for concern in field and laboratory tests on flares, and then only in acidic environments that do not occur in soil or water within the ROI (Air Force 1997b). The residual plastic, nylon, felt, and aluminum-coated wrapper materials that fall to the ground are basically inert and are not in concentrations that could affect physical resources. As noted in the discussion under chaff, the total deposition of chaff and flare residual materials under the restricted airspace average one piece per 2.83 acres per year. An average of one flare would be dispensed annually over each 29.5 acres under the Restricted Airspace.

Any fire could adversely affect vegetation, increase soil erosion, and result in sediment delivery in surface water bodies. There is a very low probability for fires to occur as a result of a burning flare striking the ground. This is due to the low failure rate of less than 1 percent combined with a 2,000 feet AGL minimum release altitude for fire conditions below high and 5,000 feet AGL for high or greater fire conditions. There have been no fires attributable to Cannon-based aircrews in the MOAs. Sections 4.3, 4.5, and 4.8 contain additional discussion of potential consequences from fire.

The potential for adverse impacts to physical resources would be essentially unchanged after deployment of flares. The likelihood of a flare-caused fire that would significantly damage surface resources would remain low. There would be no significant impacts to physical resources due to the chemical composition of flare materials that reach the ground.

Hazardous Materials and Waste Management

Hazardous Materials Management. With the increased use of Melrose AFR by both AFSOC aircraft and SOF, target, vehicle and equipment maintenance would generate the need for additional hazardous materials management activities. These materials would be managed through the Cannon AFB hazardous materials management program and no significant adverse environmental consequences are expected.

Hazardous Waste Management. Target and equipment maintenance activities are anticipated to increase with the use of Melrose AFR by AFSOC assets. These activities would generate hazardous waste that would be managed in accordance with the Cannon AFB Hazardous Waste Management Plan. Accumulation points would be established as required by state and

federal requirements and it is anticipated that Melrose AFR would maintain its conditionally exempt, small quantity generator status.

With the expanded use of live and inert munitions on Melrose AFR, additional EOD activities would be necessary and the amount of munitions-related debris that would be recycled and disposed of would increase. In accordance with the requirements outlined in AFI 13-212, including the new AFSOC supplement, range clearance activities would continue.

Storage Tanks. With the relocation of Melrose AFR equipment and maintenance buildings, existing ASTs would be relocated to support new structures. No adverse environmental consequences are anticipated.

RCRA/DERA Program. Development of two new target areas with the exclusive impact area of Melrose AFR and other target sets on the range would be coordinated with Cannon AFB Environmental Restoration Program (ERP) staff so that the construction and operation of these targets would not conflict with the existing three SWMUs and four AOCs and associated groundwater monitoring wells. Cannon AFB would continue to coordinate with the NMED on the status of the sites.

4.5.3.2 Three-Target Alternative

Earth and Water Resources

Effects to physical resources under the Three-Target Alternative are comparable to those described in Section 4.5.3.1. With the establishment of an approximately 1 kilometer by 1 kilometer impact area in the northwest, east-central, and southwest portion of Melrose AFR, additional safety weapons footprints (Exclusive-Use) would surround these impact areas. As shown in Figure 4.5-2, these safety weapons footprints for the northwest and southwest impact areas do not interfere with the operation of existing groundwater wells on Melrose AFR. Within the safety weapons footprint (Exclusive-Use) for the east-central impact area, there are four Air Force groundwater monitoring wells.

Munitions, including HE munitions, could be used on three targets under this alternative. The area needing EOD clearance would increase by up to 3,845 acres. The three approximately 1 kilometer by 1 kilometer target areas would be swept by EOD crews. Disturbance of the three approximately 1 kilometer by 1 kilometer areas from munitions and target use, maintenance and EOD clearance activities have the potential to increase soil erosion with these areas. Soils on Melrose AFR are highly susceptible to wind erosion and depending on the amount, intensity and timing of precipitation, and the amount and condition of vegetative cover within the target areas, there is the potential for an increase in soil erosion from the target areas. This is not an unusual condition in southeastern New Mexico when vegetation does not cover these soil types.

The area requiring cleanup from the small arms range is as described in the Two-Target Alternative. The Three-Target Alternative safety footprint overlaps with the small arms range and some clean-up areas would overlap. Potential for concentration of HE chemical and lead residuals in three target areas and the small arms range would be greater with three live-fire targets as compared with two live-fire targets.

Chaff and flare materials would be as described for the Two-Target Alternative. No significant impacts would be expected from chaff use. Flares properly deployed would not be expected to increase fire risk.

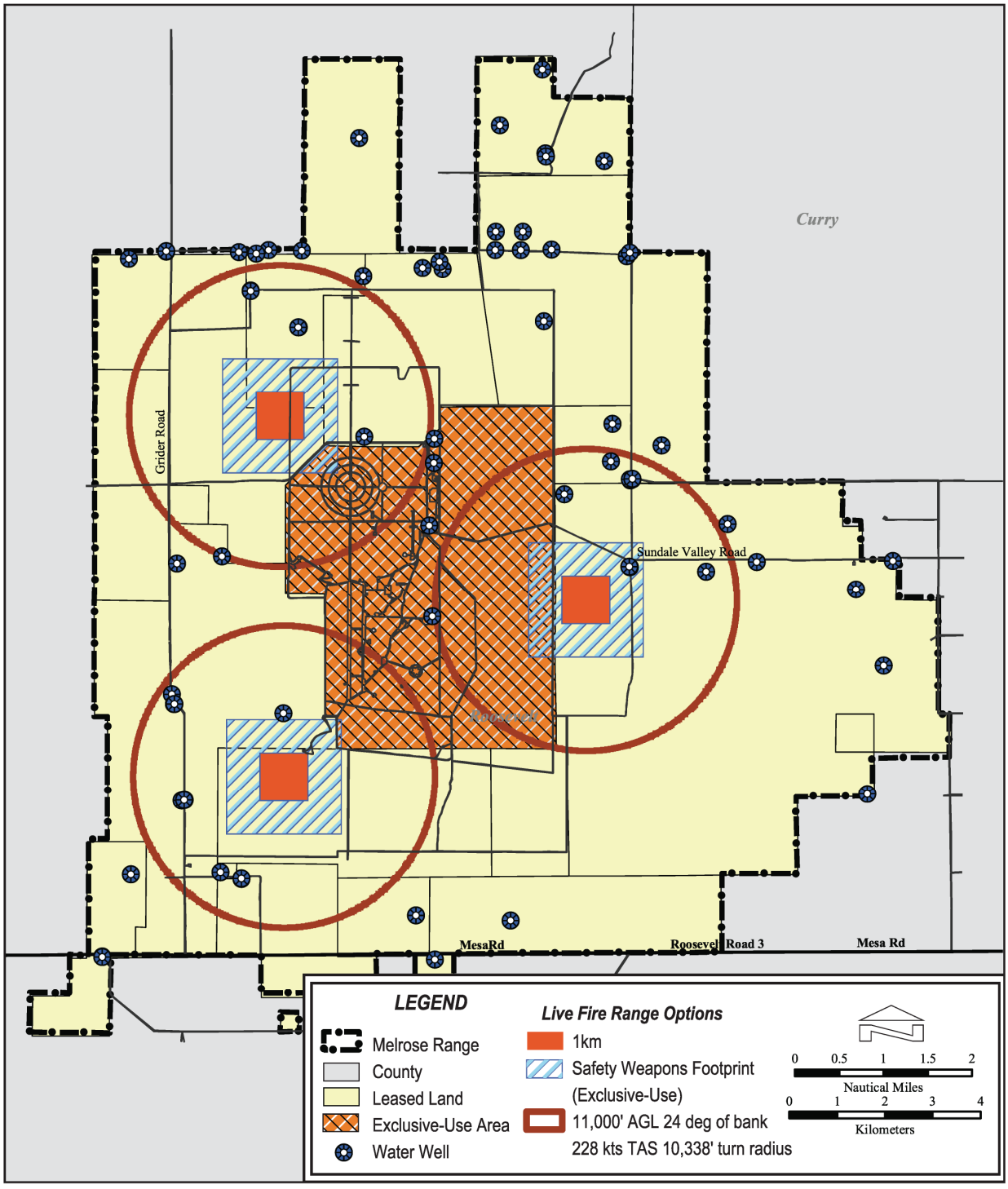


FIGURE 4.5-2. GROUNDWATER WELLS NEAR THREE-TARGET ALTERNATIVE ON MELROSE AFR

Hazardous Materials and Waste Management

Hazardous Materials Management. With the implementation of this alternative there would be a slight increase in the amount of hazardous materials used for target, vehicle and equipment maintenance, as compared to the Two-Target Alternative. These materials would be managed through the Cannon AFB hazardous materials management program and no significant adverse environmental consequences are expected.

Hazardous Waste Management. Target and equipment maintenance activities would be greater under this alternative as a result of the establishment of three target areas for use by AC-130 gunships. These activities would generate hazardous waste that would be managed in accordance with the Cannon AFB Hazardous Waste Management Plan. Accumulation points would be established as required by state and federal requirements and it is anticipated that Melrose AFR would maintain its conditionally exempt, small quantity generator status.

With the expanded use of live and inert munitions on Melrose AFR, the amount of munitions-related debris that would be recycled and disposed of would increase. In accordance with the requirements outlined in AFI 13-212, including the new AFSOC supplement, range clearance activities would continue.

Storage Tanks. With the relocation of Melrose AFR equipment and maintenance buildings as identified under the Two-Target Alternative, existing Melrose AFR ASTs would be relocated to support new structures. The registrations with the State of New Mexico would be revised to meet regulatory requirements. No adverse environmental consequences are anticipated.

RCRA/DERA Program. Development of three new target areas with the exclusive impact area of Melrose AFR and other target sets on the range would be coordinated with Cannon AFB ERP staff so that the construction and operation of these targets would not conflict with the existing three SWMUs and four AOCs and associated groundwater monitoring wells. Cannon AFB would continue to coordinate with the NMED on the status of the sites.

4.5.3.3 No Action Alternative

Under the No Action Alternative, no beddown of AFSOC assets would occur at Cannon AFB and no Cannon-based AFSOC training would occur at Melrose AFR at this time.

The effects to physical resources under the No Action Alternative would be the same as current conditions, with a reduction in overall chaff, flare, and munitions use associated with the deactivation of the 27 FW.

4.6 Biological Resources

Biological resources are defined in Section 3.6. This section will consider terrestrial and aquatic habitats, and species with special protection status at Melrose AFR.

4.6.1 Definition of Resource

Biological resources within the Melrose AFR ROI associated with the Two-Target Alternative include those wild species that reside or may occur in some transient fashion on the range and may be affected by project related operations, including training related ground disturbance. The definition includes plants, wildlife, and their habitats within both the target area and the Restricted Leased Area and modifications under the Two-Target Alternative.

4.6.2 Existing Conditions

Melrose AFR lies within the Southwest Plateau and Plains Dry Steppe and Shrub Province ecoregion (Bailey 1995). The landform is flat to slightly rolling with natural communities dominated by arid grasses and scattered shrubs and small trees. The primary land use activity outside of the target impact area is livestock grazing with agricultural cultivation in the northern sections. Thus, the landscape setting is modified by a post-settlement history of ground disturbing land uses and grazing. Vegetation on Melrose AFR can be generally described as short grass prairie (91 percent of the area of the range), dominated by herbaceous plants and grasses (Figure 4.6-1). Common species include blue grama (*Bouteloua gracilis*), side-oats grama (*Bouteloua curtipendula*), hairy grama (*Bouteloua hirsuta*), tobosa (*Hilaria mutica*), buffalograss (*Buchloe dactyloides*), and broom snakeweed (*Gutierrezia sarothrae*) along Canada del Tule. Prickly pear and cholla cacti (*Opuntia* spp.) occur throughout Melrose AFR. Isolated patchy shrub habitats make up most of the remaining area of the range.

As part of an inventory of vertebrate species found on Melrose AFR, Parmenter *et al.* (1994) classified plant communities, identifying five general habitat types: mixed-species grasslands, mesquite-grasslands, sand-hill shrublands, old agricultural fields, and areas under current cultivation, such as wheat fields. Varying numbers of wildlife species are found in these habitats. Commonly found throughout the range are habitat generalists such as the ornate box turtle (*Terrapene ornata ornata*), western hognose snake (*Heterodon nasicus*), coachwhip (*Masticophis flagellum*), mourning dove (*Zenaida macroura*), common nighthawk (*Chordeiles minor*), western meadowlark (*Sturnella neglecta*), lark sparrow (*Chondestes gramacus*), horned lark (*Eremophila alpestris*), Cassin's sparrow (*Aimophila cassinii*), black-tailed jackrabbit (*Lepus californicus*), desert cottontail (*Sylvilagus audubonii*), silky pocket mouse (*Perognathus flavus*), northern grasshopper mouse (*Onychomys leucogaster*), Ord's kangaroo rat (*Dipodomys ordii*), coyote (*Canis latrans*), and pronghorn (*Antilocapra americana*) (Parmenter *et al.* 1994). Swift fox (*Vulpes velox*), which historically occurred in the short grass prairie or plains-mesa grassland east of the Pecos River, may also be present on Melrose AFR. New Mexico Department of Game and Fish (NMDGF) surveys have found swift fox throughout its historical range, with the exception of cropland areas of eastern Curry and Roosevelt counties (Harrison and Schmitt 1997). Black-tailed prairie dog (*Cynomys ludovicianus*) colonies occupy less than 10 acres on Melrose AFR. Disturbed habitats, including those habitats disturbed by prairie dog burrowing, may support some nesting western burrowing owl (*Athene cunicularia hypugaea*) activity.

The most widespread habitat on Melrose AFR is mixed-species grassland that, in addition to the generalist species listed above, supports a number of grassland specialist species. The lowest species diversities are found in the sand hills, and in old agricultural and wheat field habitats. Common species found there are prairie lizard (*Sceloporus undulatus*), Texas horned lizard (*Phrynosoma cornutum*), mourning dove, cactus wren (*Campylorhynchus brunneicapillus*), brown-headed cowbird (*Molothrus ater*), and vesper sparrow (*Pooecetes gramineus*) (Parmenter *et al.* 1994).

Melrose AFR provides some seasonally inundated areas and seasonal aquatic habitats. These include several minor surface water features, and intermittent streams and drainages. No jurisdictional waters or wetlands are located within the range boundaries. No aquatic habitats occur within or in proximity to proposed target areas. Scattered earthen stock tanks have been developed in areas adjacent to the Exclusive-Use Area supporting grazing. No permanently flooded areas are located on Melrose AFR.

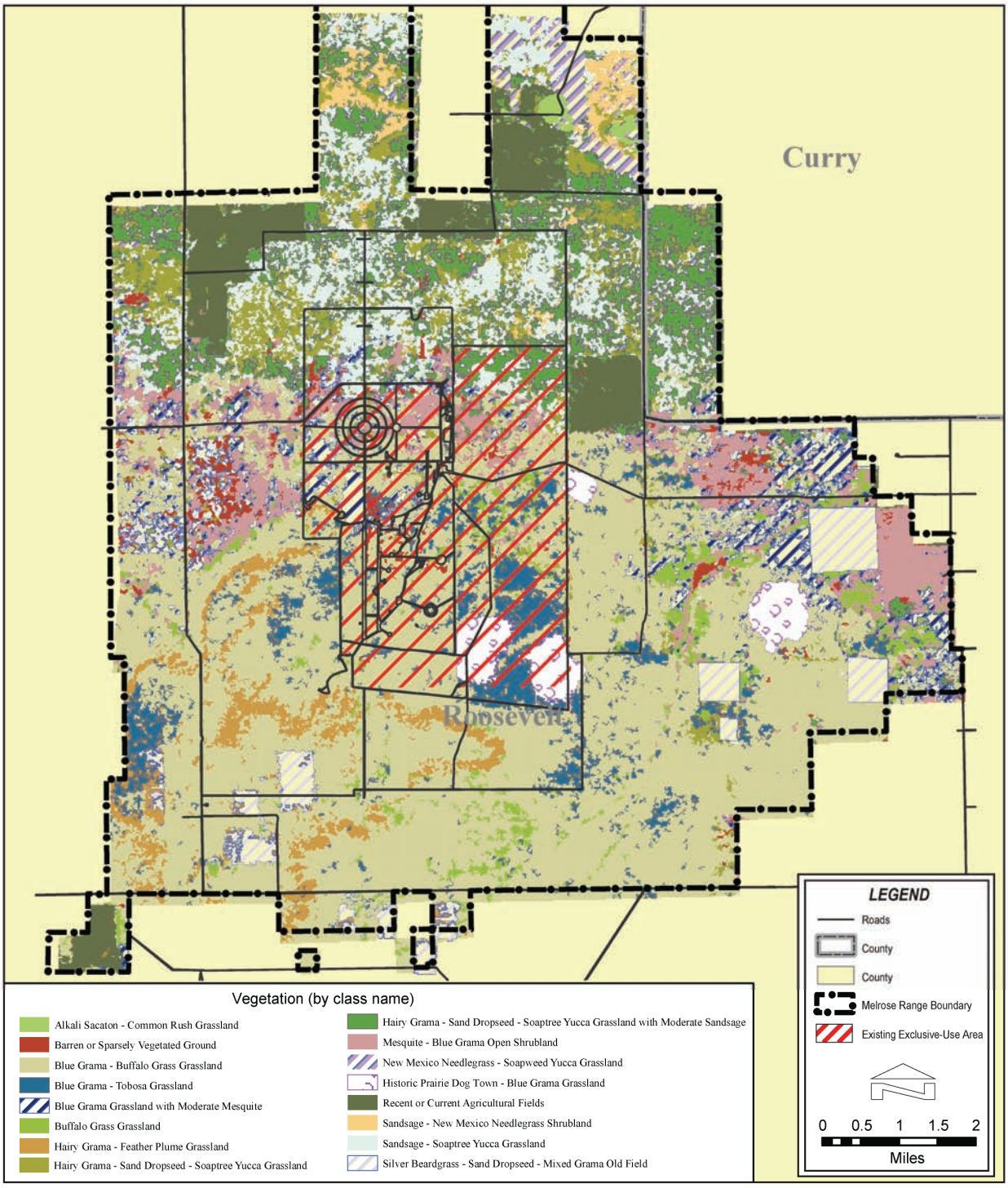


Figure 4.6-1. Melrose AFR Vegetation

Federally and state-listed threatened, endangered, or candidate species identified for Curry and Roosevelt counties, including Melrose AFR, are listed in Table 4.6-1.

No federally listed mammal species are known to occur within the ROI. The endangered black-footed ferret (*Mustela nigripes*) has not been documented in the state since 1934; in 1991 it was considered extirpated from the state (NMDGF 2006a). A certified black-footed ferret survey was conducted at Melrose AFR in 2000 and no black-footed ferrets or signs of black-footed ferrets were found.

Extensive surveys of Melrose AFR found no species of plant, amphibian, reptile, or mammal that was or is currently listed as threatened or endangered (Parmenter *et al.* 1994, DeBruin *et al.* 1995). Three bird species that are considered species of concern by the U.S. Fish and Wildlife Service (USFWS) were observed: ferruginous hawk (*Buteo regalis*), white-faced ibis (*Plegadis chihi*), and loggerhead shrike (*Lanius ludovicianus*) (Parmenter *et al.* 1994). Ferruginous hawks have used at least three nest locations on Melrose AFR in recent years, but nest sites are not used every year and were not occupied in 2002. One nest east of the impact areas was active in early 2003.

Mountain plovers (*Charadrius montanus*), which were formerly proposed for listing by USFWS as a threatened species, are occasional visitors to Melrose AFR, but are not known to breed or winter on the range. Mountain plovers nest in late March through August in habitats characterized by short grass and bare ground, including grazed areas, cultivated lands, and prairie dog colonies (USFWS 1999). Breeding habitat is found in many Rocky Mountain and Great Plains states; mountain plovers winter in California, Arizona, Texas, and Mexico (USFWS 1999). Mountain plovers were not detected during the 1993-94 breeding season surveys of Melrose AFR (Parmenter *et al.* 1994). Several groups of mountain plovers were observed on the range in surveys conducted during the spring migration period in 1998 (ACC 1999). Two groups were found in the southern portion of Melrose AFR, one near a stock tank and one in a dry playa. Mountain plovers were also seen on two subsequent days on a prairie dog colony in the east impact area. Breeding activity was not subsequently observed on the range. Although suitable nesting habitat exists on Melrose AFR, mountain plover use of the range appears to be limited to transient use during spring migration, which typically occurs in March and April (NMDGF 2006a). Cannon AFB currently conducts surveys for mountain plovers on Melrose AFR, including the impact areas (personal communication, Crow 2007).

The interior least tern (*Sterna antillarum athalassos*), federally and state-listed as endangered, is known to breed southwest of Melrose AFR along the Pecos River at Bitter Lake National Wildlife Refuge (NWR). Interior least terns have bred annually at, or in the vicinity of, Bitter Lake NWR since 1949 and are not known to breed elsewhere in New Mexico. The birds nest and forage predominantly along playa habitats on the refuge. Since 1989, the number of interior least terns at Bitter Lake NWR has ranged from three to seven breeding pairs. Least terns also occur as rare vagrants at other wetlands in the state, including Bosque del Apache NWR and in Eddy County (USFWS 1990, Bureau of Land Management 1997, NMDGF 2006a).

TABLE 4.6-1. FEDERALLY AND STATE LISTED THREATENED, ENDANGERED AND CANDIDATE SPECIES IDENTIFIED FOR CURRY AND ROOSEVELT COUNTIES, NEW MEXICO AND WITH POTENTIAL TO OCCUR AT MELROSE AFR

Common Name and Scientific Name	*Status (Federal/ State)*[1]	*General Habitat Association*	*Likelihood of occurrence at Melrose AFR*
Least tern (Interior Population), *Sterna antillarum*	E/E	Nest on riverine sandbars or open sandy or gravel coastal beaches. May nest on dredge material. Long distance migrant.	No habitat present. Occurrence highly unlikely.
Bald eagle, *Haliaeetus leucocephalus*	T/T	Breeding habitat most commonly includes areas close to coastal areas, bays, rivers, lakes, that reflect the general availability of primary food sources including fish, waterfowl, and seabirds.	Seasonal, incidental occurrence possible. Some perching/ roosting opportunities present. Melrose AFR is not within riverine migration corridors.
Lesser prairie-chicken, *Tympanuchus pallidicinctus*	C/--	Mixed grass-dwarf shrub communities that occur on sandy soils; principally the sandsage and bluestem. Year-round residents where they occur	Small breeding population present on sandy soils in the northern part of Melrose AFR outside proposed target areas.
Sand dune lizard, *Sceloporus arenicolus*	C/E	In New Mexico, endemic to small areas of shinnery oak habitat. Prefers active and semi-stabilized sand dunes with mammal burrows and some litter. Associated with scattered stands of Harvard oak and sandsage; tends to occur in greatest abundance in areas where *Uta stansburiana* is scarce.	Presence on Melrose AFR not revealed by surveys. Melrose AFR is outside known distribution in state. Very low likelihood of occurrence.
Peregrine falcon, *Falco peregrinus*	--[2]/T	Bare rock/talus/scree, cliff, shrubland/chaparral, urban/edificarian, woodland - conifer, woodland - hardwood, woodland - mixed	No habitat present. Transient individuals possible.
Baird's sparrow, *Ammodramus bairdii*	--/T	Forage among dense bunch grasses in northern prairie settings. Breed in ungrazed or lightly grazed mixed-grass prairie, wet meadows, local pockets of tallgrass prairie.	No foraging or breeding habitat present on AFR. Low likelihood of incidental occurrence.
Bell's vireo, *Vireo bellii*	--/T	Dense brush, willow thickets, mesquite, streamside thickets, and scrub oak, in arid regions often near water, also adjoining uplands	No habitat present. Low likelihood of occurrence.

Notes: 1. Status: Federal/State E = Endangered, T= Threatened, C = Candidate, -- = not listed.
2. The peregrine falcon was delisted under the Federal Endangered Species Act (ESA) in August 1999.

Source: USFWS 2006, NMDGF 2006a.

The bald eagle (*Haliaeetus leucocephalus*), federally and state-listed as threatened, is a transient and winter habitat user along portions of the Pecos River, but does not occur within Melrose AFR or its associated airspace. The western burrowing owl (*Athene cunicularia hypugaea*) is considered a sensitive species by the Bureau of Land Management and U.S. Forest Service and is protected under the Migratory Bird Treaty Act. Burrowing owls are year-round residents in Roosevelt County (NMDGF 2006a) and are known to nest on Melrose AFR, but the number of nests on the range is not precisely known. Burrowing owls are frequently observed in mixed grassland habitat types and other open areas at Melrose AFR (personal communication, Crow 2006). Nest burrows are frequently found on prairie dog towns or in association with other burrowing mammals such as badgers (NMDGF 2006a). Melrose AFR and its burrowing owls are providing data for a southwestern regional study of burrowing owl migration patterns, site fidelity, and diet being conducted by DoD (Hartz 2006).

Lesser prairie-chickens (*Tympanuchus pallidicintus*) are a USFWS candidate species and a New Mexico sensitive species. The species is known to nest in southern Roosevelt County (Massey 2001). Prairie chickens were not found on Melrose AFR during surveys in 1993 (Parmenter *et al.* 1994), 1998 (ACC 1999), or 2003; however, recent monitoring (April 2007) revealed the presence of a small breeding group in the northern portion of Melrose AFR. The birds were located in an area of sandy soils outside of the northernmost target area for both the Two-Target and Three-Target Alternatives. Open shrubby habitats in this portion of the range may provide appropriate cover and foraging habitat. Surveys for lesser prairie-chickens are currently being conducted and a candidate species plan will be prepared in the future.

The sand dune lizard (*Sceloporus arenicolus*), a federal candidate and state-listed threatened species, is not likely to occur within the ROI for the Two-Target Alternative. The nearest suitable habitat for sand dune lizards is found in moving sand dunes adjacent to the northern boundary of the range and the species has not been detected during extensive wildlife surveys conducted on the range (personal communication, Crow 2006).

The New Mexico Energy, Minerals, and Natural Resources Department (EMNRD), Forestry Division, has authority over state-protected plant species in New Mexico. According to the agency database, no rare plants are known to occur in Roosevelt or Curry counties (New Mexico Rare Plant Technical Council 1999).

4.6.3 Environmental Consequences

This section addresses consequences to biological resources related to construction and operations associated with the Action Alternatives at Melrose AFR. Biological consequences associated with construction and operations at Cannon AFB and project-related airspaces are discussed in Sections 3.6.3 and 5.6.3, respectively.

Methodology for evaluating potential impacts and definition of impact significance to biological resources are discussed in Section 3.6.3.

4.6.3.1 Two-Target Alternative

Development of the Two-Target Alternative would effectively expand the Exclusive-Use Area from 8,800 to 10,600 acres of habitat. The additional Exclusive-Use Area had been previously leased for grazing.

Under the Two-Target Alternative, range support facilities, currently located at the center of the range, would be relocated to a previously developed site along the western side of the Exclusive-Use Area. These newly configured facilities would be located on the mesa framing the western portion of Melrose AFR. Expanded small arms range facilities would also be constructed on the east side of Melrose AFR. Construction activities may involve the disturbance of an estimated 100 acres of mixed-grassland and mesquite-grassland habitats adjacent to developed areas. Existing roads would be used to access construction locations. Disturbance associated with construction would result in the temporary displacement of wildlife species occupying habitats within and surrounding the construction site. These would include habitat-generalist species identified in Section 4.6.2. These species would re-occupy surrounding habitats or re-distribute themselves across the landscape. However, some permanent loss of habitat within the construction footprint would occur. No federally or state-listed species or their habitats are known to occur within the proposed construction area. Because of the small area involved, relative to the surrounding habitats, proximity to existing structures, and current land use (grazing) effect on habitat quality, impacts to wildlife species populations are expected to be minimal and less than significant. No impacts to federally and state-listed species are expected.

Similarly, construction of two new target areas within the Exclusive-Use Area would result in some habitat loss. Each target would be approximately 1 square kilometer (247.1 acres) in area and would be surrounded by a buffer area extending 2,296 feet from the approximate 1 kilometer target area edges. Target construction would involve blading and grading of existing soil surfaces and the erection of simulated target structures. The northern target, located on the northeast corner of the Melrose Exclusive-Use Area is sited in rangeland. Its creation would result in the removal of about 247 acres of soaptree-yucca grassland vegetation and wildlife habitat. The buffer area includes irrigated land on the east (restricted grazing allotment K) and rangeland on the north south and west. No federally or state-listed species or their habitats are known to occur in this area.

The southern target is located in the southwestern corner of the Melrose Exclusive-Use Area. This is an area of some relief as the landscape slopes up to the mesa that borders the western side of Melrose AFR. In the high plains, areas of topographic relief tend to enhance habitat complexity for wildlife and are often areas of higher biological diversity. Target construction in this area would result in the disturbance of blue grama–buffalograss grassland (on level portions of the site) and hairy grama-feather plume grassland (on steeper slopes). Construction of new target areas associated with the Two-Target Alternative would result in a loss of some wildlife habitat and the displacement of wildlife species within the two target areas. Operationally, these sites would be presumed to experience complete and continual ground disturbance. No federally or state-listed species or their habitats are known to occur within the proposed target area. Because of the small area involved, relative to the surrounding habitats, impacts to wildlife species populations from target construction are expected to be minimal and considered less than significant. No impacts to endangered or threatened species are expected.

Operations under the Two-Target Alternative would involve a complex mix of ground-based and aircraft activities at Melrose AFR. Range support operations and maintenance of range support facilities are presumed to have a similar effect on biological resources compared to current and recent historic conditions. Project related targets will require somewhat intensive repair and ordnance removal activity. These maintenance activities would exceed current conditions.

Target complexes within the proposed new target areas will receive intensive live fire from an assortment of aircraft (primarily AC-130 gunships), Special Tactics personnel, other Special Operations Command, and SOF from partner nations. Target re-construction/re-configuration, clean-up, and ordnance removal would create an increase in human visual and noise disturbance in areas that receive little such disturbance currently. Such disturbance will have a minor impact on wildlife species (birds and mammals) occupying adjacent habitats. Monitoring of target areas and adjacent habitats as part of periodic required Integrated Natural Resources Management Plan (INRMP) updates would help document and quantify any negative effects and permit AFSOC to develop procedures to minimize disturbance to wildlife and their habitats on Air Force-managed lands.

Training under the Two-Target Alternative will involve an increase in the types and amounts of ordnance delivered to Melrose AFR (Tables 2.2-3 and 2.2-4). These ordnance include both ground-fired rounds and aircraft-fired rounds composed of a variety of materials, including some heavy metals, such as lead. Lead can be toxic to wildlife if ingested (Eisler 1988). Metals or other chemicals from munitions have the potential to enter the food chain through direct ingestion or accumulation in plants. Ingestion of lead is known to result in poisoning of waterfowl, vultures, and raptors. In waterfowl, lead ingestion has been generally attributed to lead bird shot incidentally consumed by birds (especially mallards and pintails) feeding on the bottom of shallow water bodies where lead shot used in waterfowl hunting has accumulated. In raptors and vultures, poisoning may result from ingesting lead shot embedded in the flesh of prey (Eisler 1988; Kendall, *et al.* 1996). Lead objects are ground down by the gizzard or dissolved by stomach acids and absorbed into the body as lead salts, which disrupt normal body functions, especially the digestive and nervous systems of birds. Lead poisoning is uncommon in upland birds, but has been documented in mourning dove from areas where lead buckshot, similar in size and shape to seed and grit ingested by birds, is used extensively (Kendall *et al.* 1996).

The smallest rounds proposed for use at Melrose AFR are spherical 12-gauge shotgun pellets, which are about 0.33 inches (8.42 mm) in diameter, assuming a 00 buckshot load. All other small-arms ammunition proposed for use at Melrose AFR (Table 2.2-4) is much larger in size and/or has steel or copper jackets surrounding the lead. For example, the 5.45 mm and 5.56 mm projectiles are about 19 to 23 mm in length and comprised of a variety of materials including lead within a steel jacket. As they are significantly greater in size, it is doubtful that intact rounds used in training at Melrose AFR would enter the food chain as a result of birds mistaking it as seed, but it is possible that vertebrates such as lizards or birds could incidentally ingest small fragments of impacted rounds while foraging on the ground for insects or seeds. Because the rounds typically "mushroom" upon impact rather than fragmenting, accidental ingestion of lead fragments is an unlikely pathway into the food chain. Plant uptake is another potential route into the food chain, but few plants absorb and translocate lead in significant quantities and a review of the species present in the target area would be needed to identify potential lead accumulators.

No target areas would be located near any surface water sources or seasonally active drainages on Melrose AFR. Periodic sweeps of the range would remove UXO. Projectiles, fragments, and other munitions debris, would accumulate lead and other chemicals, which could impact wildlife or other ecosystem components as described above.

Airspace associated with Melrose AFR would see a four-fold increase in chaff use (3,762 units per annum to 18,000 units). Conceptual and perceptual issues and potential impacts of chaff and flare components on biological resources are discussed in Section 5.6.3.1. Chaff and the physical components of flares (e.g., end caps) have been well-studied and documented to have no effect on natural living resources, agricultural resources, or special-status species. No impacts to these resources are anticipated under the Two-Target Alternative.

Across the area currently authorized for flare use, overall use would decrease by 25 percent under the Two-Target Alternative. As with chaff use, airspace units associated with Melrose AFR would experience a four-fold increase in flare use (2,031 units per annum to 10,000 units). Flare types would be the same as currently authorized. Fire risk and fire-frequency changes are a concern for natural and human-related agricultural resources in arid environments. Although natural vegetation in the Southwest is considered fire-adapted, past and current land-use practices, in combination with drought, have altered fire regime and ecosystem processes. Ecosystem changes associated with fire may include (1) the introduction and spread of invasive non-native plants, which may promote the spread and intensity of fire or become established following fire; (2) habitat fragmentation, leading to increased vulnerability of isolated populations; and (3) increased wind and water erosion of soil following fire. Therefore, even though most native species of the high plains are adapted to and even benefit from wildfire, any fire could result in direct losses and indirect negative effects. Fires could also result in livestock and property losses.

Within the Melrose AFR ROI, aircraft training under the Two-Target Alternative would involve low-level navigational sorties, intensive air-to-surface live-fire activities, air drops, and vertical landings. Low-level sorties would approach proposed target areas and LZs or DZs on Melrose AFR. Low-level flight with altitudes as low as 100 feet AGL are permitted in R-5104 and R-5105 over Melrose AFR. Live-fire activities would focus on proposed target areas. Some of these training activities would involve multiple orbiting AC-130 gunships continuously firing on both target areas simultaneously. The AC-130s could be orbiting between 6,000 up to about 12,000 feet AGL while engaging targets. LZ/DZ operations would accommodate both MC-130 and CV-22 aircraft. Development and use of LZs/DZs at Melrose AFR would result in the loss of an additional 380 acres of habitat. Fifty percent of all training activity would occur at night. Potential impacts associated with aircraft training include both visual aspects and noise. Receptor biological resource species would be presumed to have differences in day/night responses to these aspects as discussed under airspace biological resources in Section 5.6.3.

Under the Two-Target Alternative, a variety of noise metrics describing the acoustical environment would change. Additionally, a shift from fast-moving jet aircraft to slower propeller-driven aircraft would cause a change in the frequency structure of the acoustical environment. Impulsive and sub-audible (infrasound) noise would be presumed to increase.

Changes associated with aircraft operations under the Two-Target Alternative would produce a variety of effects on wildlife species occupying habitats at Melrose AFR. These changes would be related to lower, slower training; tilt-rotor aircraft operations; landings and take-offs on range; and long-duration continuous firing exercises. Although noise exposure onset rates would increase, noise event duration would increase as would impulsive noise and visual cues associated with aircraft.

After development of the new target complexes and LZs/DZs, direct mortality of individual organisms would not be a significant factor given avoidance of the disturbed habitat by wide

ranging species and diminished carrying capacity of the disturbed habitat for native organisms with small home ranges as described below.

It is expected that the target areas would be avoided by large nocturnally active species such as pronghorn and mule deer after the target areas have been developed and subjected to initial use, given the degree of habitat disturbance associated with the development and initial use of the targets coupled with the frequency of nighttime use.

Disturbance-related behavioral and ecological changes in wildlife would include expansion of home ranges, abandonment of habitats, and reduced recruitment. These changes would vary with wildlife species group and wildlife species (see discussion in Section 5.6.3.1). Ungulates such as mule deer (*Odocoileus hemionus*) and pronghorn antelope (*Antilocapra americana*) would likely experience acute flight responses and eventual displacement from some areas. Avian species responses are expected to be highly variable. Relatively little is known about the behavioral effects of aircraft training operations at night, but as a rule, daytime-active (diurnal) species respond less to disturbance at night than during the daytime. Nocturnal species would be expected to respond more greatly to disturbance during darkness when they are active. Physiological stress changes would be more subtle and difficult to quantify. Long-term effects of aircraft training activities under the Two-Target Alternative would include some species loss, species displacement, and a modification of ecological community structure at Melrose AFR. Impacts would be somewhat localized and not expected to affect regional wildlife populations or habitats.

During recent monitoring efforts conducted in April 2007, a small breeding group of the lesser prairie-chicken (a federal listed candidate and New Mexico state sensitive species) was detected in the northern portion of Melrose AFR. Surveys for this species date back to 1993 at Melrose AFR; this is the first record of occurrence. The status of this species at Melrose AFR is unclear at this time. Melrose AFR is located in a region of widely separated, isolated populations of lesser prairie-chickens within a landscape of habitats highly fragmented by historic land use practices. Open shrubby habitats with a grass component located in the northern portion of the range may provide some cover, foraging, and loafing habitat. Breeding or transient occupancy of areas of Melrose AFR, even with current military training regimes, is not unexpected. No critical habitat is identified for this species. Air Force biologists are conducting surveys for this species and as data are collected will develop a candidate species plan. Because AFSOC training operations, including live-fire exercise, occur at night, training under the Proposed Action would not be expected to interfere with critical pre-dawn and early morning courtship behaviors of these birds. Construction of the Two-Target Alternative and training under the Proposed Action would not be expected to result in direct mortality of lesser prairie-chickens or affect populations.

No other federally and state-listed endangered, threatened, and candidate species identified for Curry and Roosevelt counties have been observed at Melrose AFB. Aircraft training associated with the Two-Target Alternative is expected to have no impact on these other species.

4.6.3.2 Three-Target Alternative

Because the Three-Target Alternative includes development of a third target area and the three target areas would all be constructed outside the boundaries of the Exclusive-Use target impact area, impacts of the Three-Target Alternative would be greater than for the Two-Target Alternative. Development of the Three-Target Alternative would effectively expand the Exclusive-Use Area from 8,800 to 12,700 acres of habitat. The additional Exclusive-Use Area had been previously leased for grazing. Impacts would be qualitatively similar to those

described above for the Two-Target Alternative. In addition to the greater amount of habitat affected by establishment of a third new target area and causing all target areas to be located outside the boundaries of the Exclusive-Use Area, the operational impacts of having a third target area in use would increase the area affected by noise from ordnance use, increase the areas affected by munitions, and cause additive effects in areas between the targets when two or more targets are in use simultaneously. Because of the expansion of the Exclusive Use Area, effects on the ability of lesser prairie-chickens to utilize open shrubby habitats in the northern portion of Melrose AFR would be greater than under the Two-Target Alternative. Data are lacking to assess the consequences for population connectivity, dispersal, and energetics on an already highly-fragmented species.

4.6.3.3 No Action Alternative

No Action would result in no movement of AFSOC assets to Cannon AFB although AFSOC would maintain and operate the properties. The 27 FW and its current complement of F-16s would be disestablished as previously planned. Transient and NMANG aircraft would continue to use Melrose AFR; however, no training with Cannon AFB-based AFSOC assets would occur. Biological resources on Melrose AFR would be expected to experience less human and training activity than present under the No Action Alternative.

4.7 Cultural Resources

4.7.1 Definition of Resource

Cultural resources on Melrose AFR conform to the same definitions as for Cannon AFB (Section 3.7.1). To summarize, cultural resources are any prehistoric or historic district, site, building, structure, or object considered important to a culture, subculture, or community for scientific, traditional, religious or other purposes. Historic properties (as defined in 36 CFR 60.4) are significant archaeological, architectural, or traditional resources eligible for listing, or listed in, the National Register of Historic Places (NRHP). Historic properties are evaluated for potential adverse impacts from an action, as are significant traditional resources identified by American Indian tribes or other groups.

The ROI for cultural resources on Melrose AFR consists of those portions of the range that will be directly affected by ground-disturbing activities, including target construction and use, relocation of facilities, and EOD activities.

The earliest remains of human activity in the region date to approximately 12,000 years before present (BP) and are associated with the hunting of large game animals, such as mammoth and mastodon, commonly grouped and referred to as Pleistocene megafauna. During this time, the climate was cooler and wetter, supporting vast grasslands, shallow lakes, and wetlands. Known only through the material remains they left behind, these earliest inhabitants are known as the Clovis Culture, and existed for perhaps only 700 years. Evidence of the culture was first recognized at Black Water Draw, New Mexico, south of Clovis, in 1929. In the years since, the site has been extensively excavated, revealing intermittent occupations of successive cultures that span thousands of years.

Through the next several thousand years, the climate became warmer and drier. The grasslands turned to a desert shrub environment, and the lakes and wetlands disappeared along with the megafauna. The environmental changes forced a change in the subsistence of local populations, shifting to a reliance on other game animals and a greater utilization of plant resources.

Roughly 3,000 BP, ceramics came into use; the practice of agriculture developed; and more permanent, substantial residential structures (e.g., pueblos) were built (ACC 2004a).

Spanish explorers first entered the region beginning in the mid-16th century, following exploration routes along the Pecos and Canadian Rivers. They discovered a barren plain that occupies 37,000 square miles of west Texas and eastern New Mexico. To the north and west, the plain is bounded by an escarpment that rises 300 feet above the plain. Through the millennia, wind and water eroded the bedrock of the escarpment so that from a distance it resembles ramparts or fortifications. As a result, the region, which is actually a southern reach of the Great Plains, was named the Llano Estacado (palisaded plain). Once a forbidding place only suited to seasonal grazing, through irrigation the Llano now supports widespread agriculture and the communities of Lubbock and Amarillo, Texas, and Clovis, New Mexico.

American forts in the region, such as Fort Sumner within the study area, were established by the early 1860s to defend routes of travel through the area (ACC 2004a). After 1865, American cattle ranchers entered the region, establishing extensive ranches during the 1880s, including the Melrose AFR area.

4.7.2 Existing Conditions

No World War II resources remain on Melrose AFR. Although there are a number of buildings from the Cold War era, all have been determined to be not eligible for the NRHP (ACC 2004a). Building 3125 and its accompanying tower have been previously misidentified as Cold War era resources. However, extensive archival research has confirmed that both facilities were built in 1992 (ACC 2004a).

Several archaeological survey projects have been conducted within Melrose AFR since 1981, covering the entire range (ACC 2004a). More than 240 archaeological sites, ranging in age from the Paleoindian period (before 7500 BP) through the Historic era (after 400 BP and up through World War II), have been recorded on the range (ACC 2004a). Although the NRHP eligibility status of many of these sites remains unknown, more than 60 of the sites are considered eligible or potentially eligible for inclusion in the NRHP; however, currently none are listed on the NRHP.

Melrose AFR includes a variety of landforms with varying densities of archaeological sites. Data analysis has shown trends in the association of sites from different time periods with certain landforms. The six landforms types are Drainage, Dune, Gentle Slope, Mesa Top, Playa Basin and Steep Slope. Paleoindian sites are found most commonly in drainages; Archaic period sites are often located in drainages with gentle slopes being the next most common location; Archaic sites are the only dateable site type found in the steep slope landform. Ceramic period sites are most common in playa basins followed by drainages. Sites of unknown prehistoric period dominate the gentle slope category, with presence on mesa tops and drainages next. Historic sites are most commonly found in gentle slopes, drainages and mesa tops.

Native American groups with historic ties to the area include the Mescalero Apache, Jicarilla Apache, Kiowa, and Comanche. The nearest reservation is the Mescalero Apache Reservation, located approximately 100 miles southwest of Melrose AFR near Ruidoso, New Mexico. The Jicarilla Apache Reservation is 195 miles northwest of the range. The Comanche and Kiowa Tribes are located near Lawton, Oklahoma, approximately 300 miles northeast of Melrose AFR. No traditional resources have been identified to date within Melrose AFR. The Air Force has

initiated contact with the Mescalero Apache, Jicarilla Apache, Comanche, and Kiowa tribes to identify potential concerns associated with the Two-Target Alternative (refer to Appendix C).

4.7.3 Environmental Consequences

Impact analysis on Melrose AFR follows the definition of impacts and effects presented in Section 3.7.3. The Two-Target Alternative and Three-Target Alternative on Melrose AFR include the relocation of the manned site at the center of the exclusive-use area, an increase in the use of ordnance, a decrease in chaff and flare usage, the creation of new target areas, and the creation of one LZ/DZ.

4.7.3.1 Two-Target Alternative

Since there are no NRHP-eligible buildings on Melrose AFR, moving or renovating existing structures will have no effect on historic properties. There are more than 240 archaeological sites on Melrose AFR, at least 60 of which are eligible for the NRHP (ACC 2004a). Although these sites can be affected by ground disturbance associated with relocating structures, or target use and construction, at the present time, impacts to all NRHP-eligible archaeological resources within the Melrose AFR exclusive-use area have been mitigated (ACC 2004a). Mitigation may include data recovery consisting of excavation and detailed site recording, or similar actions at another site. No archaeological sites have been identified within the locations identified for target construction under this alternative. If, in the course of ground-disturbing activities, including target construction, cultural resources are encountered, the Air Force will comply with Section 106 of the National Historic Preservation Act (NHPA) by evaluating them for NRHP eligibility and managing these resources in accordance with the Cannon AFB and Melrose AFR Cultural Resources Management Plan (CRMP) (ACC 2004a).

4.7.3.2 Three-Target Alternative

Under the Three-Target Alternative, there would be three targets rather than two, and all would be constructed outside the exclusive-use target impact area, in the area of restricted lease. The areas proposed under this alternative have been surveyed for archaeological and architectural resources, and none are located within their boundaries. Should cultural resources be located during construction, the Air Force will manage these resources in compliance with Section 106 of NHPA and in accordance with the Cannon AFB and Melrose AFR CRMP (ACC 2004a).

4.7.3.3 No Action Alternative

Under the No Action Alternative, there would be no movement of AFSOC assets to Cannon AFB although AFSOC would maintain and operate the properties. There would be no new target construction, no relocation of structures, and a reduction in ordnance use on Melrose AFR as the 27 FW F-16 aircraft depart Cannon AFB. Cannon AFB would continue to manage all cultural resources within the range in accordance with the 2004 CRMP (ACC 2004a).

4.8 Land Use and Ranching

4.8.1 Definition of Resource

Land use addresses general land use patterns, land ownership, land management plans, and special use areas under the restricted areas. General land use patterns characterize the types of uses within a particular area such as rangeland, agricultural, military, and urban. Land ownership is a categorization of land according to type of owner. The major land ownership categories include private, state, and federal. Federal lands are described by the managing agency, which may include the Bureau of Land Management, U.S. Forest Service, or DoD.

The ROI for land use and ranching consists of Melrose AFR and all the lands under the existing restricted airspace R-5104 and R-5105 used for military training.

4.8.2 Existing Conditions

Melrose AFR and R-5104/5105. Melrose AFR, which is administered by Cannon AFB, is located in the southern portion of the restricted airspace approximately 30 miles west of Cannon AFB. The range is located on approximately 60,010 acres, of which 8,800 acres are used for an exclusive-use impact area for the Air Force. The Air Force leases approximately 51,000 acres to ranchers for cattle grazing and farming. Figure 4.8-1 presents targets and manned areas.

Melrose AFR is currently divided into three management areas. The first area is the Exclusive-Use target area. This is the area that contains targets where ordnance is actually expended and is the area that contains most manned range support facilities. The area is fenced and access to this area is strictly controlled and monitored by the Air Force RCO. The second area, outside of the Exclusive-Use Area, is the Restricted Leased Land that serves as a buffer zone for range safety requirements. Cattle grazing is permitted in this area on a restricted basis. The third area between the Restricted Leased Land and the range boundaries is leased for unrestrictive grazing use. Warning signs identifying Melrose AFR are posted on the fence around the range boundaries. On the periphery of the 60,010-acre range, the Air Force has acquired restrictive easements that include structure height restrictions.

There are 13 ranchers that hold leases on Melrose AFR. The lease sizes for the current leaseholders range from 160 acres to about 14,393 acres. Most of the large leases have wells or other water devices (Air Force 1997a). Most of the leases are used for grazing range cattle. Two leases have developed irrigated cropland and one of those leases was identified during the Draft EIS public hearings as producing high-value, organically grown crops. Table 4.8-1 shows the lease numbers, acreage per lease, and access restriction zones for the Melrose AFR. The total of 50,932.8 leased acres, plus an estimated 277.2 acres of restricted and unrestricted access routes and other uses plus the Exclusive-Use 8,800-acre area equal the 60,010-acre Melrose AFR.

Table 4.8-1. Current Melrose AFR Leases and Acreage

	Zone B		*Zone D*	
Number	*Restricted Access*	*Limited Access*	*Unrestricted Access*	*Total*
PXLY-1-03-022			1,907.92	1,907.92
PXLY-1-03-023	1,810		7,460	9,270
PXLY-1-03-024	960	3,221.88	10,210.72	14,392.6
PXLY-1-03-025			2,080	2,080
PXLY-1-03-026	200		1,440	1,640
PXLY-1-03-027			1,600	1,600
PXLY-1-03-028	2,879.88	1,000	2,960	6,839.88
PXLY-1-03-029	5,878		282	6,160
PXLY-1-03-032	1,320		2,680	4,000
PXLY-1-03-030	1,280		160	1,440
PXLY-1-03-031			160	160
PXLY-1-03-033			800	800
PXLY-1-04-038		642.4		642.4
Totals	**14,327.88**	**4,864.28**	**31,740.64**	**50,932.80**

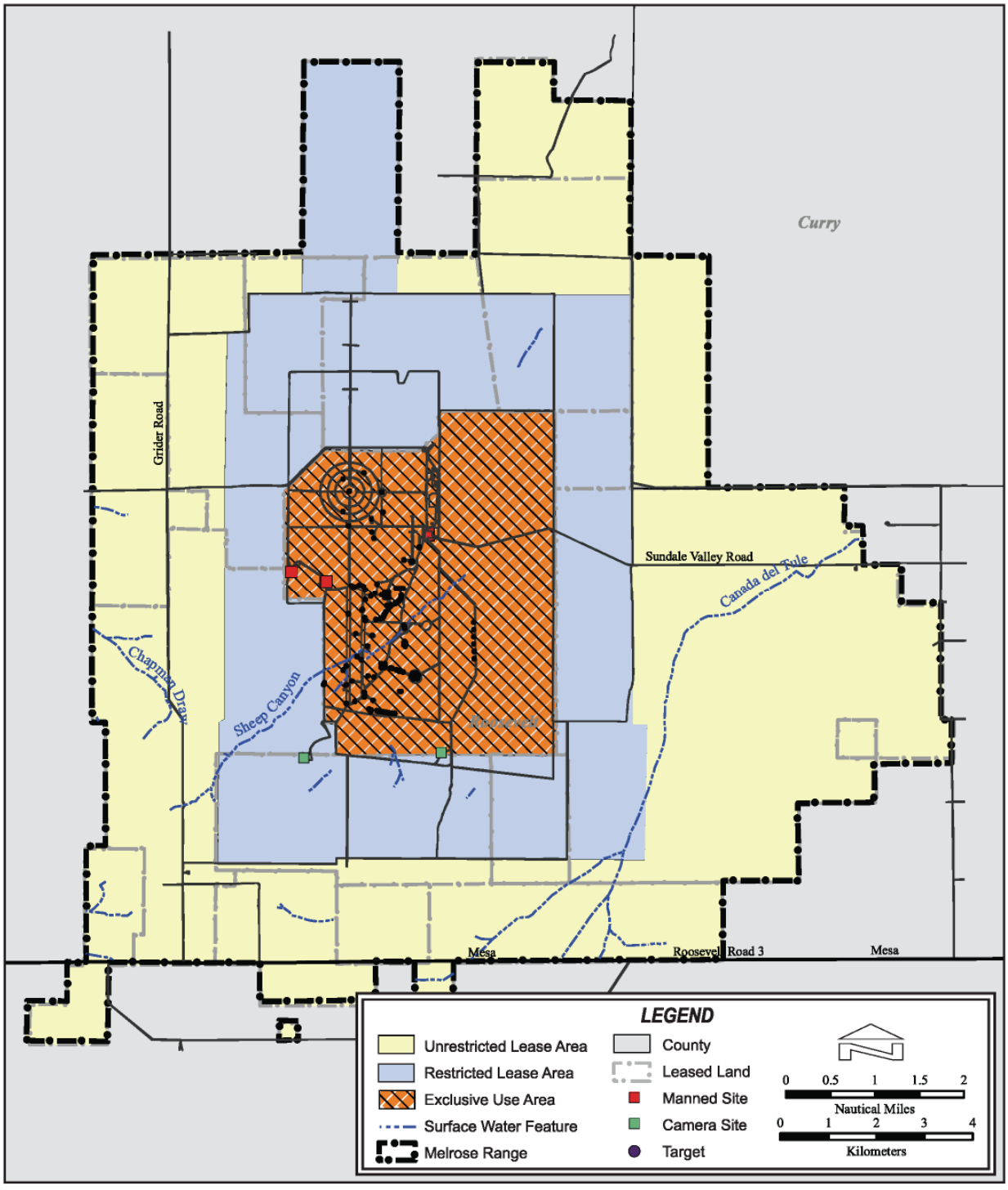


FIGURE 4.8-1. MELROSE AFR EXISTING TARGET AREAS AND LEASED LANDS

Access zones have been developed within Melrose AFR to guide Melrose AFR for rancher safety (personal communication, Wright 2006).

- Zone A: Exclusive Use; access to Zone A will require permission of the 27 FW Operations Group Commander or his/her designated representative. (Impact Area – none of which is leased out.)
- Zone B: Restricted and Limited Access; access is between the hours of 11:00 p.m. to 8:00 a.m. local time, Monday through Friday; the hours of 3:00 p.m. local time Saturday to 8:00 a.m. local time Monday; and the hours of 6:00 p.m. the day preceding a national holiday until 8:00 a.m. the day after the national holiday. Additional hours of access shall be scheduled through the 27 OSS/OSTW. Access to the leased area may be denied during special exercises in which case notification of denial will be given by the 27 FW/OG or his/her designated representative.
- Zone C: Unrestricted Access at this time, but may be restricted in the future depending on target configuration. Lessees are advised of restricted access at least six months prior to restrictions going into effect.
- Zone D: Access to Zone D is unrestricted and can be accessed 24 hours a day.

Cannon AFB developed a Grazing Management Plan within their INRMP to improve and monitor grazing and agricultural practices on the range. Grazing land improvements include structural improvements such as fences, cattle guards, water developments, and livestock enclosures, as well as non-structural improvements such as seeding, fertilizing, and vegetation management. The rangeland supports about one animal unit (AU) (typically a cow plus a calf) per 40 acres (Air Force 2007).

Because of New Mexico's arid climate in agricultural areas, no lands in New Mexico qualify as Prime Farmland unless irrigated with a dependable supply of irrigation water. Melrose AFR has irrigated land within Zone D. Depending upon the alternative Melrose AFR targets selected for use, irrigated cropland could be impacted by new range activities. Outside of Melrose AFR boundaries, irrigated farmland would be considered Land of Statewide Importance (NRCS 2006). No Melrose AFR construction would occur outside of range boundaries and no conversion of agricultural land would occur.

Public access on Melrose AFR is limited to ranchers or those who have business interests on the range. Recreation is not permitted and the general public is not allowed access. Liability and a hold harmless clause is included in existing leases. The leases also include a clause requiring farmers and ranchers to attend safety briefings conducted by the Air Force.

Outside the range boundary, lands are generally used for cattle grazing and crop production. Crops produced in Curry and Roosevelt counties include wheat, grain sorghum, corn, barley, cotton, hay, peanuts, and potatoes. Urban land uses comprise less than 1 percent of the total area. There is one identified noise-sensitive area on the periphery of the range: the Jewell Ranch. The Jewell Ranch is located to the southwest of the range and has a 1/2-mile no-fly circle around it.

Table 4.8-2 shows the acreages and percentages of land uses under R-5104/5105. Reflecting typical land uses found in eastern New Mexico, rangeland and agriculture are the dominant land uses under the airspace.

Table 4.8-2. Existing Land Use under R-5104/5105

Land Use Category	*Acreage*	*Percentage of Restricted Area*
Rangeland	245,325	83
Agriculture	48,249	16
Water/Wetland	767	<1
Urban	577	<1
Total	**294,918**	**100**

Source: USEPA 2000.

Land ownership under the restricted airspace outside Melrose AFR consists of approximately 71 percent private land, 21 percent state-owned, and 8 percent federal government-owned.

The majority of Melrose AFR is in Roosevelt County. Roosevelt County maintains a comprehensive plan but it does not specifically address Melrose AFR or surrounding properties. The County does not have a zoning ordinance but does administer subdivision regulations (personal communication, Hardin 2006).

Transportation

Three Air Force civilians and 27 full-time contractors manage Melrose AFR. In addition, the Melrose AFR Fire Department employs four persons. Personnel travel to the range in either personal vehicles or government vehicles. Primary access to Melrose AFR is provided via U.S. 60/84 to New Mexico Highway 267 to Sundale Valley Road. A gated entrance is also located on the west side of the range off Krider Road. Numerous unpaved roads provide access for contractor/military personnel and ranchers. Traffic volume on these routes is low and therefore a level of service analysis has not been performed in this area (personal communication, Kurtz 2006).

4.8.3 Environmental Consequences

4.8.3.1 Two-Target Alternative

Melrose AFR has a variety of conventional and non-conventional targets. Implementation of the Two-Target Alternative at Melrose AFR would include the development of two live-fire target areas within the existing Exclusive-Use impact area as shown in Figure 2.2-2. The two target areas would each be approximately 1 kilometer square and would be located in the northeast and southwest corners of the existing Exclusive-Use Area, and would require a buffer area that extends out 2,296 feet beyond the approximate 1 kilometer square target boundary in all directions. Figure 2.2-3 presents a representative Target Set Layout to be installed within the impact area. The Two-Target Alternative is expected to expand the manned site at the center of the range (depicted in Figure 2.2-1) and could include expanding manned sites on the mesa to the western side of the range. Buildings that support the range, including the main tower and related support building and services, would be relocated from the center of the range.

Annually, approximately 40 percent of the Melrose AFR training activity would occur during environmental night (after 10:00 p.m. and before 7:00 a.m.). Training using LZs and DZs would be approximately in the same proportion (40 percent) during environmental night.

Under the Two-Target Alternative, modification to the existing Melrose AFR land use designations would occur. The Exclusive-Use Area would increase in size to include the area within the weapons safety footprint. Table 4.8-3 presents the existing, Two-Target Alternative, and Three-Target Alternative land use designations.

TABLE 4.8-3. ACRES OF LAND USE[1]

Land Use	*Existing Conditions*	TWO-TARGET ALTERNATIVE		THREE-TARGET ALTERNATIVE	
		Draft EIS	*Final EIS*[2]	*Draft EIS*	*Final EIS*
Exclusive-Use	8,800	16,613	10,600	23,275	12,700
Restricted Grazing[1]	18,710	12,247	18,600	12,615	23,300
Unrestricted Grazing[1]	32,500	31,150	30,810	24,120	24,010
Total	**60,010**	**60,010**	**60,010**	**60,010**	**60,010**

Note: 1. Acres based on Geographic Information System; survey acreage may vary.
2. Preferred Alternative.

Typical grazing operations rotate cattle among owned or leased grazing areas during a season. The reduction in grazing acreage would affect ranch operations for ranchers affected by the changes in Melrose AFR land use. In the case of leases developed as irrigated farmland, live target use could have made the irrigated agriculture land use incompatible if 25 mm munitions were used from the gunships. The preferred alternative without the use of 25 mm munitions is not expected to be incompatible with the existing irrigated land.

During the Draft EIS public comment period, several commenters expressed concern about the use of 25 mm munitions and noted that the Two-Target Alternative would have less impact upon their ranching operations. However, two commenters noted that the Two-Target Alternative with the 25 mm munitions safety footprint could substantially affect the viability of their agricultural operations on leased land.

Cannon military aircraft currently use RR-188 chaff, M-206 defensive flares, other flares, and ordnance in Restricted Airspace over the Melrose AFR. Under the Two-Target Alternative, the use of RR-188 chaff and M-206 defensive flares under the Restricted Areas authorized would increase from 3,762 chaff bundles to 18,000. Flare use would increase from 2,031 to 10,000.

The release of chaff and flare end caps and other residual materials together would average one piece per 2.83 acres per year. Although the likelihood of encountering any chaff or flare residual components outside Melrose AFR is low, if such were found it could result in annoyance to the observer. Flare residual materials from unassessed flares and end caps from assessed flares or chaff were displayed by a participant at public meetings conducted by Cannon AFB in 2005. Participants expressed annoyance at finding residual flare and chaff materials on private property (Air Force 2006a).

Chaff particles are extremely difficult to discern from naturally occurring materials found in the area (Air Force 1997b). Chaff fibers break down to the consistency of background materials. Animals do not typically consume chaff (see Section 4.6), and it is unlikely that modern chaff or its residual components would accumulate in sufficient quantities to impact land uses, affect

recreational resources, or even be found. In rare instances, chaff does not deploy correctly and rather than disperse in a large cloud, the fibers may clump together and fall to the ground. When this occurs, tufts or clumps of chaff can be discernible to the naked eye. These tufts may catch on vegetation or blow across the landscape with the wind. Tufts may stay together or separate into individual fibers to some degree as the wind blows. Depending upon the context, the chaff may appear to resemble naturally occurring tufted seed pods or be viewed as foreign material. If viewed as a foreign material, the viewer may be annoyed by the presence of such chaff clumps.

During scoping meetings for this Environmental Impact Statement (EIS), participants expressed concern regarding potential detrimental effects to property values and the fire hazard of flares. The November 2005 fire was cited as a case where an Air Force release of a training munition caused substantial off-range damage.

Use of chaff and flares would be directly correlated to the pilot's response to a threat within the airspace. Residual deposition of chaff or flare end cap materials would be the result of altitude of chaff use, wind directions, and wind speeds. Due to the dispersal nature of deployed chaff and flares, the average wind in the area, wind altitudes, and the altitude at which chaff and flares are deployed, chaff or flare materials could be carried on wind currents outside, and, possibly, back inside the airspace. This analysis assumes that all chaff and flare end caps would be concentrated on lands under the airspace. This conservative assumption could produce a higher annual concentration of chaff or flare materials than may actually be experienced under the airspace.

With regard to both chaff and flares, the likelihood of adverse impacts on Melrose AFR associated with these elements would increase over current conditions. In the airspace, chaff concentrations would be estimated to be approximately 5.79 grams (0.20 ounce) per acre per year. An estimated one flare would be dispensed annually over the Restricted Area every 29.5 acres.

The risk of fire associated with flare use is low and virtually indistinguishable compared to other potential sources of fire (e.g., lightning). In the unlikely incidence of a fire, such as the November 2005 fire caused by a spotting charge from a dummy munition, the Air Force has established procedures for damage claims reimbursement. Section 4.3 further discusses control of fire.

There would be no anticipated change in general land use patterns, land ownership, or land management plans for the lands underlying the airspace as a result of continued chaff and flare use. This is consistent with other areas throughout the country where chaff and flares have been used.

Under the Two-Target Alternative, aircraft noise and impulse noise would increase in restricted airspace when compared with baseline conditions. Annual average noise levels outside Melrose AFR and under the restricted airspace would increase from an L_{dn} of 44 to 48 dB to an L_{dn} of 55 to 58. Noise levels at L_{dn} 58 dB are unlikely to change land use patterns, ownership, or management practices. The noise levels could result in annoyance to residents living under the restricted airspace associated with Melrose AFR.

Potential noise effects to land use would include aircraft and gun-related impulse noise. Impulse noise from munitions would be noticed both on the range and at ranches in the periphery of the range. The day and night firing of cannon from aircraft and the ground impact would produce noise levels that, while not of the levels that could harm human health, could be

perceived as an annoyance by ranch residents and workers (see Sections 4.2.3.1 and 4.2.3.2). This noise would not be expected to change agricultural land uses on the periphery of the range.

The Two-Target Alternative would include improvements to approximately 6 miles of Krider Road to provide access to the west side of the range. Paving would provide improved access for range and emergency response vehicles. Traffic volumes on Krider Road and Sundale Valley Road are not expected to increase sufficiently to create a drop in the Level of Service (LOS). Therefore, traffic-related impacts are not expected.

4.8.3.2 Three-Target Alternative

Under this alternative, three live-fire target areas for use by the AC-130 gunships would be developed within the 60,010-acre Melrose AFR. As shown in Figure 2.2-4, all three target areas would be located within Melrose AFR and as near as possible to the existing Exclusive-Use Area.

Table 4.8-3 shows the acreages within each land classification under existing conditions, the Two-Target Alternative, and the Three-Target Alternative. Under the Three-Target Alternative, modification to the existing Melrose AFR land use designations would occur. The Exclusive-Use impact area would increase in size from 8,800 acres to 12,700 acres and the Restricted Leased Land would increase from 18,710 acres to 23,300 acres. The Unrestricted Leased Lands would decrease to 24,010 acres. This action would change the land use designation and would change the use of the land. Leaseholders would have to change their leases and may decide to change their ranching practices. In the case of the two leases with a portion of each lease developed in irrigated farmland, live target use with 25 mm munitions would have been incompatible with the irrigated land use. The preferred alternative without the use of 25 mm munitions is not expected to be incompatible with the existing irrigated land.

During the Draft EIS comment period, two commenters noted that the Three-Target Alternative would not affect the viability of their agricultural land use on leased land as much as the Two-Target Alternative. However, several commenters expressed concern about the use of 25 mm munitions and noted that the Three-Target Alternative would have greater impact on their ranching land use than the Two-Target Alternative.

Consequences from aircraft and gun impulse noise and chaff and flare use would essentially be as described under the Two-Target Alternative. The noise levels are discussed in Sections 4.2.3.1 and 4.2.3.2. Off range, the resulting noise levels would be below 62 dBC.

The impacts from traffic under this alternative would be the same as under the Two-Target Alternative. Krider Road would be improved and traffic volumes on both Krider and Sundale Valley road are not expected to increase sufficiently to create a drop in the LOS. Therefore, traffic-related impacts would not result.

4.8.3.3 No Action Alternative

Under the No Action Alternative, there would be no movement of AFSOC assets to Cannon AFB although AFSOC would maintain and operate the properties. The F-16s would depart before the end of Fiscal Year (FY) 2008. Melrose AFR would continue to operate as a training range for military aircraft. Land ownership and general land use patterns would remain the same. Because Melrose AFR would remain an active range, no impact is expected to land use under the No Action Alternative.

4.9 Socioeconomics

4.9.1 Definition of Resource

Socioeconomics is defined as the basic attributes and resources associated with the human environment, particularly economic activity. Economic activity typically encompasses employment, personal income, and regional industries. Changes to these fundamental components can influence other community resources.

Melrose AFR is situated in the high plains of eastern New Mexico, 32 miles driving distance west of Cannon AFB, in Roosevelt County. Socioeconomic activities associated with the range are support for range activities and agriculture.

4.9.2 Existing Conditions

Maintenance and construction activities on the range are part of the Cannon AFB military construction (MILCON) and operations and maintenance (O&M) program. Range employees are counted in the Cannon AFB personnel numbers. The range expenditures and personnel numbers are included in Section 3.9.1 for Cannon AFB.

Section 4.8.1 describes the agricultural land uses on Melrose AFR. The 60,010 acres of Melrose AFR are managed in three distinct ways, as noted in Table 4.8-1. Ranching operators manage grazing by rotating cattle among leased and owned properties, depending upon range conditions. Reduction in available rangelands could affect the overall ranching operations. In addition to grazing, two lessees produce row crops using center pivot irrigation systems.

4.9.3 Environmental Consequences

4.9.3.1 Two-Target Alternative

The use of two new Melrose AFR targets for live fire will change the grazing activity on portions of the range. Under the Two-Target Alternative, the Exclusive-Use Area would increase to 10,600 acres (see Table 4.8-3). Exclusive-Use Areas would exclude agricultural activities such as grazing or irrigated crops. Currently, Restricted Leased Grazing Lands and Unrestricted Leased Grazing Lands would be changed. This change would provide for safety zones around live-fire targets. The approximately 2.8 sections of rangeland removed from Restricted or Unrestricted grazing leases on Melrose AFR usually support approximately one AU per 40 acres. An AU is typically defined as the grazing area needed to support one cow and calf. The Two-Target Alternative could reduce the AUs by an estimated 45. In 2002, the latest year available with a comprehensive inventory, the number of beef cow cattle and calves in Curry, Roosevelt, and De Baca Counties was approximately 240,000. A reduction of 45 AUs would not significantly affect regional cattle operations, although it could detrimentally affect ranching operations of the affected lessees. Lessees with increased restricted grazing leases would need to assess ranch management practices. A portion of one lease to the northeast of the existing Exclusive-Use area is developed in irrigated organically grown agriculture. The preferred alternative, without 25 mm munitions, would be expected to affect the portion of the lease in grazing and could require management changes due to lease modifications. New access provisions could affect management of the irrigated portion of the lease. The live target safety footprint is not otherwise expected to impact the irrigated agriculture.

Residents within 6 miles of Melrose AFR live-fire targets would be subject to increased impulse noise from munitions and increased night overflight by training AFSOC aircraft. The day and night firing from AC-130 gunships would produce noise levels off range that, while not of the

levels that could harm human health, could be perceived as an annoyance by ranch residents and workers (see Section 4.2.3.1).

4.9.3.2 Three-Target Alternative

The consequences for the Three-Target Alternative are basically the same as those described for the Two-Target Alternative with the exception that three new targets for aerial gunnery would be established within the boundaries of Melrose AFR. As presented in Table 4.8-3, the 8,800-acre Exclusive-Use Area would become a 12,700-acre Exclusive-Use Area. This would move approximately 6.1 sections currently used for grazing into the Exclusive-Use Area.

Changes in the designation of grazing land within Melrose AFR would decrease both Restricted and Unrestricted leased grazing acreage. Lessees whose land converted to Exclusive-Use and those with additional acreage in restricted grazing may need to assess ranch management practices due to changes in access periods and/or changes in available leased acreage. In some cases noted during the public hearings on the Draft EIS, lease changes could significantly impact specific on-going ranch operations.

Under the Three-Target Alternative, 6.1 sections of rangeland could be affected that currently support one AU per 40 acres. This alternative could reduce the AUs by an estimated 98. Such a reduction would not significantly affect regional cattle operations, although it could detrimentally affect ranching operations of the affected lessees. Additional lessees would have land currently in unrestricted use converted to restricted use with additional access requirements that could affect cattle management activities in these areas.

4.9.3.3 No Action Alternative

The No Action Alternative would result in no movement of AFSOC assets to Cannon AFB although AFSOC would maintain and operate the properties. Melrose AFR would continue to operate as a training range for transient and NMANG military aircraft. Melrose AFR grazing lease programs would remain as they currently exist. Noise levels and range activities would be reduced as the 27 FW was deactivated.

4.10 Environmental Justice

4.10.1 Definition of Resource

Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations. In addition to environmental justice issues are concerns pursuant to EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, which directs federal agencies to the extent permitted by law and appropriate, and consistent with the agency's mission, (a) make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children; and (b) ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

For purposes of this analysis, minority, low-income and youth populations are defined as follows:

- *Minority Population*: Persons of Hispanic origin of any race, Blacks, American Indians, Eskimos, Aleuts, Asians, or Pacific Islanders.
- *Low-Income Population*: Persons living below the poverty level.
- *Youth Population*: Children under the age of 18 years.

Estimates of these three population categories were developed based on data from the U.S. Bureau of the Census. Total and minority population figures are based on recent demographic data released from Census 2000 (U.S. Census Bureau 2000a). The census does not report minority population, per se, but reports population by race and by ethnic origin. These data were used to estimate minority populations potentially affected by implementation of the AFSOC beddown and associated training at Melrose AFR. Low-income and youth population figures were also drawn from the Census 2000 Profile of General Demographic Characteristics (U.S. Census Bureau 2000a). The R-5104 and R-5105 ROI for Melrose AFR is a subset of that for Cannon AFB, so the material presented in this section draws from Section 3.10.

4.10.2 EXISTING CONDITIONS

Disadvantaged groups within the Curry and Roosevelt counties ROI are specifically considered in order to assess the potential for disproportionate occurrence of impacts (see Table 4.10-1). The incidence of persons and families in the ROI with incomes below the poverty level was just slightly higher than state levels (U.S. Census Bureau 2000a).

Minority persons represent 40.1 percent of the population in the ROI. Hispanic or Latino persons account for most of the minority population in the ROI, representing 31.2 percent of the ROI population and 77.8 percent of the minority population. This is a lower ratio of minority population than that of the State of New Mexico as a whole. The youth population, which includes children under the age of 18, accounts for 29.5 percent of the ROI population, compared to 28.0 percent at the state level.

TABLE 4.10-1. 2000 POPULATION AND ENVIRONMENTAL JUSTICE DATA

		MINORITY PERSONS		PERSONS BELOW POVERTY		CHILDREN UNDER 18	
Area	*Population*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Curry County	45,044	18,583	41.3	8,327	19.0	13,561	30.1
Roosevelt County	18,018	6,719	37.3	3,928	22.7	5,060	28.1
State of New Mexico	1,819,046	1,005,551	55.3	328,933	18.4	508,574	28.0
Total ROI	**63,062**	**25,302**	**40.1**	**12,255**	**20.0**	**18,621**	**29.5**

Notes: 1. The U.S. Census calculates percent low-income for individual counties based on total county populations that differ slightly from the county populations reported in the first column.
2. Population figures for the each category are from different reporting years as described in the previous section. Therefore, except for minority population, the percentage figures are not based on the total population presented in this table but from the relevant data year.

Source: U.S. Census Bureau 2000a.

4.10.3 Environmental Consequences

For either the Two-Target or Three-Target Alternative, there are no permanent residents on the 60,010-acre Melrose AFR. Residents under the Restricted Airspace associated with Melrose AFR or under the Taiban MOA immediately adjacent to the range are representative of minority persons within the counties that constitute the airspace ROI. The youth populationof children under the age of 18 under Restricted Airspace is consistent with the ROI population. No disproportionate impacts are expected to occur to minority or low-income populations or to children.

4.10.4 No Action

No Action would result in no movement of AFSOC assets to Cannon AFB although AFSOC would maintain and operate the properties; at Melrose AFR there would be no effects on minority or disadvantaged individuals.

5.0 TRAINING AIRSPACE AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the affected environment and potential environmental consequences within the military training airspace associated with Cannon Air Force Base (AFB) and Melrose Air Force Range (AFR). This airspace includes the Pecos, Taiban, Mt. Dora, and Bronco Military Operations Areas (MOAs), as well as Cannon AFB-scheduled Military Training Routes (MTRs) depicted on Figure 2.3-3, and other AFSOC training activities.

In compliance with the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) guidelines, and 32 Code of Federal Regulations (CFR) Part 989, et seq., the description of the affected environment focuses on those resources and conditions potentially subject to impacts. The affected environment is described for ten resource topics: Airspace Management, Noise, Safety, Air Quality, Physical Resources, Biological Resources, Cultural Resources, Land Use and Recreation, Socioeconomics and Environmental Justice. These resources are extensively interrelated, and consequently, each resource topic relies upon the findings of relevant other analyses. For example, noise analyses are reflected in the analysis of land use, socioeconomics, and biological resources.

The sections for each resource topic begin with an introduction that defines the resources addressed in the section, defines key terms as necessary and describes the region of influence (ROI) within which the effects from the Proposed and Alternative Actions are anticipated to occur. The ROI varies from resource to resource, but in general, effects from the Proposed and Alternative Action are expected to be concentrated on the range. Section 3.0 describes primary reasons why the ROI might differ among resources.

Following the introduction for each resource topic, information is presented about existing environmental conditions in the ROI. This information provides a frame of reference about conditions that prevail currently or existed in the recent past. Applicable laws and regulations for each resource are presented in Appendix D.

For each resource, the Proposed Training and the No Action Alternative, described in Section 2.3, are assessed for their potential to impact the natural and human environment. In some instances a brief methodology is provided to explain how the analysis of impacts was conducted.

The impacts described in this section represent a best estimation of the consequences of the use of Cannon AFB-scheduled military training airspace by Air Force Special Operations Command (AFSOC). The impact analysis for each alternative includes direct and indirect, as well as short-term and long-term impacts. The impacts of each alternative are compared against the baseline conditions. Cumulative impacts and other environmental considerations are described in Section 6.0.

5.1 AIRSPACE MANAGEMENT

5.1.1 DEFINITION OF RESOURCE

The airspace used for AFSOC training flights consists of MOAs, MTRs and Restricted Airspace (refer to Figure 2.3-1). Restricted airspace is associated with Melrose AFR and is discussed in Section 4.1. This section addresses MOA and MTR airspace.

5.1.2 EXISTING CONDITIONS

5.1.2.1 MILITARY OPERATIONS AREAS

Each MOA is airspace of defined vertical and lateral limits established below the Class A airspace floor of 18,000 feet above mean sea level (MSL). MOAs separate and segregate certain non-hazardous military activities from Instrument Flight Rule (IFR) traffic and to identify for Visual Flight Rule (VFR) traffic where these activities are conducted (Pilot/Controller Glossary [P/CG] 2004). MOAs are considered "joint use" airspace. Aircraft operating under IFR must remain clear of an active MOA unless approved by the responsible Air Route Traffic Control Center (ARTCC). Joint use by both participating and VFR non-participating aircraft is accomplished under the "see-and-avoid" concept described in 14 CFR § 91.113(b), which states that "[w]hen weather conditions permit, pilots operating IFR or VFR, vigilance shall be maintained by each person operating an aircraft so as to see and avoid other aircraft" (P/CG 2004). Right-of-way rules are contained in 14 CFR Part 91. Non-participating aircraft operating under VFR are not prohibited from entering a MOA, even when the MOA is active for military use. ARTCC provides separation of non-participating IFR aircraft within active MOAs in a variety of ways, including restricting IFR traffic from the active MOA. "Lights out" training is not currently conducted by 27th Fighter Wing (27 FW) F-16s in the Pecos MOA. However, under a Letter of Agreement (LOA) between the Albuquerque ARTCC and the 27 FW, the 27 FW could perform lights out training if needed.

Figure 5.1-1 presents the military training airspace in the vicinity of Cannon AFB. This airspace includes the airspace scheduled by Cannon AFB and by other bases. Cannon AFB schedules the Pecos, Taiban, Bronco, and Mt. Dora MOAs. The Beak and Talon MOAs are scheduled by Holloman AFB near Alamogordo. R-5107 and related ranges constitute the Army-scheduled White Sands Missile Range. The MTRs pictured represent the main routes. Multiple alternate entry/exit points providing access to these main routes are not represented on this figure. MTRs are scheduled by various Department of Defense (DoD) agencies.

The Pecos MOAs are four distinct MOAs that are divided into a north and south segment, with each segment having a high and low component. In general, these MOAs abut each other horizontally and vertically, essentially forming one contiguous block of airspace. The exception to this is the Pecos South High MOA, which extends to the south beyond the southern border of the Pecos South Low MOA. This structuring of the MOA airspace, in effect, created a "shelf" of MOA airspace extending to the south of the southern border of the Pecos South Low MOA that begins at 11,000 feet MSL. Termed the "Roswell Shelf," this provided non-Special Use Airspace (SUA) up to 11,000 feet MSL to support other aircraft transiting to and from Roswell, New Mexico. This Roswell Shelf was needed prior to the 1997 improvements in FAA radar coverage at Roswell.

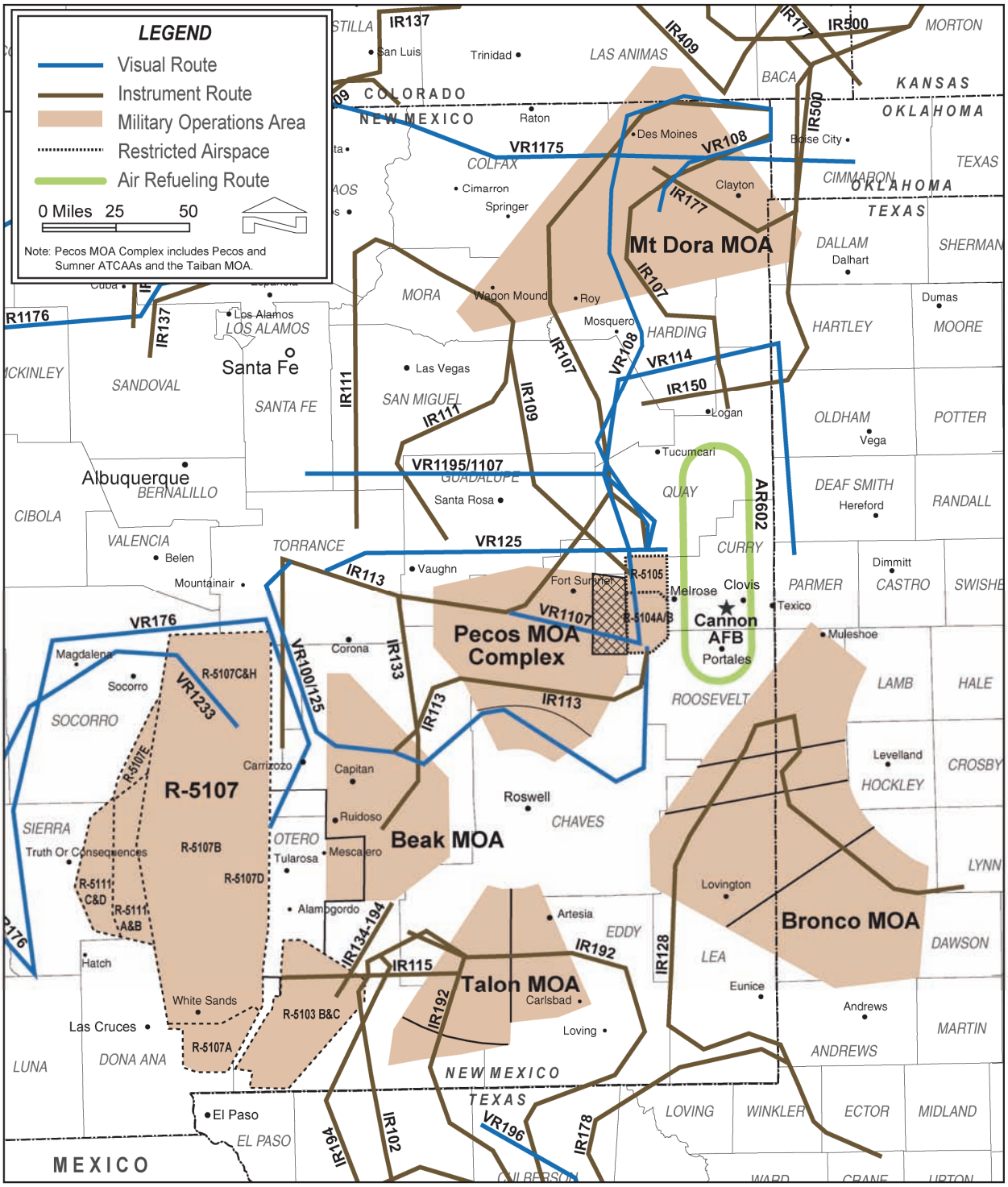


Figure 5.1-1. Military Training Airspace in the Vicinity of Cannon AFB and Melrose AFR

Overlying about 3,120 square miles, the Pecos MOA extends from 500 feet above ground level (AGL) up to but not including Flight Level (FL) 180. Sortie-operations in Pecos MOA are concentrated between 500 and 1,000 feet AGL (40 percent) and above 10,000 feet AGL (45 percent). Use of Pecos MOA can be independent of training in Melrose AFR airspace, although aircraft often conduct sortie-operations in Pecos MOA, Taiban MOA, and Melrose AFR airspace during a single training mission. The Pecos MOA also supports air-to-air training activities. About 3,500 sortie-operations were conducted in Pecos MOA under baseline conditions. F-16s from Cannon AFB performed 76 percent of these sortie-operations.

TRAINING AIRSPACE PROPOSED FOR USE BY AFSOC COVERS A LARGE AREA CHARACTERIZED BY HIGH PLAINS AND GRASSLANDS WITH SPARSE VEGETATION AND FEW PERMANENT BODIES OF WATER.

The Taiban MOA overlies approximately 310 square miles and is situated along the northeastern edge of the Pecos MOAs. This MOA effectively extends the Pecos North Low MOA and a portion of the Pecos South Low MOA eastward to the Restricted Airspace, which supports operations on Melrose AFR. These MOAs are scheduled and managed by staff at Cannon AFB; utilization is under the control of the Albuquerque ARTCC. Currently the 27 FW uses the Sumner ATCAA and conducts large-force exercises in the Beak MOA. The Beak MOA, with approximately 3,850 baseline sortie-operations, ranges in altitude from 500 feet AGL to approximately 7,000 feet AGL. About 55 percent of flight activities occur between 500 and 2,000 feet AGL, with 45 percent between 2,000 and 10,000 feet AGL. Roughly 62 percent of the current sortie-operations in Taiban MOA are attributable to F-16s from Cannon AFB.

Mt. Dora MOA is located 110 miles north of Cannon AFB. This triangular MOA overlies approximately 5,340 square miles, mostly in New Mexico, but with small sections in Texas and Colorado. The MOA extends from 1,500 feet AGL to approximately FL180. Cannon AFB-based aircraft split use of Mt. Dora MOA, accounting for 52 percent of the 747 total baseline sortie-operations. Flight activities are evenly distributed above and below 2,000 feet AGL, with 45 percent of the activity above 10,000 feet AGL. The Mt. Dora MOA has received little use from Cannon-based fighter aircraft in the past decade due to its distance from Cannon AFB. AFSOC Cannon-based C-130 aircraft are proposed to use the Mt. Dora MOA more than the F-16s used that airspace.

Bronco MOA covers approximately 6,820 square miles in eastern New Mexico and northwestern Texas. Minimum flight altitude in the northern one-third of the MOA is 8,000 feet MSL with 10,000 feet MSL as the floor altitude in the remainder of the MOA. All portions of Bronco MOA extend up to FL180. Baseline annual sortie-operations totaled 1,200; Cannon AFB F-16s accounted for 80 percent. The Bronco MOA south of Cannon AFB has been used for 27 FW F-16 training and for training by Texas-based units.

The MOAs proposed to be used by AFSOC aircraft are developed, coordinated, used, and managed in accordance with LOAs between the 27 FW and the Albuquerque and Fort Worth Centers. For the airspace, the LOA delegate airspace to Cannon AFB Radar Approach Control, defines responsibilities, and outlines procedures for aircraft operations, air traffic control operations, and utilization of airspace for which the 27 FW is the scheduling authority. Such LOAs are supplementary to the procedures in Federal Aviation Administration (FAA)

Orders 7110.65 (Air Traffic Control) and 7610.4 (Special Military Operations). The MOAs are described in Table 5.1-1. Figure 5.1-2 presents these MOAs and the MTRs scheduled by Cannon AFB. The primary MTR routes are presented in Figure 5.1-2. Each MTR also typically has several branching entry or exit points.

TABLE 5.1-1. EXISTING MOAS ASSOCIATED WITH CANNON AFB AND MELROSE AFR

MOA / ATCAA	ALTITUDES		PUBLISHED HOURS OF USE		Controlling ARTCC
	Minimum	*Maximum*	*From*	*To*	
Pecos North Low MOA	500 AGL[1]	UTBNI[2] 11,000 MSL[3]	8:00 a.m.[4]	8:00 p.m.[4]	Albuquerque
Pecos North High MOA	11,000 MSL	UTBNI FL 180[5]	8:00 a.m.	8:00 p.m.	Albuquerque
Pecos South Low MOA	500 AGL	UTBNI 11,000 MSL	Inter By NOTAM[6]	Inter By NOTAM[6]	Albuquerque
Pecos South High MOA	11,000 MSL	UTBNI FL 180	Sunrise[4]	Sunset[4]	Albuquerque
Taiban MOA	500 AGL	UTBNI 11,000 MSL	8:00 a.m.	Midnight	Albuquerque
Bronco 1	8,000 MSL	FL 180	7:00 a.m.[4]	10:00 p.m.[4]	Fort Worth
Bronco 2	10,000 MSL	FL 180	NOTAM		Fort Worth
Bronco 3 & 4	10,000 MSL	FL 180	7:00 a.m.[4]	10:00 p.m.[4]	Fort Worth
Mt. Dora East/West High	11,000 MSL	FL 180	NOTAM		Albuquerque
Mt. Dora East/West Low	1,500 AGL	UTBNI 11,000 MSL	NOTAM		Albuquerque

Notes:
1. AGL = Feet Above Ground Level
2. UTBNI = Up To, But Not Including
3. MSL = Feet Above Mean Sea Level. Average ground elevation in ROI is approximately 5,000 MSL.
4. Times are Monday through Friday. Additional scheduling is promulgated through Notices To Airmen (NOTAMs).
5. FL = Flight Level. Described in terms of hundreds of feet MSL using a standard altimeter setting. Thus, FL180 is approximately 18,000 MSL.
6. Inter By NOTAM = Times of use are intermittent, and are published in NOTAMs.

Source: FAA 2000b; LOA 1996

The 27 FW and New Mexico Air National Guard (NMANG) currently fly F-16s and conduct a range of training activities in this MOA/Air Traffic Control Assigned Airspace (ATCAA) airspace. Other aircraft using the airspace include B-1B bombers from Dyess AFB. The B-1Bs schedule the airspace from one to five times per week, flying one to three aircraft during a scheduled period. Transient aircraft flown in the airspace include A-10s, F-15s, F/A-18s, F-22As, German Air Force Tornados, B-52s, C-130s, and various helicopters. Large-force exercises conducted in the airspace can involve approximately 20 aircraft of varied types (personal communication, Berg 2004).

There is sufficient MOA airspace in the local area. Mt. Dora, Pecos, Taiban, and Bronco MOAs are scheduled by Cannon and are suitable for AFSOC aircraft training requirements. Aerial refueling (AR) training would be accomplished on AR tracks designated by FAA. Currently, AR-602 shown on Figures 5.1-1 and 5.1-2 is scheduled and used by Cannon AFB. AR-602 is available for AR at altitudes ranging from FL180 to FL260. The altitude capabilities of AFSOC aircraft would require AFSOC to request FAA to lower existing or designate new AR tracks to accommodate Cannon-based aircraft.

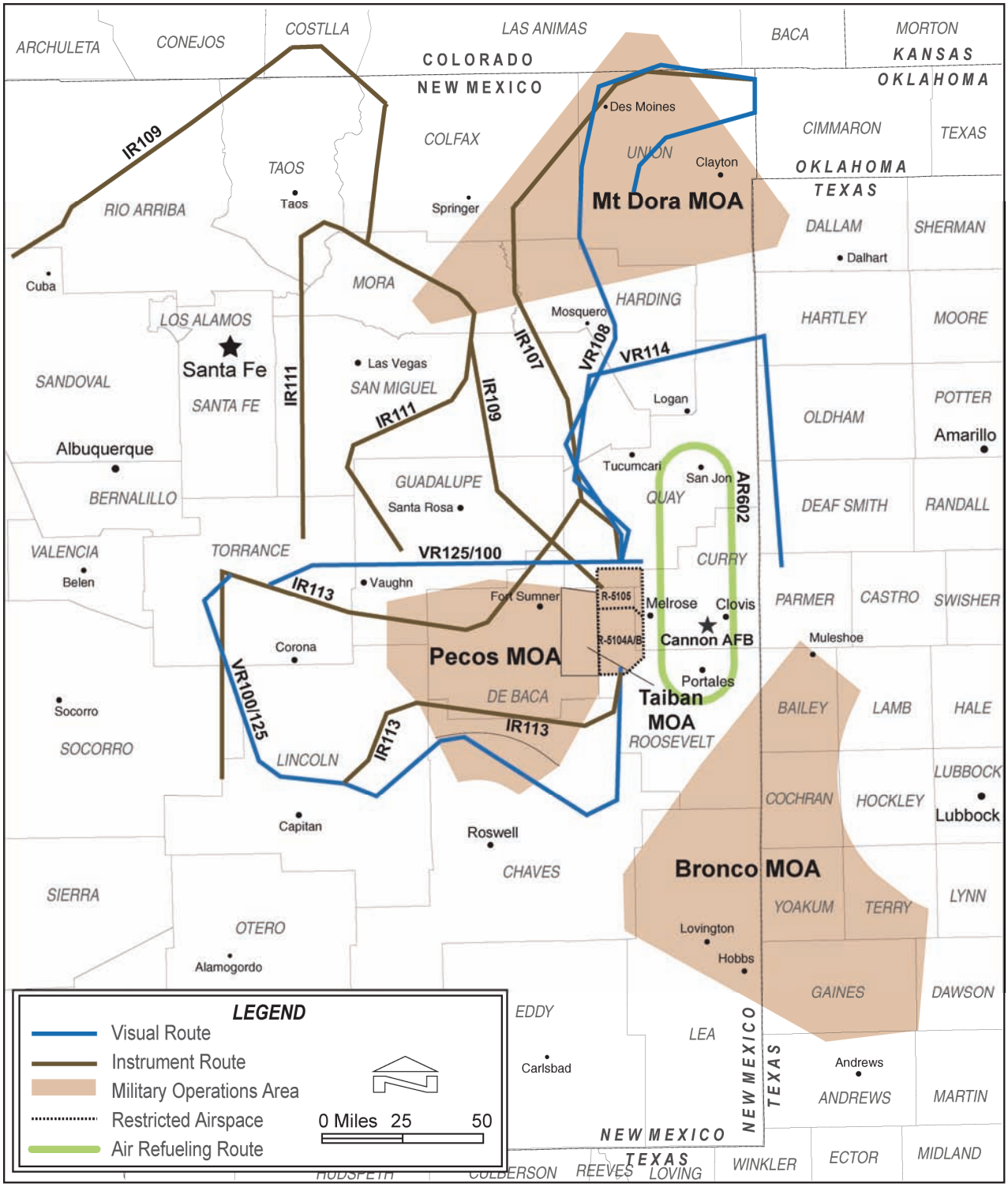


Figure 5.1-2. Existing Military Training Airspace Scheduled by Cannon AFB, New Mexico

5.1.2.2 Military Training Routes

MTRs are flight corridors developed and used by the DoD to practice high-speed, low-altitude flight, generally below 10,000 feet MSL. Specifically, MTRs are airspace of defined vertical and lateral dimensions established for the conduct of military flight training that may include airspeeds in excess of 250 knots indicated airspeed (KIAS) (P/CG 2004). MTRs are developed in accordance with criteria specified in FAA Order 7610.4 (AP/1B 2003). They are described by a centerline, with defined horizontal limits on either side of the centerline, and vertical limits expressed as minimum and maximum altitudes along the flight track. On Figure 5.1-2, MTRs are identified as Visual Routes (VR) or Instrument Routes (IR). VRs are used by DoD and associated Reserve and Air National Guard units for the purpose of conducting low-altitude navigation and tactical training under VFR below 10,000 feet MSL at airspeeds in excess of 250 knots KIAS (P/CG 2004). IRs are used by DoD and associated Reserve and Air National Guard units for the purpose of conducting low-altitude navigation and tactical training in both IFR and VFR weather conditions below 10,000 feet MSL at airspeeds that may be in excess of 250 knots KIAS (P/CG 2004). Figure 5.1-1 shows the MTRs in the vicinity of Cannon AFB. Of these, AFSOC aircraft would utilize VR-100, VR-108, VR-114, VR-125, IR-107, IR-109, IR-111, and IR-113, presented on Figure 5.1-2.

5.1.2.3 Other Aviation and Airspace Use

Public airports and private airfields underlie MOA airspace. The Fort Sumner public airport is situated under the Pecos North MOAs. Although there is no controlled airspace associated with this airport's operation, aeronautical charts reflect that the floor of the Pecos North Low MOA is restricted to 1,500 feet AGL in the airport's vicinity. The same restrictions apply to public airports under the Mt. Dora and Bronco MOAs. Private airfields, such as Double V and Bojax, are located under the Pecos South MOAs. An airfield for El Paso Natural Gas is located on the extreme southern boundary of the Pecos South High MOA.

There are four Federal Airways ("Victor" Routes) in the vicinity of the Pecos MOAs. V-264 traverses southwest to northeast in the northern section of the Pecos MOAs, providing routing between the Corona Very High Frequency Omni-directional Radio Range and Tactical Air Navigation Aid (VORTAC) and Tucumcari, New Mexico. V-291, V-68, and V-83 traverse northwest to southeast along the western border of the Pecos MOAs, and provide routing between the Corona VORTAC and Roswell, New Mexico. All of these routes are situated outside of the boundaries of the Pecos MOAs. Air carrier and air taxi traffic in the region is considered moderate; general aviation traffic in the region is considered relatively light.

There are two Jet Routes, 74 and 76, which pass between the Pecos and Mt. Dora MOAs at higher altitudes than those that would be flown by AFSOC C-130 aircraft. A standard instrument departure (SID) track (Worth-3) passes through the Pecos MOAs south of J-74. Worth-3 supports departures from Dallas–Fort Worth and passes through the northern region of the Pecos South MOA in a northwesterly direction from Lubbock, Texas, to the Corona VORTAC.

5.1.3 Environmental Consequences

5.1.3.1 Proposed Training of AFSOC Assets

MOAs. Under the Proposed Training, annual sortie-operations conducted in MOAs would increase by 200 percent in the Taiban MOA, 190 percent in the Pecos MOA, 450 percent in the

Mt. Dora MOA, and 6 percent in the Bronco MOA (see Table 2.3-2). While the increases in Taiban, Pecos, and Mt. Dora MOAs are substantial, the Taiban and Pecos MOAs have supported sortie-operation levels approaching the levels proposed by AFSOC. Potential issues concerning airspace congestion are resolved through scheduling activities with regional Air Traffic Control (ATC) centers.

The slower moving AFSOC aircraft with a larger crew than F-16 jets would increase the number of personnel available to practice see-and-avoid within training airspace. Existing see-and-avoid procedures and avoidance measures for civil aviation airports under the MOAs would continue unchanged. The scheduling, coordination, processes, and procedures currently used to manage these MOAs are well established and would need no modification to support implementation of the Proposed Training. These MOAs would continue to be scheduled by Cannon AFB for Cannon AFB-based and transient aircraft use.

MTRs. Implementation of the Proposed Training would result in a substantial increase in MTR use over the existing levels (see Table 5.2-3). All eight MTRs scheduled by Cannon AFB would see increased after-dark training and training during the hours of environmental night (10:00 p.m. to 7:00 a.m.). Rather than F-16s or other jet aircraft, the AFSOC training would involve fixed-wing, propeller-driven variants of C-130s and CV-22s. AFSOC aircraft normally fly at 250 to 1,000 feet AGL on MTRs with training missions of four to five hours. Aircraft would be expected to fly 30-minute low-level training below 250 feet AGL. During night missions, these altitudes would be below altitudes used by general aviation and no potential impact would be anticipated. During daylight missions, low-altitude general aviation aircraft such as agricultural aircraft could be encountered at training altitudes. The C-130 and CV-22 have both a pilot and co-pilot and fly at speeds that support see-and-avoid procedures during daylight (and night) operations.

No change in the baseline structure or management of the eight MTRs used by Cannon AFB would occur. AFSOC personnel at Cannon AFB would schedule MTRs for Cannon AFB and transient aircraft. Existing noise avoidance areas would be evaluated to determine their applicability to AFSOC training activities and would be adopted as appropriate. Observance of existing avoidance procedures would continue as it is currently executed. Scheduling of the MTRs and observance of existing avoidance procedures would continue to be the responsibility of Cannon AFB.

Flights for Landing Zone (LZ)/Drop Zone (DZ) training or water training would be conducted using existing airspace training routes or, as applicable, under ATC.

5.1.3.2 No Action Alternative

No Action would result in no movement of AFSOC assets to Cannon AFB although AFSOC would maintain and operate the properties. AFSOC aircraft would thus not avail themselves of the military training airspace at this time. The airspace environment would be as described in Section 5.1.2 but without the contribution of the 27 FW F-16 aircraft due to the Base Realignment and Closure (BRAC) directive to disestablish the 27 FW.

5.2 Noise

5.2.1 Definition of Resource

The ROI for military training airspace are the respective airspace units. A general discussion of noise metrics is provided in Section 3.2 and a more thorough explanation is provided in Appendix F.

In this Environmental Impact Statement (EIS), sound levels are presented for noise generated by military aircraft, as well as munitions on Melrose AFR (refer to Section 4.2). Those are not the only noise sources; there is an existing ambient sound environment as well. Aircraft noise must be compared with existing noise as well as evaluated on an absolute basis. The sound levels in the affected area have not been measured, but they would be comparable to sound levels in other lightly populated areas in the Western United States (U.S.). Table 5.2-1 lists sound levels that have been measured in those kinds of areas. The table notes the sources of the data and the metric reported. When predicted aircraft noise levels fall in the lower ranges of the levels in Table 5.2-1, they are estimates of noise levels rather than quantitative measurements due to instrument accuracy at very low ambient conditions. Based on the sound levels and types of areas summarized in Table 5.2-1, ambient sound levels in the ROI (outside of population centers) would be expected to be in the range of 25 to 36 decibels (dB).

TABLE 5.2-1. SOUND LEVELS IN LIGHTLY POPULATED AREAS

Location	*Sound Level Range, dB*	*Reference*
North Rim, Grand Canyon	16-31[1]	U.S. Environmental Protection Agency (USEPA) 1971
Farm in Valley	35-44[1]	USEPA 1971
Small Town Residential Cul-de-Sac	40-50[1]	USEPA 1971
Grand Canyon	22-35[2]	Miller *et al.* 2003
Idaho, sagebrush country	25-36[3]	Fidell *et al.* 2003
Central and Eastern Colorado	28-44[4]	Air National Guard 1996

Notes: 1. L_{90} to L_{10} (L_{90} and L_{10} are the sound level exceeded 90 percent and 10 percent of the time)
2. L_{50}, range over eighteen sites (L_{50} is the sound level exceeded 50 percent of the time)
3. L_{eq}, range over eight sites (L_{eq} is the equivalent sound level)
4. L_{90}, range over 17 sites

5.2.2 EXISTING CONDITIONS

Base-assigned aircraft from Cannon AFB currently account for approximately 76 percent of aircraft activities in the MOAs and are estimated to be a comparable percentage of the activities in the MTRs. Table 5.2-2 presents the average operational parameters reflected in the noise modeling effort for current aircraft. The altitude bands are based on the assumption that the upper and lower boundaries of an airspace encompass the range of altitudes expected to be flown by training aircraft. Baseline noise levels calculated for potentially affected airspace are presented in Table 5.2-3.

TABLE 5.2-2. EXISTING TYPICAL AIRCRAFT OPERATING PARAMETERS IN AIRSPACE SCHEDULED BY THE 27 FW

Airspace	*Time in Airspace (minutes)*	PERCENTAGE OF TIME AT ALTITUDES			
		100-500 feet AGL	*500-1,000 feet AGL*	*1,000-5,000 feet AGL*	*5,000+ feet AGL*
Taiban MOA[1]	30	0	20	65	15
Pecos MOA[1]	37.8	0	20	30	50
Mt. Dora MOA	30	0	0	45	55
Bronco MOA	42	0	0	0	100
MTRs[2]	--	0	90	10	0

Notes: 1. Taiban and Pecos MOAs are adjacent to and support operations in R-5104A/5105.
2. Time in airspace is not a parameter used in modeling noise for MTRs. The altitude bands are the same for all MTRs.

TABLE 5.2-3. BASELINE NOISE LEVELS FOR AIRSPACE UNITS PROPOSED FOR AFSOC USE

Airspace	ANNUAL SORTIE-OPERATIONS		*Noise Levels (L_{dnmr} in dB)[2]*
	Day[1]	*Night[1]*	
Taiban MOA[3]	2,949	902	47
Pecos MOA	2,608	869	36
Mt. Dora MOA	737	10	<30
Bronco MOA	927	273	<30
IR-107	13	0	<30
IR-109	72	0	<30 - 31
IR-111	24	1	<30 - 36
IR-113	45	0	<30
VR-100/125	451	0	<30 - 38
VR-108	80	0	30
VR-114	473	0	<30 - 33

Notes: 1. Day is defined as 7:00 a.m. until 10:00 p.m. Night is 10:00 p.m. to 7:00 a.m.
2. Values under centerline of highest use MTR segment.
3. Taiban and Pecos MOAs are adjacent to and support operations in R-5104A/5105.

5.2.3 ENVIRONMENTAL CONSEQUENCES

5.2.3.1 PROPOSED TRAINING OF AFSOC ASSETS

Table 5.2-4 presents the proposed aircraft operating parameters for AFSOC aircraft.

TABLE 5.2-4. PROPOSED TYPICAL OPERATING PARAMETERS IN AIRSPACE SCHEDULED BY AFSOC

Airspace	PERCENT OF TIME AT ALTITUDE (AGL)			
	100-500	*500-1,000*	*1,000-5,000*	*5,000+*
Taiban MOA	0	40	40	20
Pecos MOA	0	40	40	20
Mt. Dora MOA	0	0	80	20
Bronco MOA	0	0	0	100
MTRs	64	16	15	5

A comparison of Tables 5.2-2 and 5.2-4 demonstrates that in MOAs, the AFSOC training aircraft will fly a greater percent of time at lower altitudes than do the F-16s. Comparing Tables 5.2-3 and 5.2-5 demonstrates that the total number of MTR missions are proposed to increase substantially from baseline conditions.

TABLE 5.2-5. PROJECTED NOISE LEVELS FOR AIRSPACE UNITS INTENDED FOR AFSOC USE

Airspace	ANNUAL SORTIE-OPERATIONS		*Noise Levels* (L_{dnmr} *in dB*)[2]
	Day	*Night*[1]	
Taiban MOA[3]	5,163	2,450	55
Pecos MOA	4,354	2,219	45
Mt. Dora MOA	2,084	941	36
Bronco MOA	826	449	<30
IR-107	775	511	44
IR-109	788	511	48
IR-111	780	510	47
IR-113	145	80	40
VR-100/125	1,736	1,102	49
VR-108	884	551	46
VR-114	866	551	41

Notes: 1. Environmental night is between 10:00 p.m. and 7:00 a.m.
2. Value when centerline of highest use MTR segment.
3. Taiban and Pecos MOAs are adjacent to and support operations in R-5104A/5105.

Onset Rate-Adjusted Day-Night Average Sound Level (L_{dnmr}) from military aircraft has been computed for each airspace unit, and is presented in Table 5.2-5 for the Proposed Training. The sound levels shown are those associated with each area under the airspace. Noise levels for the proposed training fall into three categories:

- High-altitude airspace, where operations are at high altitude (above 10,000 feet MSL) and noise levels are very low.

- Low-altitude MOAs where the floor is as low as 500 feet AGL. Noise levels would be greater than existing in the Taiban, Pecos, and Mt. Dora MOAs.
- MTRs where a variety of aircraft travel along a corridor of varying widths.

Table 5.2-5 also presents the extent of AFSOC night sortie-operations and a comparison with Table 5.2-3 demonstrates that there will be an increase in annual night flights on the MTRs from 0, in most cases, to values ranging from over 500 to slightly over 1,100 per year. Assuming a representative year of 220 flying days and 40 percent during environmental night would produce a daily average of two C-130 or CV-22 overflights between 10 p.m. and 7 a.m. along the MTRs. Along VR-100/125, there would be an average of four overflights per environmental night.

AFSOC aircrews would operate between 100 feet and 1,000 feet AGL, and usually 250 feet AGL and above, along most of an MTR. The terrain-following training missions may take the aircrew to an altitude of between 100 and 250 feet AGL when the path crosses a high point of a mountainous ridge, but would only be at this altitude for a few minutes. These training flights are intended to simulate real world conditions, and, as such, the flight paths to the actual training location will avoid populated areas. It is also normal operating policy to plan routes that are aligned so that disturbance to persons, property, and wildlife on the ground are minimized. The number of training flights along the MTRs would result in noticeable increases in noise levels along all MTRs.

Changes in noise levels on the MTRs associated with the increased day and night use would be noticed. Although the comparatively quieter turboprop AFSOC aircraft will not create the same SEL noise levels as the F-16s, the relative frequency of night overflights would be expected to increase annoyance to people residing under the airspace.

The MTRs are typically 15 to 20 miles wide and a training aircraft could be flying anywhere along the width of the route. Table 5.2-5 demonstrates that some segments of some routes, such as the amount of VR-100/125 training activity and where IR-109 and IR-111 overlap, there will be an increase from ambient conditions of L_{dnmr} <30 to 36 dB to noise levels around 40 to 49 dB. Although these noise levels are not at sustained levels that could damage human health (see Appendix F), the noise levels could result in annoyance and noise complaints from residents under the MTRs.

The MTRs are configured to avoid populated areas as well as airports and ground obstructions, by established distances (8 miles), per FAA and U.S. Air Force (Air Force) regulations. Several of the MTRs are over portions of National Forests, National Grasslands, Wilderness Study Areas, National Monuments, Indian Reservations, and military reservations. The National Forest and Grassland areas offer a variety of recreational activities, including camping, hiking, biking, off-road vehicle areas, and fishing. In addition, the State of New Mexico has established special management areas such as parks and other natural areas. Table 5.2-6 presents special land management areas under Cannon AFB scheduled MOAs and MTRs. AFSOC would review special land use areas under each MTR. All national forests, national monuments, and state parks would be avoided by 2,000 feet. AFSOC will coordinate with the National Forests and Grasslands to ensure any possible future complaints are addressed and identified for altitude avoidance.

Table 5.2-6. Special Use Land Management Areas under Cannon Scheduled MOAs and MTRs (Page 1 of 2)

Airspace	*Land Use Area*	*Type*	*Acreage*
Pecos MOA	Fort Sumner	State Park	119
	Sumner Lake	State Park	665
Mt. Dora MOA	Capulin Volcano	National Monument	840
	Chicosa Lake	State Park	475
	Clayton Lake	State Park	471
	Kiowa	National Grassland	305,420
	Rita Blanca	National Grassland	29,250
Bronco MOA	Muleshoe	National Wildlife Refuge	5,415
IR-107	Capulin Volcano	National Monument	840
	Chicosa Lake	State Park	115
	Comanche	National Grassland	5,230
	Conchas Lake	State Park	1,255
	Kiowa	National Grassland	165,280
	Melrose AFR	Military Reservation	22,000
IR-109	Carson	National Forest	204,015
	Chamas River Canyon	National Forest Wilderness	26,105
	Cimarron Canyon	State Park	33,000
	Jicarilla Apache	Indian Reservation	64,600
	Rio Chama	Wild and Scenic River Wilderness Study Area	13,260 3,425
	Rio Grande	Wild and Scenic River	6,375
	Sabinoso	Wilderness Study Area	12,275
	San Pedro Parks	National Forest Wilderness	3,335
	Santa Fe	National Forest	88,515
	Sumner Lake	State Park	410
	Taos	Indian Reservation	8,000
	Wheeler Peak	National Forest Wilderness	345

Table 5.2-6. Special Use Land Management Areas under Cannon Scheduled MOAs and MTRs (Page 2 of 2)

Airspace	*Land Use Area*	*Type*	*Acreage*
IR-111	Carson	National Forest	137,175
	Melrose AFR	Military Reservation	22,000
	Pecos	National Forest Wilderness	93,315
	Sabinoso	Wilderness Study Area	3,745
	Santa Fe	National Forest	192,540
	Sumner Lake	State Park	7,575
	Villanueva	State Park	1,655
IR-113	Capitan Mountains	National Forest Wilderness	12,010
	Cibola	National Forest	29,960
	Lincoln	National Forest	104,610
	Little Black Peak Carrizozo	Wilderness Study Area	21,905
	Melrose AFR	Military Reservation	22,000
	Salinas Pueblo Missions	National Monument	750
	Sumner Lake	State Park	8,430
	Valley of Fires	State Park	550
	White Sands Missile Range	Military Reservation	4,650
VR-100/125	Capitan Mountains	National Forest Wilderness	25,038
	Cibola	National Forest	17,940
	Lincoln	National Forest	109,770
	Salinas Pueblo Missions	National Monument	750
	Sumner Lake	State Park	11,835
VR-108	Chicosa Lake	State Park	470
	Conchas Lake	State Park	1,545
	Kiowa	National Grassland	134,320
VR-114	Conchas Lake	State Park	1,545

Source: Air Force 1995.

LZ, DZ, and water training locations would be subjected to increased noise from C-130, CV-22, other aircraft, or personnel activities. LZ and DZ locations would be identified to avoid, to the extent possible, noise impacts upon local residents. Recreationalists at lake locations may be annoyed by training activities.

Agreements for low-altitude and water activity would be needed with managing agencies. Scheduling the four or five monthly training activities to avoid high-use holiday and other recreation periods could reduce the number of affected persons, but would still have the potential to annoy some lake residents and recreationalists.

The National Grasslands are a protected habitat in northern New Mexico.

5.2.3.2 No Action Alternative

No Action would result in no movement of AFSOC assets to Cannon AFB although AFSOC would maintain and operate the properties. Thus, no AFSOC training would occur at Melrose AFR and AFSOC aircraft would not avail themselves of the military training airspace at this time. The noise environment for military training noise levels would be lower than that described in Section 5.2.1 after the 27 FW is disestablished.

5.3 Safety

5.3.1 Definition of Resource

This section addresses flight and explosive safety associated with operations conducted in the airspace managed by Cannon AFB. These operations include activities and training conducted in regional military airspace. Flight safety considers aircraft flight risks and explosive safety discusses the management and use of ordnance or munitions associated with airbase operations and training activities conducted in various elements of training airspace.

5.3.2 Existing Conditions

Flight Safety. Air Force flight operations are conducted according to specific procedures contained in various Air Force Instructions (AFIs). Among them the AFI-11 series addresses general flight rules, aircrew training, as well as aircraft specific operational requirements. These instructions establish the framework for safe operation of Air Force aircraft.

It is impossible to predict the precise location of an aircraft accident, should one occur. Major considerations in any accident are loss of life and damage to property. The aircrew's ability to exit from a malfunctioning aircraft is dependent on the type of malfunction encountered. The probability of an aircraft crashing into a populated area is extremely low, but it cannot be totally discounted. Several factors are relevant in the ROI: the immediate surrounding areas have relatively low population densities; pilots are instructed to avoid direct overflight of population centers at very low altitudes; and, finally, the limited amount of time the aircraft is over any specific geographic area limits the probability that impact of a disabled aircraft in a populated area would occur.

Secondary effects of an aircraft crash include the potential for fire or environmental contamination. First responders to a crash may suffer from trauma as a result of crash results. Again, because the extent of these secondary effects is situationally dependent, they are difficult to quantify. The terrain overflown in the ROI is diverse. For example, should a mishap occur in highly vegetated

areas during a hot, dry summer, such a mishap would have a higher risk of extensive fires than would a mishap in more barren and rocky areas during the winter. When an aircraft crashes, it may release hydrocarbons. Those petroleum, oils, and lubricants (POLs) not consumed in a fire could contaminate soil and water. The potential for contamination is dependent on several factors. For example, the porosity of the surface soils will determine how rapidly contaminants are absorbed, while the specific geologic structure in the region will determine the extent and direction of the contamination plume. The locations and characteristics of surface and groundwater in the area will also affect the extent of contamination to those resources.

Based on historical data on mishaps at all installations, and under all conditions of flight, the military services calculate Class A mishap rates per 100,000 flying hours for each type of aircraft in the inventory. These mishap rates do not consider combat losses due to enemy action. Class A mishap rates and a discussion of Class A mishaps are presented in Section 3.3.2.2.

Wildlife Strike Hazard. Almost 55 percent of bird-aircraft strikes occur during low-altitude flight training (Air Force Safety Center 2002). Migratory waterfowl (e.g., ducks, geese, and swans) are the most hazardous birds to low-flying aircraft because of their size and their propensity for migrating in large flocks at a variety of elevations and times of day. Waterfowl vary considerably in size from 1 to 20 pounds. There are two normal migratory seasons, fall and spring. Waterfowl are usually only a hazard during migratory seasons. These birds typically migrate at night and are in their highest concentrations one hour before and after sunset. They generally fly between 1,500 to 3,000 feet AGL during the fall migration and from 1,000 to 3,000 feet AGL during the spring migration.

Along with waterfowl, raptors, shorebirds, gulls, herons, songbirds, and other birds also pose a hazard. In considering severity, the results of bird-aircraft strikes in restricted areas show that strikes involving raptors result in the majority of Class A and Class B mishaps related to bird-aircraft strikes. Raptors of greatest concern in the airspace are vultures and red-tailed hawks. Peak migration periods for raptors, especially eagles, are from October to mid-December and from mid-January to the beginning of March. In general, flights above 1,500 feet AGL would be above most migrating and wintering raptors.

Songbirds are small birds, usually less than one pound. During nocturnal migration periods, they navigate along major rivers, typically between 500 to 3,000 feet AGL. The potential for bird-aircraft strikes is greatest in areas used as migration corridors (flyways) or where birds congregate for foraging or resting (e.g., open water bodies, rivers, and wetlands).

While any bird-aircraft strike has the potential to be serious, many result in little or no damage to the aircraft, and only a minute portion result in a Class A mishap. During the years 1985 to 2001, the Air Force Bird-Aircraft Strike Hazard (BASH) Team documented 48,522 bird strikes worldwide. Of these, 20 resulted in Class A mishaps where the aircraft was destroyed. These occurrences constituted approximately 0.04 percent of all reported bird-aircraft strikes (Air Force Safety Center 2002). There would be no significant adverse effect of wildlife strikes on any population of resident or migratory birds.

Explosive Safety. Chaff and defensive flares are managed as ordnance; no other ordnance would be expended within the airspace. Chaff and flares are authorized for use in designated airspace. Use is governed by detailed operating procedures to ensure safety.

Chaff, which is ejected from an aircraft to reflect radar signals, is small fibers of aluminum-coated silica packed into approximately 4-ounce bundles. When ejected, chaff forms a brief electronic

"cloud" that temporarily masks the aircraft from radar detection. Although the chaff may be ejected from the aircraft using a small pyrotechnic charge, the chaff itself is not explosive (Air Force 1997b). During Fiscal Year (FY) 2005, 27 FW aircrews expended 44,728 bundles of chaff. Two 1-inch by 1-inch plastic or nylon pieces and one 1-inch by 1-inch felt piece fall to the ground with each released chaff bundle. Appendix A provides an expanded discussion of chaff.

Defensive training flares consist of small pellets of highly flammable material that burn rapidly at extremely high temperatures. Their purpose is to provide a heat source other than the aircraft's engine exhaust to mislead heat-sensitive or heat-seeking targeting systems and decoy them away from the aircraft. The flare, essentially a pellet of magnesium, ignites upon ejection from the aircraft and burns completely within approximately 3.5 to 5 seconds, or approximately 400 feet from its release point (Air Force 1997b). During FY 2005, 27 FW aircrews expended 32,229 flares.

The existing use of flares as defensive countermeasures results in small plastic, nylon, and aluminum-coated mylar pieces falling to the ground. As discussed in Appendix B, Characteristics of Flares, flare residual materials are generally light with a high surface-to-weight ratio. This results in essentially no likelihood of a flare end cap, piston, or wrapper causing injury in the highly unlikely event residual material from a flare struck a person or an animal.

During the scoping and public comment periods, concerns were expressed that a flare has the potential to start a fire if a flare were still burning when it hit the ground. As described in Chapter 2.0, flares burn out in approximately 400 feet. Flare use in MOAs is currently authorized above 2,000 feet AGL under conditions not designated at, or above, high fire risk.

Use of training flares where approved within Cannon AFB-managed airspace would continue to be incorporated by AC/MC-130 and CV-22 aircraft with the following management practices:

- The minimum altitude for flare release in SUA will continue to be 2,000 feet AGL (flares burn out after falling approximately 400 feet).
- When the National Fire Danger Rating System indicates high fire conditions or above, the minimum altitude for flare release would be raised to 5,000 feet AGL.
- Cooperation with local agencies for mutual aid response to fires will continue.

Cannon AFB now has seven mutual aid agreements with nearby fire departments including one recently entered into with the Floyd Fire Department. These measures substantially reduce any risk of a fire from training with defensive flares.

Wake Vortices. During the scoping and public comment periods, participants asked if there would be the potential for structural damage from wake vortices. As a plane flies, the trail of disturbed air that follows the aircraft as it passes through the atmosphere is called a wake that is bounded by circular flow shed from the wing tips, called tip vortices. An aircraft wake is similar in concept to the wake of a boat. As with boats, larger aircraft (boats) which are close to the ground (shore) produce a greater potential for a wake effect on the ground (shoreline). Wake vortices from aircraft in flight descend from their initial altitude with time. For aircraft flying at low levels, this produces the potential for vortices descending close enough to the ground to impact ground structures. Vortex strength decreases with time and the vortices will not descend below a minimum height above the ground, nominally equal to 40 percent of the generating aircraft's wingspan. Many factors contribute the vortex strength and rate of decay. These factors include aircraft weight, airspeed, wingspan, load factor, and atmospheric

turbulence levels. For example, the strength of a vortex increases with wing load factor (the gravity or g number), but the increasing load factor causes a vortex to descend at a higher rate; thereby having a smaller residency time to impact anything on the ground.

Existing F-16 aircraft are small and do not produce wake vortex effects on the ground which could cause damage. Current and projected transient users of Cannon AFB airspace can include larger aircraft. Under normal flight conditions and all but rare atmospheric conditions, wake vortices from transient B-52 or B-1B low altitude flights fail to generate sufficient velocities to damage structure and vehicles or to pose a hazard to people or animals on the surface. Under infrequent circumstances, such as unusual aircraft maneuvers, damage could occur (Jurkovich and Skujins 2006).

There have not been documented reports of wake vortex damage during the infrequent training by larger aircraft in the Cannon AFB-scheduled airspace. Should there be validated damage claims, the Air Force has established procedures for such claims that begin by contacting Cannon AFB Public Affairs Office.

5.3.3 Environmental Consequences

5.3.3.1 Proposed Training of AFSOC Assets

Aircraft using the IR and VR routes slated for use under this proposal are subject to potential bird strikes, especially during the peak migratory season from October to mid-December and from mid-January to the beginning of March. In order to avoid potential risks for bird strikes within the airspace, AFSOC mission planners have the ability to access near real-time data to minimize the potential for bird strikes.

The U.S. Avian Hazard Advisory System (AHAS), http://www.usahas.com, is a valuable tool in assessing the near real-time potential for bird strike risk for the continental U.S. The associated website provides simple-to-use pages to access bird strike risk for published IR, VR, and Slow Route (SR) routes, Ranges, MOAs, and Military Airfields. AHAS was created to provide Air Force pilots and flight scheduler/planners with a near real-time tool for making informed decisions when selecting flight routes. It was created in an effort to protect human lives and equipment during air operations throughout the continental U.S. It also benefits migrating birds. Utilization of this tool will aid AFSOC mission planners in avoiding routes with severe risk of bird strikes.

Aircraft safety and bird-aircraft strike risks could be increased from existing 27 FW experience due to the proposed lower altitude flights of the AFSOC aircraft. AFSOC training coincides with bird migration altitudes; the after-dark training occurs when some species migrate; and water training, occurs where migratory species congregate. Although the total number of BASH incidents is not expected to be great and would not approach a measurable effect on bird populations, the number is expected to increase from that of 27 FW safety experience.

All safety actions that are in place for existing F-16 training will continue to be in place for C-130, CV-22, and other aircraft training. These actions include provisions for life flight priority use and altitude restrictions on flare use. Aircraft safety within the training airspace could be enhanced by the improved radars and situational awareness provided by redundant flight safety systems or AFSOC aircraft. The C-130 and CV-22 have both a pilot and co-pilot and fly at speeds that support see-and-avoid procedures during daylight (and night) operations.

Chaff and flares would not be used in the Mt. Dora or Bronco MOAs. Chaff and flare use would decrease in the Pecos North, Pecos South, and Taiban MOAs as compared to FY 2005 levels (see Table 2.2-3). No safety consequences from continued chaff and flare use are anticipated.

A public comment on the Draft EIS questioned the potential for damage from wake vortices, especially to windmills under the airspace which provide water to stock. A potentially damaged windmill could stop pumping water and may not be discovered immediately. This could affect range cattle and other animals dependent upon the water source.

A C-130 in level flight at 210 knots, 150,000 pounds of weight, and 250 feet AGL could produce a maximum wake vortex velocity of about 38 miles per hour at about 100 feet AGL within 60 seconds. Windmills are typically capable of handling wind loads substantially in excess of this speed. This indicates that there would be minimal potential impact on ground structures for any C-130s in level flight at or above 250 feet AGL.

A CV-22 at 250 feet AGL, based on its smaller wingspan, could result in wake vortices descending faster and obtaining a lower minimum height above the ground as compared to the C-130. Theoretically, CV-22 vortices could reach their minimum height of approximately 20 feet AGL within 45 seconds. However, the unique configuration of the CV-22, with the propellers located at the wind tips, will affect the wake vortices. The prop wash, which rotates in a direction counter to the wake vortex circulation, coupled with the turboprop engine exhaust, will serve to make the wake vortices weaker and decay faster than those shed by a "clean" wing. The CV-22 vortex breakdown is projected to occur after 15 seconds and is projected to dissipate at about 175 feet AGL. This indicates that there would be little or no potential impact on ground structures for any CV-22 in level flight at or above 250 feet AGL.

The C-130 and the CV-22 could be as low as 100 feet AGL for short periods and could pull up or maneuver with the potential of creating a 1.1g turn for the C-130 or a 1.25g turn for the CV-22. An analysis of a C-130 1.1g case from 100 feet AGL produces maximum predicted vortices of 51 miles per hour (mph) at 50 feet AGL. An analysis of a CV-22 1.25g case from 100 feet AGL could theoretically produce a vortex maximum velocity on the order of 80 mph at approximately 24 feet AGL just prior to breakup. As noted, this is a very conservative CV-22 maximum velocity. This unlikely, but possible, velocity is expected to be reduced by the propeller wash and turboprop exhaust in the wing tip region, both of which counter the wake vortex strength, and thus velocity. Neither the C-130 nor the CV-22 is expected to fly for long periods at 100 feet AGL. In most cases, this would be expected to occur when the aircraft crosses a higher topographic feature. Stock windmills are typically located in lower topographic areas where the groundwater is closer to the surface.

There is little or no potential for structural damage to windmills from level flight of either aircraft, and there is very low potential for a maneuvering aircraft at 100 feet to create the wind vortex level at exactly the point where a windmill is located. Continued and projected transient users of Cannon AFB scheduled airspace also include larger aircraft. Under normal flight conditions and all but rare atmospheric conditions, wake vortices from low altitude flights fail to generate sufficient velocities to damage structure and vehicles or to pose a hazard to people or animals on the surface. Under infrequent circumstances, such as unusual aircraft maneuvers, damage could occur (Jurkovich and Skujins 2007). The Air Force has established procedures for damage claims that begin by contacting Cannon AFB Public Affairs Office.

5.3.3.2 No Action Alternative

No Action would result in no movement of AFSOC assets to Cannon AFB although AFSOC would maintain and operate the properties. Cannon AFB-based AFSOC aircraft would therefore not avail themselves of the military training airspace. Safety for military training would be better than that described in Section 5.2.1 due to the disestablishment of the 27 FW.

5.4 Air Quality

This section discusses air quality considerations and conditions in the areas encompassed by the Mt. Dora and Pecos MOAs (the Taiban MOA was included in the discussion of the Melrose AFR) and associated MTRs within eastern New Mexico scheduled by Cannon AFB. The Mt. Dora and Pecos MOAs include (1) all or portions of Chaves, Lincoln, De Baca, Guadalupe, Mora, Harding, Union, and Colfax counties in the State of New Mexico, and (2) small portions of Las Animas County in Colorado, and Dallam County in Texas. While portions of the project MOAs and MTRs cross state lines, almost all of these areas and project air quality impacts would occur within the State of New Mexico. While the Bronco MOA overlies counties in Texas, no portion of the MOA extends below 3,000 feet AGL. Emissions released above 3,000 feet are effectively blocked from mixing with the near-surface airshed because of temperature inversions. Therefore, this section only considers conditions within New Mexico.

5.4.1 Definition of Resource

The definition of the MOAs and associated MTR air quality regulations are identical to those presented in Section 3.4.1.

5.4.2 Existing Conditions

Climate. The general climate for Eastern New Mexico is arid or semi-arid, with light precipitation, abundant sunshine, low relative humidity, and relatively large annual and diurnal temperature ranges (Western Regional Climate Center [WRCC] 2006a).

Winds in the region tend to be moderate in strength and persistent. There is a peak in wind speeds in the spring (WRCC 2006b). Winds are predominantly from the west in the fall through spring, and then switch to a more southerly direction during the summer and early fall months (WRCC 2006c). Wind speeds and direction can vary greatly in different areas within the region due to the local topography. The presence of air mass frontal passages and severe storms can also have a drastic effect on wind speeds and directions over short periods of time.

Temperatures in the region are greatly dependent upon several factors, with perhaps the greatest being elevation. Lower-elevation areas in the south have annual average temperatures in the lower 60s (degrees Fahrenheit [°F]), while the higher mountains and valleys in the north can have annual average temperatures closer to 40°F. These differences display the extremes, but with the exception of higher elevation sites, the region generally experiences cool winters and much warmer summers. Average lows in the winter are in the 20s (°F) and highs are in the 50s (°F). Average lows in the summer are in the lower 60s (°F) and highs are in the lower 90s (°F). Since skies are generally clear and humidities low, diurnal temperature ranges can often be rather large (WRCC 2006a).

Precipitation is generally light and infrequent in the winter months, and usually falls from weather fronts originating in the Pacific Ocean. The bulk of the precipitation is usually sapped from these storms during their trek over the states to the west of New Mexico, leading to only sporadic light precipitation by the time the front reaches the region. The summer months tend to be the greatest contributor to annual precipitation totals. During that time, moisture from the

Gulf of Mexico is often drawn up into the region forming scattered but strong thunderstorms. Any one location may experience the effects of these storms quite infrequently, but due to their strength, heavy amounts of rain may fall during that brief time (WRCC 2006a).

Snowfall is not uncommon in the region during the winter months. In fact, the bulk of winter precipitation in the mountainous areas comes in the form of snow. The lower elevation areas may occasionally experience light snowfall as well. Annual average extremes range from 3 inches in the southern and eastern desert areas to over 100 inches in the northern mountains (WRCC 2006a).

Regional Air Quality. Federal regulations at 40 CFR 81 delineate certain air quality control regions (AQCR) which were originally based upon 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. Due to the large area of activity, the ROI for this action would include five different AQCRs: (1) Pecos-Permian Basin Intrastate AQCR (AQCR 155), (2) El Paso-Las Cruces-Alamogordo Interstate AQCR (153), (3) Northeastern Plains Intrastate AQCR (154), (4) Amarillo-Lubbock Intrastate AQCR (211), and (5) San Isabel AQCR.

Attainment Status. All of the areas included in the Mt. Dora and Pecos MOAs and associated MTRs are presently in attainment of all National Ambient Air Quality Standards (NAAQS).

Prevention of Significant Deterioration (PSD) Class I Areas. Mandatory PSD Class I areas for the State of New Mexico are listed under 40 CFR 81.421. The nearest PSD Class I areas are the Salt Creek Wilderness Area, located approximately 10 miles south of the Pecos MOA, and the Pecos Wilderness Area about 30 miles southwest of the Mt. Dora MOA. IR-111 traverses through the Pecos Wilderness Area. Aircraft attached to Cannon AFB flew 22 daytime sorties within IR-111 during the baseline year.

Current Air Emissions. Air emissions that occur within the Mt. Dora and Pecos MOAs and associated MTRs and used by aircraft based at Cannon AFB occur primarily from the combustion of fuel in aircraft engines. Table 5.4-1 summarizes the estimated annual emissions produced within the different airspaces. The aircraft emissions in Table 5.4-1 were calculated by comparing the current baseline sorties with the sorties reported in the *1998 Environmental Assessment for Proposed Force Structure Change and Foreign Military Sales Actions at Cannon AFB, New Mexico* (Air Force 1998b). The ratio of sorties for each region was then multiplied by the emissions reported in that document to estimate current baseline emissions. Only aircraft emissions that occurred below 3,000 feet AGL are included in this analysis because this is the average height of the surface mixing layer. Any emissions released above this level would not transport downward and affect ground-level air quality conditions.

TABLE 5.4-1. BASELINE EMISSIONS FOR TRAINING AND SPECIAL USE AIRSPACE

AIRSPACE[1,2]	ANNUAL EMISSIONS (TONS PER YEAR) [3]					
	VOC	*CO*	NO_x	SO_x	PM_{10}	$PM_{2.5}$
MOAs						
Mt. Dora	0.15	0.92	15.36	0.46	0.31	0.30
Pecos	0.66	5.74	107.21	3.24	1.25	1.24
MTRs						
IR-107	0.02	0.19	1.30	0.05	0.01	0.01
IR-109	0.13	0.55	12.58	0.33	0.16	0.16
IR-111	0.02	0.08	1.97	0.06	0.02	0.02
IR-113	0.00	0.20	4.40	0.20	0.00	0.00
VR-100/125	0.43	3.15	75.10	2.04	0.84	0.83
VR-108	0.03	0.21	4.55	0.13	0.06	0.06
VR-114	0.12	0.97	26.20	0.72	0.25	0.25

Notes:
1. Bronco MOA is not included since it does not extend below 3,000 feet AGL.
2. Taiban MOA was included in discussion of Melrose AFR.
3. Emissions from aircraft include all activities under 3,000 feet AGL. Emissions where calculated by using the 1998 Environmental Assessment for Proposed Force Structure Change and Foreign Military Sales Actions at Cannon AFB, New Mexico, and multiplying emissions reported in that document by the ratio of current baseline sorties to sorties reported in the Environmental Assessment.

5.4.3 ENVIRONMENTAL CONSEQUENCES

Air pollutant emissions produced from the Proposed Training were quantitatively estimated, then compared to the criteria identified below to determine their significance. Emission sources associated with the Proposed Training would include combustive emissions generated by operation of aircraft assigned to Cannon AFB.

As previously discussed, Section 169A of the Clean Air Act (CAA) provides special protection to air quality within Federal Class I areas. The nearest Class I areas to the project region are the (1) Salt Creek Wilderness Area, located approximately 10 miles south of the Pecos MOA and (2) Pecos Wilderness Area, about 30 miles southwest of the Mt. Dora MOA. However, IR-111 traverses through the Pecos Wilderness Area. The project MOAs are far enough away from Class I areas such that the Proposed Training would produce less than significant air quality impacts to these areas. However, this analysis provides a consideration of the impact of proposed aircraft emissions within IR-111 to air quality within the Pecos Wilderness Area.

5.4.3.1 PROPOSED TRAINING OF AFSOC ASSETS

The Proposed Training would lead to an increase in the number of annual sorties in the Mt. Dora, Pecos, and Bronco MOAs and associated MTRs. Alterations to emissions in the Bronco MOA were not considered because the MOA is entirely above the accepted atmospheric mixing level of 3,000 feet AGL; thus, any emissions generated at this altitude would minimally impact ground level air quality.

Section 4.4.3 establishes a technique for determining changes in emissions due to different aircraft types and numbers of sorties. This same technique also was used to estimate changes in emissions expected in the Mt. Dora and Pecos MOAs and associated MTRs. Factors used to estimate project aircraft emissions were obtained from the *Air Emissions Inventory Guidance*

Document for Mobile Sources at Air Force Installations (Air Force Institute for Environment, Safety, and Occupational Health Risk Analysis 2003).

Chaff and flare use in the Pecos MOA are not included in this analysis because the Proposed Training would decrease the use of these materials and their contribution to the overall emissions would be minimal.

Table 5.4-2 summarizes the estimated change in annual aircraft emissions within MOAs and MTRs due to the Proposed Training. These data show that the Proposed Training would increase criteria pollutant emissions from current levels within each airspace. The increase in emissions from the Proposed Training within each MOA and all but three of the MTRs would not exceed any significance threshold. However, emissions within IR-107, IR-109, and IR-111 would exceed the established significance threshold for nitrogen oxides (NO_x) of 100 tons per year (TPY). However, these routes are each several hundred miles in length and aircraft emissions would be dispersed along their entire lengths. It is expected that these NO_x emissions would not increase ambient ground level concentrations of nitrogen dioxide (NO_2) at any location, such that they would contribute to an exceedance of the NAAQS for NO_2. Thus, the Proposed Training would produce less than significant air quality impacts within and around the MOAs and MTRs utilized by aircraft stationed at Cannon AFB.

TABLE 5.4-2. CHANGE IN EMISSIONS – MOAS AND MTRS – PROPOSED TRAINING

Location	TONS PER YEAR					
	VOC	***CO***	***NO_x***	***SO_x***	***PM_{10}***	***$PM_{2.5}$***
MOAs						
Mt. Dora	6.68	5.22	35.58	5.10	8.10	8.03
Pecos	8.45	6.09	2.76	8.84	9.34	9.26
MTRs						
IR-107	20.39	33.41	111.97	16.54	6.27	6.21
IR-109	20.27	12.24	131.77	13.50	14.75	14.61
IR-111	15.28	8.33	107.12	11.01	9.39	9.31
IR-113	0.00	1.71	16.51	3.26	0.00	0.00
VR-100/125	10.30	8.50	63.24	11.63	11.97	11.86
VR-108	4.60	4.30	44.37	4.89	4.93	4.88
VR-114	2.34	1.95	13.20	3.23	2.89	2.86
Significance Thresholds	**100**	**100**	**100**	**100**	**100**	**100**

The proposed training would increase flights within IR-111 and through the Pecos Wilderness Area Class I area and therefore would impact air quality within this Class I area. This action would increase flights within IR-111 from a current level of 22 to 1,291 sorties per year and 1,077 of the flights would occur at night. Aircraft would normally fly at 250 to 1,000 feet AGL with 30 minute intervals below 250 feet AGL. Air quality impacts of proposed air emission sources to Class I areas generally focus on (1) visibility impairment and (2) ground-level increases in pollutant concentrations.

Criteria used to evaluate air quality impacts in Class I areas generally pertain to stationary emission sources, such as those associated with the New Mexico Air Quality Bureau (NMAQB) Construction and PSD permitting processes (NMAQB Regulations 20 New Mexico Administrative Code [NMAC] 2.72 and 20NMAC2.74). Criteria to evaluate impacts of mobile source emissions to Class I areas are not well defined. Visibility impairment is defined as (1) a reduction in regional visual range and (2) atmospheric discoloration or plume blight. This action would produce less then significant impacts to visibility within the Pecos Wilderness Area because (1) the proposed aircraft emissions would be transient in nature and (2) only 214 flights would occur during daylight hours. Hence, proposed aircraft emissions would be adequately dispersed to the point that they would not substantially impact visibility within the Pecos Wilderness Area.

Approximately 6 percent of the length of IR-111 is within the Pecos Wilderness Area. Review of Table 5.4-2 shows that 6 percent of the annual aircraft emissions estimated for IR-111 and that potentially would occur within the Pecos Wilderness Area include (1) 0.9 tons of volatile organic compound (VOC), (2) 0.5 tons of CO, (3) 6.4 tons of NO_x, (4) 0.7 tons of SO_2, and (5) 0.6 tons of PM_{10}. Since most of these emissions would occur within 1,000 feet AGL, proposed aircraft operations within the Pecos Wilderness Area could appreciably increase ground-level concentrations of these pollutants and therefore could significantly impact air quality within this Class I Area.

Impacts of proposed aircraft emissions to ground-level pollutant concentrations within the Pecos Wilderness Class I Area could be mitigated by flying above 2,000 feet AGL over the Pecos Wilderness Class I Area. Adherence to this mitigation would adequately disperse proposed aircraft emissions and would produce inconsequential ground-level pollutant concentrations within this area. Mitigated project aircraft emissions would produce less then significant air quality impacts within the Pecos Wilderness Class I Area.

5.4.3.2 No Action Alternative

Under the No Action Alternative, Cannon AFB would become an AFSOC installation but there would be no beddown of AFSOC assets and no Cannon AFB-based AFSOC training would occur within the Mt. Dora, Pecos, and Bronco MOAs and associated MTRs. As a result, the No Action Alternative would produce less than significant air quality impacts within and around these airspaces.

5.5 Physical Resources

5.5.1 Definition of Resource

This section discusses physical resources beneath airspace associated with the Proposed Training. Because of the area captured by the ROI, discussion of physical resources takes a more regional perspective. Soils and water resource discussion on the properties that would be most likely affected by activities planned under the Proposed Training.

5.5.2 Existing Conditions

The semi-arid climate of the region contributes to the development of thin topsoil with low organic content, underlain at relatively shallow depths by a leached clay-carbonate hardpan or "caliche." Caliche forms as calcium carbonate. It is leached from overlying sediments and precipitates in the pore spaces of the host sediments. Tightly cemented layers of caliche are present in several horizons in the natural soils and the Ogallala aquifer below (Air Force 1997a).

Surficial soils underlying the airspace can be generally characterized as sandy to silty loams, with considerable localized variation. These soils in the region can be generally characterized as slightly alkaline to alkaline (pH of 7.4 to 8.4), though soil variations under the airspace also exhibit more neutral soil chemistry (pH of 6.6 to 7.5). Soil in the region is moderately to well drained (U.S. Department of Agriculture [USDA] Soil Conservation Service [SCS] 1988).

Escarpments along the Canadian River watershed in northeastern New Mexico underlie MTRs including IR-107 and VR-108.

Much of Eastern New Mexico is underlain by approximately 200 to 400 feet of unconsolidated sediments deposited over sandstone known as the Triassic redbeds. This stratum forms the base of the Ogallala aquifer, which is developed within the overlying sediments. The Ogallala Formation sediments were laid down as alluvial deposits composed of unconsolidated poorly sorted gravel, sand, silts, and clays (Air Force 1997a)

Regional drainage consists of poorly developed ephemeral streams due to the low annual precipitation and high evaporation rates (Air Force 2003). The most prominent surface water features in the ROI are the Pecos River, and Alamosa, Taiban, and Yeso creeks, all within the Upper Pecos watershed. The Pecos River is designated as a warmwater or coldwater fishery (depending on the reach) by the New Mexico Environment Department and is also used to supply water for irrigation, municipal, and industrial uses. The river flows are governed by the Pecos River Compact, developed in 1948, which requires New Mexico to deliver water to Texas. Most of the surface water bodies in the ROI are intermittent streams and arroyos.

The Permian Basin is a geologic syncline with thick layers of sedimentary rock, mainly Permian limestone, from which oil and gas has been produced since the 1920s. The Permian Basin and oil and gas development occurs at the edges of the ROI in Roosevelt and Chaves counties (Scholle 2000). Based on well data from 2003, almost 200 oil wells and 1,800 gas wells within the ROI occur in Chaves County, with approximately 25 percent located under the Pecos Low MOA (New Mexico Oil Conservation Division 2003). These wells do not contain structures that are high off the ground. There are no active wells under the existing airspace in the rest of the ROI.

There are four Major Land Resources Areas (MLRAs) and eight Sub-resource Areas within the ROI. Unless otherwise listed, the information used to describe each of these areas is drawn from *Major Land Resource Areas and Subresource Areas, New Mexico* (USDA SCS 1980) and *Land Resource Regions and Major Land Resource Areas of the United States* (USDA SCS 1981).

The Southern Desertic Basins, Plains and Mountains MLRA covers much of the southernmost area of New Mexico from the Arizona border south of the Gila Mountains to the southeast corner of the state. In general, the topography can be described as having broad desert basins and valleys bordered by gently to strongly sloping fans and terraces. Low precipitation and scarce surface water bodies limit land uses. The soils are predominantly well drained and medium textured. A small portion of Pecos MOA as well as VR-100/125 falls within the Southern Desertic Basins, Plains, and Mountains MLRA.

The Pecos/Canadian Plains and Valleys MLRA falls between the Rocky Mountains on the northwest and the High Plains to the east. In the ROI, it includes some isolated areas of escarpments and mountains (mostly outside the ROI) and the majority of the Western Great

Plains. The main groundwater source, underlying portions of Guadalupe, Quay, and De Baca counties, is the Fort Sumner underground water basin. The Yeso geologic formation, consisting of sandstone, siltstone, and gypsum, is the principal aquifer. Groundwater recharge occurs mainly by infiltration of precipitation. Most of the ROI falls within the Pecos/Canadian Plains and Valleys MLRA.

The Southern High Plains MLRA is located in the eastern portion of New Mexico and into Texas. It is underlain by nearly horizontal sedimentary rocks that have been covered by alluvial and aeolian deposits. Playa lakes are scattered throughout the region. The Ogallala Aquifer is the principal aquifer system in this part of the ROI. It occurs chiefly in the Ogallala Formation, a mixture of clay, silt, sand, and gravel layers, often with thick gravel layers near the bottom and a caprock of caliche at the top, underlain by red beds (sandstones and sandy shales). Bronco MOA and large portions of Mt. Dora MOA fall within the Southern High Plains MLRA.

A small portion of the Southern Rocky Mountains MLRA extends into New Mexico from Colorado in the North. This MLRA is dominated by two north-south trending mountain ranges. The southern limit of one of these ranges, the Sangre de Cristo Mountains, overlaps the periphery of the ROI. Ranges are dissected by numerous steep stream valleys. The headwaters of many of the major rivers of the High Plains are in this MLRA (outside the ROI). Exposed rock is mostly Mesozoic and Paleozoic sedimentary. Alluvial deposits from mountains extend strongly into the adjacent Southern High Plains MLRA. The northwest margin of Mt. Dora MOA, as well as IR-109, intrude the Southern Rocky Mountains MLRA.

SOILS UNDER MOST OF THE AIRSPACE ARE SUSCEPTIBLE TO WIND AND WATER EROSION.

The Pecos River, comprising the primary surface water feature in the Upper Pecos watershed, flows southerly under Pecos MOA within the ROI and is the dominant permanent surface water feature under the airspace. Within the Upper Pecos watershed, there are a total of 2,460 river miles. Under the airspace, there are numerous intermittent drainages including streams, draws, and arroyos that drain toward the Pecos River. In total, these perennial drainages account for 242 river miles within the watershed (U.S. Environmental Protection Agency [USEPA] 2001). The water quality of the upper Pecos River is characterized by the USEPA as being seriously impaired but with a low vulnerability to future degradation (USEPA 2001). In addition to the traditional surface water resources of the area, there are numerous impoundments and open tanks for stock watering dispersed throughout the project area.

Wetlands within the airspace ROI are summarized in Table 5.5-1. Jurisdictional wetlands comprise less than 1 percent of the ROI and most are within the Pecos River Valley. Wetlands and riparian areas, however, are critically important for many species of animals, particularly migratory birds. Wetlands are discussed in Section 5.6.2 and are subject to federal regulation.

Table 5.5-1. Wetlands within the Region of Influence

Wetland Type	*Acres*
Palustrine Scrub-Shrub	1,990
Palustrine & Riverine Unconsolidated Shore & Bottom	995
Total Wetland Acreage	3,585
Total Land Area	3,225,344
Wetland Percent of Total Land Area	0.11

Source: U.S. Fish and Wildlife Service (USFWS) 1983.

Bitter Lake National Wildlife Refuge (NWR), just south of the ROI along the Pecos River, is an example of the plant and animal diversity that is found in wetland and riparian areas. At least 357 species of birds have been observed on the refuge (Bitter Lake NWR 2004). Approximately 59 mammal species, 50 species of reptiles and amphibians, and 24 fish species have been recorded.

Because of the relative lack of permanent surface water resources underneath much of the airspace, water supplies for irrigation, industrial, and domestic purposes are obtained exclusively from groundwater. The principal regional aquifer for both potable and irrigation water is the lower portion of the Ogallala aquifer (Air Force 1997a). The thickness of the aquifer ranges from zero, where the Ogallala Formation wedges out against older rocks, to as much as 150 feet in parts of Curry County. The groundwater flows generally in an east-to-southeast direction and the slope of the water table is a relatively flat 7 to 15 feet per mile. The upper 50 feet of sediments are composed of silty sand with zones cemented by caliche. These caliche zones lower the permeability and amount of infiltration of surface water through the near-surface sediments (Air Force 1995).

Additional project elements associated with airspace under the Proposed Training include water training sites to be established at suitable lentic features within two hours driving distance from Cannon AFB. These areas of interest, selection criteria, and their relationship to AFSOC training are discussed in Section 2.3.4. Areas under consideration include Conchas Lake, Santa Rosa Lake, Sumner Lake, and Ute Lake.

Conchas Lake, a reservoir located at the confluence of the Canadian and Conchas Rivers, was formed through the construction of an earthen and concrete dam 235 feet high and 1,250 feet long. At capacity, the dam impounds a 25-mile long narrow reservoir with a surface area of 9,600 acres. The shoreline is highly irregular with numerous curves and coves. Water surface elevation is 4,200 feet. Exposed rock and underlying bedrock are composed of a group of sedimentary elements of Upper Triassic age. Channel deposits are composed of Pleistocene glacial wash-out material from the Sangre de Cristo Mountains in Las Animas County, Colorado. Lakeshores vary from steep, rocky and canyon like to level and sandy.

Santa Rosa Lake lies in the Pecos River Valley in a region of artesian-spring lakes and pools. Santa Rosa Lake, in contrast, is a reservoir formed through the damming of the Pecos River seven miles north of the city of Santa Rosa. The dam is a rock and concrete structure 212 feet high and 1,950 feet long. At capacity, the dam impounds a 4-mile-long by 3-mile-wide reservoir with a surface area of 3,800 acres. Several small islands disrupt the lake surface. Regional irrigation demands result in highly variable water levels over the course of the watering season; Santa Rosa Lake is described as having no permanent pool. Exposed rock is of Triassic age and

similar to that found at Conchas Lake. Surface sands, silts and clays are Pecos River alluvium and presumed to have been deposited during the past two million years.

Sumner Lake was formed through the construction of Alamogordo Dam. The dam is an earthen (soil and rock) structure with a height of 134 feet at a length of 3,084 feet. At capacity, the reservoir has a surface area of 4,500 acres at an elevation of 4,300 feet. As with Santa Rosa Lake, Sumner Lake lies within the Pecos River Valley. As well as Triassic sandstones, siltstones, and mudstones, some Permian material is exposed in bedrock at the site. Surface sediments are similar to those found at Santa Rosa Lake and Typical of the upper Pecos River Valley.

Ute Lake is the eastern most of the water training areas of interest. It is a long, narrow, somewhat sinuous reservoir formed through the damming of the Canadian River near the town of Logan, New Mexico. Ute dam is an earth-filled concrete structure with a height of 148 feet and a length of 2,050 feet. At capacity, the dam creates a reservoir with a surface area of 8,200 acres at an elevation of 3,900 feet. Surface geology is similar to that described for Conchas Lake.

5.5.3 Environmental Consequences

5.5.3.1 Proposed Training of AFSOC Assets

Impacts to physical resources usually include actions that could disturb the earth. LZ and DZ construction would occur to permitted or leased land in accordance with the best management practices. Permits would be obtained as described in Section 2.3.4.

Potential impacts to physical resources also include actions that could affect water resources. Because land-base ingress and egress during water training would only occur at developed sites such as established boat ramps or other recreation access, no increased erosion, sedimentation, or bank destabilization would occur. Water training at reservoirs and lakes would increase the use of fuel and other materials that could potentially enter the water. Fuel will be in closed containers, and boat or aircraft training would be conducted in such a way to prevent the introduction of foreign materials into the reservoirs.

Under the Proposed Training, both chaff and flare use would decrease under the airspace except under the restricted area (Table 5.5-2). Any potential for fires caused by flares would also decrease. Because any effects from chaff and flares that could occur under the airspace would be less than existing conditions, no impact is expected to physical resources under the Proposed Training. Refer to Section 4.5 for a discussion of chaff and flare impacts on physical resources under the Restricted Airspace.

Table 5.5-2. Current and Proposed Chaff and Flare Usage

Airspace	*Current Chaff*	*Proposed Chaff*	*Current Flares*	*Proposed Flares*
Mt. Dora MOA	0	0	0	0
Pecos MOA	20,484	10,000	15,100	9,000
Bronco MOA	0	0	0	0
Taiban MOA	20,483	6,000	15,099	5,000
Restricted (R-5104/5105)	3,762	18,000	2,031	10,000
VR-100/125	3,888	2,000	0	0
Totals	**48,617**	**36,000**	**32,230**	**24,000**

5.5.3.2 No Action Alternative

The effects to physical resources under the No Action Alternative would be the same as current conditions. Chaff and flare use in the existing Restricted Areas would continue. No changes to physical resources would occur under this alternative.

5.6 Biological Resources

Biological resources are defined in Section 3.6. This section will consider terrestrial habitats and species with special protection status residing beneath airspace associated with the Proposed Training.

5.6.1 Definition of Resource

Biological resources within the airspace (MOAs and MTRs) associated with the Proposed Training include those wild species that reside or may occur in some transient fashion and may be affected by project-related mission/training activities. The definition includes both wildlife species and their habitats. Because direct ground disturbance within airspace areas is not part of the Proposed Training, wetlands are not considered within the context of the Clean Water Act (CWA) and associated regulations. The larger surface area encompassed by the airspace ROI lends itself to a landscape level approach to description and subsequent analysis.

5.6.2 Existing Conditions

The ROI lies largely within the *Southwest Plateau and Plains Dry Steppe and Shrub Province*, as described by Bailey (1995). The *Chihuahuan Semi-Desert Province* is in the south, while western areas include *the Arizona-New Mexico Mountains Semi-Desert – Open Woodland – Coniferous Forest – Alpine Meadow Province*. Within these ecoregions, following terminology in Dick-Peddie (1993), the dominant vegetation community in the ROI is Plains-Mesa Grassland. Landscape level vegetation communities are described below.

Plains-Mesa Grassland. Plains-Mesa Grasslands are found between 4,000 and 7,500 feet MSL on plains, mesas, and low hills. Three grassland types may be present: tall grass, mixed, and/or short grass prairies. Tall grass prairie is relatively rare and is largely limited to sandhills near Portales in Roosevelt County. Blue grama (*Bouteloua gracilis*) and other grama grasses (*Bouteloua* spp.) dominate mixed and short grass prairie. Other important grasses include buffalograss (*Buchloe dactyloides*), Indian ricegrass (*Achnatherum hymenoides*), dropseed (*Sporobolus* spp.), galleta grass (*Hilaria jamesii*), and lovegrass (*Eragrostis* spp.). Although shrubs have always been part of the Plains-Mesa Grassland, the shrub component has increased in recent decades due to livestock grazing and fire suppression (Bailey 1995). Four-wing saltbush (*Atriplex canescens*), winterfat (*Ceratoides lanata*), rabbitbrush (*Chrysothamnus* spp.), and snakeweed (*Gutierrezia* spp.) are common shrubs. Forbs, such as coneflowers (*Ratibida* spp.) and globemallows (*Sphaeralcea* spp.), and pricklypear cacti (*Opuntia* spp.) are also important in Plains-Mesa Grasslands.

Typical mammals associated with Plains-Mesa Grassland are the pronghorn (*Antilocapra americana*), black-tailed prairie dog (*Cynomys ludovicianus*), swift fox (*Vulpes velox*), and Plains pocket gopher (*Geomys bursarius*) (Brown 1994). Domestic cattle, sheep, and horses are common grazers. Representative birds include the lesser prairie-chicken (*Tympanuchus pallidicinctus*), long-billed curlew (*Numenius americanus*), western burrowing owl (*Athene cunicularia hypugea*), lark bunting (*Calamospiza melanocorys*), and western meadowlark (*Sturnella neglecta*). Additional grassland specialist species found in mixed grasslands include reptiles such as the six-lined

racerunner (*Cnemidophorus sexlineatus*), many-lined skink (*Eumeces multivirgatus*), Great Plains skink (*Eumeces obsoletus*), and Plains blackhead snake (*Tantilla nigriceps*), and mammals such as thirteen-lined ground squirrel (*Spermophilis tridecemlineatus*) and hispid pocket mouse (*Chaetodipus hispidus*) (Parmenter *et al.* 1994).

Desert Grassland. The lower elevation limit of Desert Grassland is around 3,600 feet MSL. This community type has been impacted by grazing and drought. In some areas, the native perennial bunchgrasses have been replaced by exotic annual grasses and low-growing sod grasses, such as Lehmann lovegrass (*Eragrostis lehmanniana*) and curly mesquite grass (*Hilaria belangeri*), respectively. Ecologically important grasses are black grama (*Bouteloua eriopoda*) and tobosa (*Hilaria mutica*). Black grama is found on gravelly upland sites, while tobosa is the dominant grass on heavier soils in lowlands and swales. Other grasses include various grama grasses, red three-awn (*Aristida longiseta*), hairy tridens (*Tridens pilosus*), and buffalograss. Lupines (*Lupinus* spp.), filarees (*Erodium* spp.), and buckwheats (*Eriogonum* spp.) are common forbs. Cacti and succulent plants, such as agaves (*Agave* spp.), sotol (*Dasylirion* spp.), and yucca (*Yucca* spp.) are characteristic of Desert Grasslands. Important shrubs include mesquite (*Prosopis* spp.), all-thorn (*Koeberlinia spinosa*), and catclaw acacia (*Acacia greggii*). Tarbush (*Flourensia cernua*) and creosotebush (*Larrea tridentate*) have increased with disturbance and drought.

Mammals common to the Desert Grassland are the black-tailed jackrabbit (*Lepus californicus*), spotted ground squirrel (*Spermophilis spilosoma*), various species of kangaroo rats (*Dipodomys* spp.) and woodrats (*Neotoma* spp.), badger (*Taxidea taxus*), and coyote (*Canis latrans*). Birds include Swainson's hawk (*Buteo swainsoni*), mourning dove (*Zenaida macroura*), roadrunner (*Geococcyx californicus*), ash-throated flycatcher (*Myiarchus cinerascens*), curve-billed thrasher (*Toxostoma curvirostre*), and Cassin's sparrow (*Aimophila cassinii*). Ornate box turtle (*Terrapene ornate*), western hognose snake (*Heterodon nasicus*), western hooknose snake (*Gyalopion canum*), and desert grassland whiptail (*Cnemidophorus uniparens*) are representative reptiles.

THE ORNATE BOX TURTLE IS COMMON TO THE DESERT GRASSLAND.

Plains-Mesa Sand Scrub. Although historically this community type was restricted to the extreme southern parts of New Mexico and along the Rio Grande River, it has expanded and encroached into Desert Grassland. Its typical elevation range is 2,300 to 5,200 feet MSL. Creosotebush, tarbush, and whitethorn (*Acacia neovernicosa*) are the dominant features of the Chihuahuan Desert. Numerous species of yuccas, agaves, sotols, and nolinas (*Nolina* spp.) are found in succulent-scrub upland areas, as are woody shrubs and low-growing cacti. Succulent-scrub uplands grade into Desert Grassland where grassland species, such as grama grasses, can be found. Lower elevation playas may also support Desert Grassland species.

The Plains-Mesa Sand Scrub is perhaps best known for its diversity and abundance of reptiles. Lizards include the Texas banded gecko (*Coleonyx brevis*), greater earless lizard (*Cophosaurus texanus*), and several species of spiny lizards (*Sceloporus* spp.) and whiptails (*Cnemidophorus* spp.). Snakes include the western hooknose snake, whipsnakes (*Masticophis* spp.), and rattlesnakes (*Crotalus* spp.). Typical mammals found in Plains-Mesa Sand Scrub are the desert pocket gopher (*Geomys arenarius*), southern grasshopper mouse (*Onychomys torridus*), Texas antelope squirrel (*Ammospermophilis interpres*), and desert pocket mouse (*Perognathus penicillatus*). Scaled quail

(*Callipepla squamata*), white-necked raven (*Corvus cryptoleucus*), cactus wren (*Campylorhynchus brunneicapillus*), and black-throated sparrow (*Amphispiza bilineata*) are representative birds.

Juniper Savanna. This community type is characterized by pinyon pine (*Pinus edulis*) and one-seed juniper (*Juniperus monosperma*), together commonly called pinyon-juniper woodland. This woodland is found between 4,900 and 7,500 feet MSL, particularly on rocky mesas, plateaus, slopes, and ridges. Understory vegetation includes grama grasses, galleta grass, Indian ricegrass, buckwheats, and lupines. Woody shrubs include threadleaf groundsel (*Senecio longilobus*), snakeweed, fourwing saltbush, and cliffrose (*Cowania mexicana*). Several species of hedgehog cacti (*Echinocereus* spp.), pricklypears, and chollas (*Opuntia* spp.) are also present.

Pinyon-juniper specialist wildlife species are the pinyon mouse (*Peromyscus truei*), pinyon jay (*Gymnorhinus cyanocephalus*), gray flycatcher (*Empidonax wrightii*), and gray vireo (*Vireo vicinator*). Pinyon-juniper woodlands are also important for wintering elk (*Cervus elaphus*) and mule deer (*Odocoileus hemionus*) (Brown 1994).

WETLANDS, INCLUDING THE FT. SUMNER LAKE PICTURED HERE, ARE CRITICALLY IMPORTANT FOR MANY SPECIES.

Although they comprise less than 1 percent of the airspace ROI, jurisdictional wetlands present a greater diversity and importance under the airspace than they do on Cannon AFB or Melrose AFR. Most are within the Pecos River Valley. In arid settings, as in other landscapes, wetlands and riparian areas are critically important for many species of animals, particularly migratory birds. Typical wetland plants include cattail (*Typha latifolia*), bulrush (*Scirpus acutus*), rushes (*Juncus* spp.) and sedges (*Carex* spp.), often interspersed with willows (*Salix* spp.). Native riparian areas are also imperiled due to increased water demands and invasion by the exotic shrubs saltcedar (*Tamarix* spp.) and Russian olive (*Elaeagnus angustifolia*). Plains cottonwood (*Populus deltoides*), peachleaf willow (*Salix amygdaloides*), and narrowleaf cottonwood (*Populus angustifolia*) dominate the riparian community along the larger river systems, such as the Pecos River. Riparian scrublands, composed of several willow species, seepwillow (*Baccharis salicifolia*) and saltcedar, are found along floodplains and streams throughout. At the higher elevations, riparian communities of streams and canyons can be characterized by narrowleaf cottonwood, maple (*Acer* spp.), box elder (*Acer negundo*), alders (*Alnus* spp.), willows, blue elderberry (*Sambucus glauca*), and red-osier dogwood (*Cornus sericea*).

Bitter Lake NWR, along the Pecos River, provides an example of the plant and animal diversity typical of wetland and riparian areas in Eastern New Mexico. At least 357 species of birds have been observed on the refuge (Bitter Lake NWR 2004). Approximately 59 mammal species, 50 species of reptiles and amphibians, and 24 fish species have been recorded.

The occurrence of listed, proposed, or designated candidates for federal protection as threatened or endangered species identified for the counties falling under MOAs and MTRs identified for use by the proposed project is summarized in Table 5.6-1. State status of these species is also given. Note that this list is based on county by county information. If any part of a county lies under an airspace element that would be used by the project, species in the county are included in the table. Therefore, it is likely that some of the species listed in Table 5.6-1 may not occur within or near the airspace described in the Proposed Training.

TABLE 5.6-1. FEDERALLY LISTED, PROPOSED, OR DESIGNATED CANDIDATE ENDANGERED OR THREATENED SPECIES IDENTIFIED FOR COUNTIES UNDER AIRSPACE IDENTIFIED FOR PROPOSED AFSOC TRAINING
(PAGE 1 OF 5)

Common Name and Scientific Name	COUNTY OF OCCURRENCE BY STATE[1]				STATUS (FEDERAL AND STATE)[2]				*General Habitat Associations*	
	New Mexico	*Texas*	*Colorado*	*Oklahoma*	*Fed*	*CO*	*NM*	*OK*	*TX*	
Least tern, *Sterna antillarum athalassos*	Chaves, Curry, De Baca, Lea, Quay, Rio Arriba, Roosevelt, San Miguel, Socorro, Union	Dawson, Oldham	Las Animas	Cimarron	E	E	E		E	Nest on riverine sandbars or open sandy or gravel coastal beaches. May nest on dredge material. Long distance migrant. Breeds at Bitter Lake NWR along the Pecos River north of Roswell, outside the project area. Not expected to regularly occur within the project area.
Whooping crane, *Grus americana*	Quay, Rio Arriba, Roosevelt, San Miguel, Sandoval, Socorro, Taos, Union	Andrews, Bailey, Cochran, Dallum, Dawson, Deaf Smith, Gaines, Hartley, Hockley, Lamb, Oldham, Parmer, Terry, Yoakum			E		E		E	May be found in association with marshes, prairie potholes, salt playas (e.g., Salt Plains NWR, near Enid OK, east of the project region). May forage near agricultural fields. Although it is listed for many counties in the project region, it is very unlikely to occur here except as a possible migrant ("accidental). The flyway lies to the east of the project region. The experimental population once established in NM has died out and there are no plans to replace it. In its biennial status review, NMDGF (2006) states: "With the demise of the last survivor [in 2002] of the discontinued Rocky Mountain experimental flock, and the continued absence of proof of natural occurrence of the species in the state, NMDGF should consider whether the species should be removed from New Mexico's list of threatened and endangered species.

TABLE 5.6-1. FEDERALLY LISTED, PROPOSED, OR DESIGNATED CANDIDATE ENDANGERED OR THREATENED SPECIES IDENTIFIED FOR COUNTIES UNDER AIRSPACE IDENTIFIED FOR PROPOSED AFSOC TRAINING (PAGE 2 OF 5)

Common Name and Scientific Name	COUNTY OF OCCURRENCE BY STATE[1]				STATUS (FEDERAL AND STATE)[2]					*General Habitat Associations*
	New Mexico	*Texas*	*Colorado*	*Oklahoma*	*Fed*	*CO*	*NM*	*OK*	*TX*	
Whooping crane, *Grus americana* (continued)										Texas Department of Parks and Wildlife lists it as a "possible migrant" in the panhandle region of Texas, although it is listed for most of the Texas Counties along the border with New Mexico. The migratory pathway of the main existing population crosses Oklahoma and Texas well to the east of the project area.
Southwestern willow flycatcher, *Empidonax traillii extimus*	Chaves, Colfax, De Baca, Guadalupe, Harding, Lincoln, Mora, Quay, Rio Arriba, San Miguel, Sandoval, Socorro, Taos, Torrance		Conejos, Costilla		E	E	E			Found in dense groves of willows, arrowweed, buttonbush, tamarisk, Russian olive, and some other riparian vegetation, often with a scattered overstory of cottonwood. Breeds in riparian areas. The listed western subspecies occurs in the project area only along the Rio Grande River. The other counties listed are occupied by non-listed subspecies.
Aplomado Falcon, *Falco femoralis septentrionalis*	Lea, Socorro				E		E			Associated with yucca grasslands and adjacent shrubby habitats. Very few documented sightings within the project area in past two decades. Populations are resident in West Texas and northern Chihuahua, Mexico. Establishment of a non-essential experimental population is proposed by USFWS for New Mexico and Arizona.
Piping plover, *Charadrius melodus circumcinctus*	Colfax, Guadalupe, Socorro		Las Animas		T	T	E			Occurs on sandflats and bare shorelines along rivers and lakes. Very rare migrant in New Mexico with 7 sightings. One breeding record in eastern Colorado outside project area (Prewitt Reservoir).

TABLE 5.6-1. FEDERALLY LISTED, PROPOSED, OR DESIGNATED CANDIDATE ENDANGERED OR THREATENED SPECIES IDENTIFIED FOR COUNTIES UNDER AIRSPACE IDENTIFIED FOR PROPOSED AFSOC TRAINING (PAGE 3 OF 5)

Common Name and Scientific Name	COUNTY OF OCCURRENCE BY STATE[1]				STATUS (FEDERAL AND STATE)[2]					*General Habitat Associations*
	New Mexico	*Texas*	*Colorado*	*Oklahoma*	*Fed*	*CO*	*NM*	*OK*	*TX*	
Canada Lynx, *Lynx canadensis*			Conejos, Costilla, Las Animas		T	E				Associated with mature sub-alpine coniferous forest. Require expansive stands. Adverse to crossing open areas and low density stands. Unlikely to be in project area, although a reintroduction attempt is planned in southern Colorado.
Bald eagle, *Haliaeetus leucocephalus*	Chaves, Colfax, Curry, De Baca, Guadalupe, Harding, Lea, Lincoln, Mora, Quay, Rio Arriba, Roosevelt, San Miguel, Sandoval, Socorro, Taos, Torrance, Union	Andrews, Bailey, Cochran, Dallum, Dawson, Deaf, smith, Gaines, Hartley, Hockley, Lamb, Oldham, Parmer, Terry, Yoakum	Conejos, Costilla, Las Animas	Cimarron	T	T	T		T	Breeding habitat most commonly includes areas close to coastal areas, bays, rivers, lakes, that reflect the general availability of primary food sources including fish, waterfowl, and seabirds. In the project region, most birds are wintering or migrating. Breeding is extremely localized at three locations in Colfax County and a no longer occupied site in Sierra County (along Rio Grande). Sumner Lake, a reservoir on the Pecos River, is identified as a key habitat for wintering bald eagles (NMDGF 2006b) as is the lower Canadian River.
Mexican spotted owl, *Strix occidentalis lucida*	Chaves, Colfax, Lincoln, Mora, Rio Arriba, San Miguel, Sandoval, Socorro, Taos, Torrance		Conejos, Costilla, Las Animas		T					Favors old growth mixed-conifer forests. Occupied Critical Habitat exists in the western part of the project area under project MTRs in the Sacramento and Sangre de Cristo mountains.

TABLE 5.6-1. FEDERALLY LISTED, PROPOSED, OR DESIGNATED CANDIDATE ENDANGERED OR THREATENED SPECIES IDENTIFIED FOR COUNTIES UNDER AIRSPACE IDENTIFIED FOR PROPOSED AFSOC TRAINING (PAGE 4 OF 5)

Common Name and Scientific Name	COUNTY OF OCCURRENCE BY STATE[1]				STATUS (FEDERAL AND STATE)[2]					*General Habitat Associations*
	New Mexico	*Texas*	*Colorado*	*Oklahoma*	*Fed*	*CO*	*NM*	*OK*	*TX*	
Sand dune lizard, *Sceloporus arenicolus*	Chaves, Lea, Roosevelt	Andrews, Gaines			C		E			In New Mexico, endemic to small areas of shinnery oak habitat. Prefer active and semi-stabilized sand dunes with mammal burrows and some litter. Associated with scattered stands of Harvard oak and sandsage; tends to occur in greatest abundance in areas where *Uta stansburiana* is scarce. Present under project airspace. Not expected to be affected by overflight.
Lesser prairie-chicken, *Tympanuchus pallidicinctus*	Chaves, Curry, De Baca, Guadalupe, Harding, Lea, Quay, Roosevelt, Union	Andrews, Bailey, Cochran, Dallum, Dawson, Deaf Smith, Gaines, Hartley, Hockley, Lamb, Oldham, Parmer, Terry, Yoakum			C					Mixed grass-dwarf shrub communities that occur on sandy soils; principally the sandsage and bluestem. Year-round residents where they occur. Present under the airspace in both New Mexico and Texas. New Mexico has state-owned Lesser Prairie-Chicken conservation areas under the Pecos MOA.
Yellow-billed cuckoo, *Coccyzus americanus occidentalis*	Chaves, Colfax, De Baca, Guadalupe, Harding, Lea, Lincoln, Mora, Quay, Rio Arriba, Roosevelt, San Miguel, Sandoval, Socorro, Taos, Union		Conejos, Costilla		C					Open woodlands with dense undergrowth, overgrown orchards and pastures, moist thickets, and willow groves along stream banks are the preferred habitat. The western yellow-billed cuckoo, which is the subspecies under review for listing, is found west of the project area and does not occur within it. The counties listed include observations for other subspecies of yellow-billed cuckoo.

TABLE 5.6-1. FEDERALLY LISTED, PROPOSED, OR DESIGNATED CANDIDATE ENDANGERED OR THREATENED SPECIES IDENTIFIED FOR COUNTIES UNDER AIRSPACE IDENTIFIED FOR PROPOSED AFSOC TRAINING (PAGE 5 OF 5)

Common Name and Scientific Name	COUNTY OF OCCURRENCE BY STATE[1]				STATUS (FEDERAL AND STATE)[2]				*General Habitat Associations*	
	New Mexico	*Texas*	*Colorado*	*Oklahoma*	*Fed*	*CO*	*NM*	*OK*	*TX*	
Chiricahua leopard frog, *Rana chiricahuensis*	Socorro				P		T			Occurs in a variety of permanent aquatic habitats including montane springs, streams, ponds, lakes, marshes, stock ponds, and plunge pools of canyon streams. Highly aquatic, seldom strays from water source. In drainages west of Continental Divide only. Not present under project airspace.

Notes: 1. Counties of occurrence determined through review of county lists provided on USFWS website (USFWS 2006)
2. Status: Federal and State E = Endangered, T= Threatened, C = Candidate, P = Proposed

Sources: Colorado Natural Heritage Program 2006, NMDGF 2006b, Oklahoma Natural Heritage Program 2003, Texas Parks and Wildlife Department 2006, USFWS 2006

The burrowing owl and gray vireo are under study by DoD as species of concern. Neither species is currently listed, proposed, or designated as a candidate species for listing under the ESA. The burrowing owl may be locally abundant in open habitats within the ROI and often thrives in loose soils associated with certain types of ground disturbing activities. The gray vireo is a patchily distributed songbird in arid shrublands and may occur beneath western portions of training airspace associated with the Proposed Action.

5.6.3 Environmental Consequences

This section addresses the consequences of training in the Special Use Airspace associated with Cannon AFB outside of Cannon AFB or Restricted Airspace associated with Melrose AFR. These airspace elements include the MOAs and MTRs. MTRs, which include the IRs and VRs, are shown in Figure 2.2-4. Activities in the airspace that could affect biota include noise and visual effects from aircraft overflight (especially low-level flights between 100 and 500 feet AGL) and vertical takeoffs and landings; use of chaff and flares, bird-aircraft strikes, and activities of on-ground (or in-water) personnel supporting air drops on land or in water. Although the airspace that would be used by AFSOC is already established and has been in use by aircraft from Cannon AFB and elsewhere, there would be changes in the timing of the use and the type of aircraft involved. The majority of AFSOC training in the airspace would take place during the hours of darkness. Rather than F-16s and other jet aircraft, the AFSOC training would involve fixed-wing, turboprop, four-engine C-130s, twin-engine tilt rotor CV-22s, and rotary-wing (UH-1) aircraft. There would continue to be use of the MOAs and MTRs by NMANG and transient jet aircraft from bases other than Cannon AFB.

The methodology for evaluating potential impacts and definition of impact significance to biological resources are discussed in Section 3.6.3. The Air Force has contacted the U.S. Fish and Wildlife Service (USFWS) with respect to threatened, endangered, and proposed species under the airspace proposed for training use.

Specific issues and concerns identified for biological resources are related to the potential effects of (1) low-altitude overflights in existing airspace, (2) chaff and flare use, and (3) water training. In the following discussion, published literature is reviewed on the potential impacts of aircraft noise and chaff and flares on wildlife and livestock. For most wild species in the ROI, no specific studies on their response to aircraft noise are available. A discussion of general patterns of animal response to noise and published studies on effects of aircraft noise on wild and domestic animals is included in this section.

5.6.3.1 Proposed Training of AFSOC Assets

Aircraft overflights and noise

Potential general issues related to noise effects on wildlife may include the following:

- Startle response injury due to trampling or uncontrolled running or flight.
- Increased expenditure of energy, particularly during critical periods.
- Decreased time spent on life functions (e.g., seeking food or mates).
- Temporary masking of auditory signals from other animals of the same species, predators, or prey (e.g., noise could prevent an animal from hearing the approach of a predator).

- Damage to eggs or nestlings if a bird is startled from its nest.
- Exposure of eggs or young in nest if a parent flees.
- Increased risk of predation when startled animals flee from nests, roosts, or other protective cover.
- Site abandonment.

The following section provides an overview of published literature regarding potential impacts to biological resources. The review of the noise effects literature shows that the most documented reaction of animals newly or infrequently exposed to aircraft noise is the "startle effect." Although an observer's interpretation of the startle effect is behavioral (e.g., the animal runs in response to the sound or flinches and remains in place), it does have a physiological basis. The startle effect is a reflex; it is an autonomic reaction to loud, sudden noise (Westman and Walters 1981, Harrington and Veitch 1991). Increased heart rate and muscle flexion are the typical physiological responses.

The literature indicates that the type of noise that can stimulate the startle reflex is highly variable among animal species (Manci *et al.* 1988). In general, studies have indicated that close, loud, and sudden noises that are combined with a visual stimulus produce the most intense reactions. Rotary-wing aircraft such as helicopters generally induce the startle effect more frequently than fixed wing aircraft (Gladwin *et al.* 1988; Ward *et al.* 1999). Although little is known about the effects of CV-22 operations on wildlife species, this aircraft, during take-offs, landings, and nacelle rotation can be presumed to be similar to a helicopter. Animals can habituate to fixed wing aircraft noise as demonstrated under controlled conditions (Conomy *et al.* 1998; Krausman *et al.* 1998) and by observations reported by biologists working in parks and wildlife refuges (Gladwin *et al.* 1988). However, species differ in their ability to habituate to aircraft noise.

Research on the effects of aircraft noise on wildlife has largely focused on behavioral effects. Most studies of physical effects (e.g., heart rate, blood chemistry) have been restricted to captive or semi-captive animals. Furthermore, researchers have concentrated on the larger and more easily studied species, such as elk and raptors. Some species groups have been studied only rarely (e.g., reptiles and amphibians, neotropical migrant songbirds). McClenaghan and Bowles (1995) emphasized the research difficulty in distinguishing potential long-term effects on free-ranging wild populations due to aircraft noise compared to other environmental factors.

Several studies have investigated aircraft noise effects on domestic animals. Reviews of available information are found in Manci *et al.* (1988), United States Forest Service (U.S. Forest Service 1992), and in Air Force (Air Force 2001f).

Wild Ungulates and Game Species. Wild ungulates appear to vary in sensitivity to aircraft noise. Responses reported in the literature varied from no effect and habituation to panic reactions followed by stampeding (Manci *et al.* 1988, Weisenberger *et al.* 1996). Luz and Smith (1976) observed that pronghorn antelope did not run until a helicopter was 150 feet AGL. Preliminary results by Bayless *et al.* (2004) have shown flight responses followed by habituation of pronghorn to Blackhawk or Apache helicopter overflight (used during daytime and nighttime hours, respectively) when the flight pattern is a racetrack, but a repeated flight response with no habituation to a helicopter hovering in one place at the same distance. Pronghorn can be active during both daylight and nighttime hours. Greatest movement activity of pronghorn at a northern Arizona study location, however, took place during twilight hours. Studies on

pronghorn response to overflight by jet aircraft and helicopters have suggested rapid habituation to overflight after initial responses, which include running for short distances (Workman *et al.* 1992, Bayless *et al.* 2004). In the Bayless *et al.* (2004) study, which included daytime and nighttime exposures to nearby helicopter activity, movements in response to overflight during nighttime hours were less than movements in response to overflight during daylight.

Stephenson *et al.* (1996) found that mule deer had larger home ranges in areas with ground-based military training than the control group of deer (i.e., no ground-based military training). However, they were unable to distinguish potential effects from military aircraft. Reactions of captive elk (*Cervus elaphus*), pronghorn antelope, and bighorn sheep (*Ovis canadensis*) to the impulse noise of sonic booms decreased with exposure (Workman *et al.* 1992), suggesting habituation. For pronghorn, initial responses were an increased heart rate that returned to normal within 1½ minutes, running for short distances, and increased alertness. By the third exposure to a sonic boom, the animals' heart rate response had decreased by half and they did not run. Krausman *et al.* (1998) studied the response of wild bighorn sheep in a 320 hectare (1.2 square mile) enclosure to frequent F-16 overflight at 120 meters AGL. Heart rate increased above preflight level during 7 percent of the overflights but returned to normal within 120 seconds. No behavioral response by the bighorn sheep was observed during the overflights. Aircraft noise has the potential to be most detrimental during periods of stress, especially winter, gestation, and calving (DeForge 1981). However, wildlife management agencies regularly use helicopters and fixed-wing aircraft for radio tracking and surveying wild ungulate populations (e.g., Krausman and Hervert 1983).

Raptors. Most studies have found few negative effects of aircraft noise on raptorial birds. Ellis *et al.* (1991) examined behavioral and reproductive responses of several raptor species to low-level flights and sonic booms. No incidents of reproductive failure were observed and site re-occupancy rates were high (95 percent) the following year. Several researchers found that ground-based activities, such as operating chainsaws or an intruding human, were more disturbing than aircraft (White and Thurow 1985, Grubb and King 1991, Delaney *et al.* 1997). Red-tailed hawks (*Buteo jamaicensis*) and osprey (*Pandion haliaetus*) appeared to readily habituate to regular aircraft overflights (Andersen *et al.* 1989, Trimper *et al.* 1998). Mexican spotted owls did not flush from a nest or perch unless a helicopter was as close as 330 feet (Delaney *et al.* 1997). Johnson and Reynolds (2002) reported on the response of Mexican spotted owls to low altitude (1,400 feet AGL) jet overflights of owl territories in narrow canyons in Colorado. Behaviors ranged from no response to sudden turning of the head. These behaviors did not exceed those observed before and after each fly-by. Nest attendance, time-activity budgets, and provisioning rates of nesting peregrine falcons (*Falco peregrinus*) in Alaska were found not to be significantly affected by jet aircraft overflights (Palmer *et al.* 2003). On the other hand, Andersen *et al.* (1990) observed a shift in home ranges of four raptor species away from new military helicopter activity, which supports other reports that wild species are more sensitive to rotary-wing aircraft than fixed-wing aircraft. There is a paucity of published studies of avian response to overflight during nighttime hours, at least partially the result of the logistical difficulties of conducting studies during darkness (Larkin nd). However, based on observations by biologists that a wide range of avian species allow a very close approach by observers on foot during nighttime hours without taking flight or exhibiting other behavioral reaction, it appears likely that the response of such species to overflight at night would be less than during daytime, when most birds are active and don't allow a close approach by observers. This observation applies to a wide variety of waterfowl, shorebirds, raptors, and songbirds. The response of nocturnally active birds such as

owls, poorwills, and nighthawks to overflight at night is not generally known. Delaney *et al.* (1997), who made measurements of Mexican spotted owl behavior in response to HH-60G Pave Hawk helicopters, indicated that their data suggest that diurnal flights would likely have less potential for disrupting critical spotted owl activity than nocturnal flights and indicated that the 3 hours following sunset and the three hours preceding dawn were most important.

Waterfowl and Other Waterbirds. The few waterbodies under the airspace have prevalent waterfowl and waterbirds. Manci *et al.* (1988) noted that aircraft can be particularly disturbing to waterfowl. Conomy *et al.* (1998) suggested, though, that responses were species-specific. They found that black ducks were able to habituate to aircraft noise, while wood ducks did not. In colonial nesters, effects may be more dramatic due to the crowded nature of the nesting colonies. Burger (1981) found that herring gulls (*Larus argentatus*) responded intensively to sonic booms and many eggs were broken as adults flushed from nests. As with other species, waterfowl and other waterbirds demonstrate a greater sensitivity to rotary-wing aircraft than to other aircraft.

Small Mammals. The burrows of some mammals may reduce their exposure to aircraft noise. Francine *et al.* (1995) found that kit foxes (*Vulpes macrotis*) with twisting tunnels leading to deeper burrows experienced less noise than kangaroo rats with shallow burrows. Kit foxes are closely related to swift foxes (*Vulpes velox*), which occur under the airspace. Small mammals exposed to frequent and loud aircraft noise can develop enlarged adrenal glands. Chesser *et al.* (1975) found that house mice (*Mus musculus*) captured near an airport runway had larger adrenal glands than those captured 2 kilometers from the airport. In the lab, naïve (previously unexposed) mice subjected to simulated aircraft noise also developed larger adrenal glands than a control group. The implications of enlarged adrenals for small mammals with a relatively short life span are undetermined, but may indicate lower body condition, reproductive problems, and shorter lifespans.

Aquatic Species. No studies were reviewed on the effects of aircraft overflight on fish or other aquatic species. It is assumed that there would be minimal, if any, effects of airborne noise in the aquatic environment because of the inefficient transfer of sound from air to water.

Livestock. As with wildlife, the startle reflex is the most commonly documented effect on domesticated animals. Results of the startle reflex are typically minor (e.g., increase in heart rate and nervousness) and do not result in injury. Exceptions may occur when animals are crowded in small enclosures such as corrals or feedlots, where loud, sudden noise may cause a widespread panic reaction. However, such negative impacts were only observed when aircraft were less than 330 feet AGL (U.S. Forest Service 1992). Between 1994 and 2005, five cases were reported of cattle injury or death under the Pecos MOA where cattle in an enclosed pen bolted into barbed wire. Each response was attributed to a low-level aircraft overflight. These responses occurred under existing conditions (Air Force 2006a).

Numerous studies have found little direct evidence linking aircraft noise to decreased rates of milk production, weight loss, or lower reproductive success (Manci *et al.* 1988). Head *et al.* (1993) did not find a decrease in milk yields or milk components when 36 Holstein cows were exposed to jet aircraft noise; the cows also showed little to no behavioral responses. Many studies documented that all types of livestock habituate to aircraft noise (see reviews in Manci *et al.* 1988). Espmark *et al.* (1974) noted minimal behavioral reactions, such as general muscle contraction, ear and tail twitching, or walking or running a short distance (up to 20 meters), in cattle and sheep exposed to 28 sonic booms. They noted that cattle and sheep were, "less disturbed towards the end of the test period, thus indicating that adaptation had taken place"

(Espmark *et al.* 1974). Livestock grazing has been an acceptable land management practice on Air Force ranges for decades. At Melrose AFR, the Air Force leases approximately 51,000 acres to ranchers for cattle grazing (Air Force 2001e).

No controlled studies of the responses of mounted horses to aircraft noise are available. Anecdotal reports indicate that horses with riders startle when surprised by a low-altitude overflight, but responses varied with the horse, rider, terrain, and other conditions. Several anecdotes noted that horses gallop or bite or kick in response to low-altitude overflights (Manci *et al.* 1988); however, no documented injuries to horses or riders were reported, and there was evidence that horses adapted to aircraft noise.

Several studies on the effects of noise on poultry were reviewed in The Impact of Low Altitude Flights on Livestock and Poultry (Air Force 1993). The report found that the major impact concern for poultry from low-altitude flying arises from pileups in turkey flocks (i.e., where turkeys pile together in a concentrated area often resulting in death from suffocation or overheating); pileups of chickens were not reported. The report also concluded that low-altitude flights result in no effects on chicken growth and reproduction functions (e.g., egg laying).

IMPACTS OF THE PROPOSED TRAINING

AIRCRAFT OVERFLIGHT AND NOISE

Table 2.3-2 provides an overview of proposed aircraft sortie-operations for MTRs and MOAs. The aircraft associated with the Proposed Training include (1) several special-purpose variants of the C-130 Hercules (AC-130H, MC-130H, MC-130P, MC-130W), which are large fixed-wing, four-engine, turboprop transport-type aircraft; (2) the CV-22, a medium-sized twin-engine tilt rotor V/STOL aircraft; (3) the C-47, a medium-sized, twin-engine, propeller-driven fixed wing transport similar to a DC-3; (4), and small numbers of UH-1 "Huey" helicopters, a single-engine, "rotary-wing" aircraft with a two-bladed rotor; and (5) undefined single- or twin-engine propeller-driven Non-Standard Aircraft (NSA). These aircraft are much quieter than F-16 jets; see Table 5.6-2 for a comparison of estimated Sound Exposure Levels (SELs) between F-16A, C-130, CV-22, and UH-1 at different altitudes AGL.

TABLE 5.6-2. COMPARISON OF ESTIMATED SOUND EXPOSURE LEVELS BETWEEN F-16A, C-130, CV-22, AND UH-1 AIRCRAFT AT DIFFERENT ALTITUDES IN FEET AGL

		SEL IN dBA					
	Airspeed	*300 AGL*	*500 AGL*	*1,000 AGL*	*2,000 AGL*	*5,000 AGL*	*10,000 AGL*
F-16A	450	110	107	101	95	85	74
C-130H[1]	220	99	95	90	84	76	68
CV-22	210	94	91	87	82	73	65
UH-1 "Huey"	80	99	96	91	89	79	73

Notes: 1. Takeoff power.

The majority of aircraft use of the MTRs and MOAs is at nighttime, especially by the MC-130 variants. Excluding transient aircraft, which are not associated with AFSOC training and which fly mostly during daytime, 40 percent of the 9,611 annual sortie-operations on MTRs would be between 10:00 p.m. to 7:00 a.m. and 35 percent of the 15,609 sortie-operations on MOAs would be between 10:00 p.m. to 7:00 a.m. In general, the MC-130s would fly at 250 to 1,000 feet AGL

dropping to 100 feet AGL, where permitted. Typically, low-level sortie-operations would begin after dark (6:00 p.m. to 9:00 p.m., depending on the season) and last for 4 to 5 hours. During terrain-following training along MTRs, which permit flight down to 100 feet AGL, the MC-130s would fly between 100 and 1,000 feet AGL.

Assuming approximately 220 flying days per year, numbers of sortie-operations on most of the MTRs would average slightly over 1 per flight day during daytime and about 5 per flight day after dark. The Taiban MOA would experience the heaviest usage with an average of approximately 7 sortie-operations per flight day during daytime and approximately 27 sortie-operations after dark. During the year, up to 40 percent of the after-dark sortie-operations would occur between 10:00 p.m. and 7:00 a.m. Some of the training would involve two or more aircraft which would cause the amount of use to vary from night to night. If two or more planes were flying together, the frequency of overflights associated with five sortie-operations would correspondingly diminish.

At any given altitude, the C-130s, CV-22 (in aircraft mode), C-47, and UH-1 aircraft produce lower SELs than do the F-16 aircraft, which train in the airspace. Additionally, with their slower speeds, the onset of the noise would build up more gradually than the sudden onset from a faster jet aircraft at similar altitude, lessening the likelihood of a startle effect. As summarized above, most observers have identified wildlife to respond to noise from helicopters at a greater distance than fixed-wing aircraft and attribute that response to the percussive "whop-whop" noise from the rotors, coupled with a response to the visual aspect of the helicopter, especially when hovering. The percussive rotor noise is more pronounced with a 2-bladed rotor (such as on the UH-1) than a rotor with 4 blades. The CV-22 makes a steady buzzing sound, lacking the percussive helicopter noise signature although engine noise levels increase when power is applied during helicopter mode.

The highest noise levels would occur from terrain-following flight, which would be conducted on the MTRs and from hovering flight by CV-22s and UH-1s, which would take place during water training and near drop zones (see discussion below under "Landing Zones, Drop Zones, and Water Training"). The noise produced from helicopters, CV-22s, and C-130s is less than from an F-16 at the same altitude. Available studies documenting the response of animals to nighttime overflight are relatively few, due to a variety of logistical challenges including the difficulty in observing responses in darkness. Night vision devices have improved the ability to accomplish this, but the resolution of the images is not as high as is possible in daylight.

In general, diurnally active birds (hawks, eagles, waterfowl, most songbirds) would exhibit a greater response to overflight during the daytime than at nighttime and would be expected to exhibit a minimal response to disturbance at night (unless approached very closely), based on observations of biologists conducting studies at night.

Although some reaction (such as alert posture or briefly taking flight or running) to the low-level overflights is possible, overflights directly over any particular area would be relatively infrequent due to the width of the MTRs. There would likely be habituation to the overflight stimulus given the regular use of the MTRs, the gradual increase in sound levels as the aircraft approached, and the lack of perceptible harm from the overflight. For these reasons, the training activity would not be expected to have an observable adverse effect on any species at the population level. Moreover, because the flight path of training aircraft could fall anywhere within the width of the MTR, which are commonly 15 to 20 miles wide, the frequency of overflights in any one area would be

sufficiently low that even a strong response (e.g., flushing, or running) would happen so infrequently that it would not be expected to adversely affect an animal's well-being.

ENDANGERED AND THREATENED SPECIES

Table 5.6-1 lists the federally listed endangered and threatened species as well as proposed and candidate species within the project region. Because project activities in the airspace are primarily associated with overflight and limited on-the-ground or in-water activities of small groups of personnel, habitat disturbance by the project would be very localized and negligible and there would be no adverse effects on plants. This discussion will focus on three of the eight federally listed or candidate wildlife species known from the ROI: the bald eagle, Mexican spotted owl, and lesser prairie-chicken, because these species are known to occur under airspace that would be used by the project. The sand dune lizard, a diurnal species, is known to occur in sandy habitats under the airspace but is not expected to have any reaction to project overflights during daytime and would be underground at nighttime, when most project activities are occurring, and during the cooler months of the year. Effects of project activities would be insignificant and not reach the level at which take occurs. Other species listed under Table 5.6-1 are not expected to be affected by the project because they do not occur under project airspace or would occur so infrequently that the potential for effects from project activities would be discountable.

Bald eagles winter at water bodies locally within the project area. Compared to on-ground or in-water activities (hikers and anglers), aircraft showed the lowest level of response by breeding bald eagles in terms of frequency and duration of response. The most common response to aircraft, including jets, light planes, and helicopters, was no response (67 percent), followed by alert response (29 percent), flight (3 percent), and temporary departure from area (1 percent). Among aircraft, helicopters elicited the highest response frequency and the greatest level of response alert (36 percent); flight (9 percent); departure (2 percent). The median duration of response was 1.0 minute (Grubb and King 1991). Wintering bald eagles showed a strong response (taking flight) when approached closely by boats (ranging from a few meters to 100 meters) or low-flying helicopters (mostly UH-1 at 60-120 meters AGL). This study (Stalmaster and Kaiser 1997) did not evaluate response to fixed wing aircraft, which would have been considerably less than to helicopters, based on observations in many other studies. Occasionally taking flight when closely approached by a helicopter is not expected to adversely affect wintering bald eagles, given the low likelihood of direct overflight, and the potential for acclimation to the overflight of rotary-wing and fixed-wing aircraft. Although specific data on the response of bald eagles to overflight during darkness were not found, a behavioral response by bald eagles to nighttime overflight is expected to be very unlikely given the general unresponsiveness of diurnal birds to nocturnal disturbance described above and the minimum overflight altitudes of 200 feet AGL associated with low-level training on MTRs. Based on these factors we conclude that project related overflights may affect but are not likely to adversely affect wintering bald eagles.

Occupied Mexican spotted owl habitat is present under MTRs (e.g., VR-100/125; IR-113; IR-111) that would be used by the project (e.g., Lincoln National Forest in the Sacramento Mountains; Carson National Forest in the Sangre de Cristo Range). Delaney, Grubb, and Pater (1997) conducted a detailed study on the effects of helicopter noise as well as on the ground disturbances during daylight and nighttime hours. Their findings concurred with other noise disturbance research suggesting that aircraft overflights alone have a negligible effect on raptor reproductive success and young fledged per nest. Adult owls only flushed after their chicks had fledged. This

study included very low level overflight (down to 30 meters AGL). The study found alert responses (head movements) at an average distance of 403 meters. No flushing occurred at a distance of > 105 meters and only 5 percent of spotted owls flushing at distances between 61 and 105 meters. A relatively quick return to predisturbance behavior was consistently found. Habituation (progressively less response with repeated exposures to a given type of disturbance) is suggested by the data but sample sizes were not adequate to demonstrate it statistically. Owls were most active during hours of darkness, with the greatest activity during the three hours following sunset and the three hours preceding dawn. During the nesting season, the peak period of prey deliveries to the nest was during the three hours preceding dawn. Based on Delaney *et al.'s* finding of no substantive evidence that helicopter overflights during the nesting season detrimentally affected success or productivity of Mexican spotted owls, we conclude that the overflights may affect but are not likely to adversely affect Mexican spotted owls.

Lesser prairie-chickens occur under the airspace locally in shrub-grassland habitat. Concerns have been raised that noise during their predawn and early morning communal breeding time could interfere with the breeding displays of males, which involve low frequency sounds known as "booming." Interference of AFSOC training is unlikely because overflight noise produced by the aircraft would be less than for jets and its onset would be gradual, there would be no AFSOC aircraft sonic booms, and overflights would principally be conducted during the early evening hours rather than predawn hours. Based on scheduled training time and projected species behavior, we conclude that the overflights may affect, but are not like to adversely affect, lesser prairie-chickens.

Chaff and Flares

Chaff and flare use would decrease in the Pecos North, Pecos South, and Taiban MOAs (Table 2.3-3), but would increase in R-5104A/B, and R-5105 over Melrose AFR. Chaff use would decrease over the northern portion of VR-100/125. Flares are not authorized in any MTR, and chaff and flares are not assessed for the Mt. Dora or Bronco MOAs.

In the airspace units within which defensive flares are authorized, the minimum altitude for flare release is above 2,000 feet AGL. When the National Fire Danger Rating System indicates high fire conditions, chaff and flare use is limited to above 5,000 feet AGL. Specific issues and potential impacts of chaff and flare on biological resources are discussed below. These issues have been addressed by DoD research (Air Force 1997b, Cook 2002), General Accounting Office review (General Accounting Office 1998), independent review by a Blue Ribbon Panel of experts (Spargo 1999), resource agency instruction, and public concern and perception. Potential effects can be either direct or indirect. Direct effects would be the ingestion or inhalation of chaff filaments or fragments and physical external effects (such as skin irritation). Effects on water and forage quality would be indirect. Fire risk on arid rangelands is the primary concern of flare use. Fire effects can be both direct (i.e., mortality) or indirect (e.g., habitat changes). These issues are evaluated for their potential of occurrence and the effect on biological resources, given occurrence.

Ingestion of Chaff or Flare Residual Materials. The release of chaff and flares results in chaff filaments, plastic sliders and caps, felt spacers, and flare wrapping material falling to the ground. Residual pieces would average one piece per 11 acres per year over the Pecos and Taiban MOAs. Over VR-100/125, average residual material from chaff would be one piece per 552 acres. Chaff filaments are conservatively estimated to be 0.80 gram per acre per year. Because of the nature of disposition and the low rate of application and dispersal of chaff

filaments during defensive training, wildlife and livestock would have little opportunity to ingest chaff filaments or end caps. Although some chemical components of chaff are toxic at high levels, such levels could only be reached through the ingestion of many chaff bundles or billions of chaff filaments. Previous studies have shown that cattle avoided consuming clumps of chaff in their feed (Barrett and MacKay 1972). When calves were fed chaff thoroughly mixed with molasses in the feed, no adverse physiological effects were observed pre- or postmortem. Additionally, given the low proportion of water bodies under airspace assessed for chaff, it would be extremely rare that waterfowl or bottom-feeding animals would encounter chaff fragments or concentrated levels. Overall, it is not expected that wildlife or livestock would encounter or consume chaff or be negatively affected by chaff if it were accidentally ingested.

Another concern expressed by ranchers is related to chaff and flare plastic pieces or wrapping material (similar to stiff, aluminum-coated duct tape) potentially contributing to bovine hardware disease. Hardware disease, or traumatic reticuloperitonitis, results when a cow ingests a foreign object, such as a nail, wire, or metallic object. The object can become lodged in the wall of the stomach and can penetrate into the diaphragm and heart, resulting in pain and infection. In severe cases animals can die without treatment. Treatment consists of antibiotics and/or surgery. Statistics are not readily available, but one study documented that 55 to 75 percent of cattle slaughtered in the eastern U.S. had metallic objects in their stomachs, but the objects did not result in damage (Moseley 2003). Dairy cattle are typically more vulnerable to hardware disease due to the confined nature of dairy operations. Many livestock managers rely on magnets inserted into the cow's stomach to prevent and treat hardware disease. The magnet attracts nails, wires, or other metallic objects, thereby preventing them from traveling to the stomach wall.

The culprit in bovine hardware disease is often a nail or piece of wire greater than 1 inch in length, such as that used to bale hay (Cavedo *et al.* 2004). Although no documented case exists, range cattle or other livestock could feasibly ingest residual materials of the M-206 flares; however, the plastic materials of the end cap and slider and the flexible aluminum wrapping are less likely to result in injury than a metallic object. There have been no reports of livestock ingesting residual chaff or flare materials on lands in and adjacent to Melrose AFR where chaff and flares and grazing have coexisted for over 30 years (Air Force 2001e).

Inhalation of Chaff Filaments. No specific research has been conducted on the potential for chaff inhalation by wildlife, nor have any negative effects been reported for wildlife, livestock, or humans (Air Force 1997b, Spargo 1999). Humans can inhale particles less than 10 microns (0.00039 inch) in diameter deep enough into the lung to cause chronic lung disease (USEPA 1997). Air Force chaff filament size is approximately 0.001 inch (25 microns) in diameter and 0.3 to 1 inch (7,620 to 25,400 microns) in length, which is too large for inhalation. On the ground, chaff degrades over time to aluminum or silica particles that are indistinguishable from ambient soil materials. Although chaff particles on the ground can be degraded in size to less than 10 microns and become indistinguishable from soil fragments of the same size, chaff fragments do not display asbestos-like characteristics and do not pose asbestos-like health risks. The number of degraded or fragmented particles is insufficient to result in disease (Spargo 1999). Therefore, inhalation of chaff filaments with adverse effects to wildlife, livestock, or humans is unlikely.

External Physical Effects. Unfragmented chaff is similar in form and softness to, yet thinner than, very fine human hair. No studies have evaluated or reported on negative effects associated with direct contact to chaff filaments. A field study on an Air Force range did not find chaff filaments in bird nests or animal burrows (Air Force 1997b). On a military range subject to decades of chaff and

flare use, seven nests of the woodrat (also known as a pack rat) (*Neotoma lepida*), a notorious gatherer of odd objects, were reviewed. None was found to contain chaff filaments or end caps. Chaff filaments may be generally unavailable or unattractive to wildlife and no negative effects are expected from direct contact.

Water Quality. The influences of chemical components of chaff and flare on water quality are discussed in detail in Section 4.5.3.1. Confined aquatic habitats may be affected if there were a potential for large-scale accumulation and decomposition of chaff fibers or dud flares. Wetland areas are a small percentage (< 0.5 percent) of the area to be exposed to chaff and flare release under the Proposed Training or alternatives. Most wetlands and water bodies are within the Pecos River Valley. Because chaff would be broadly distributed with low density in any one area, it is unlikely that chaff would be detectable or significantly accumulate within confined water bodies.

The component of chaff that has the potential to negatively affect soil or water chemistry is aluminum, which tends to break down in acidic and highly alkaline environments. Aluminum is the most abundant metallic element in the earth's crust and is an abundant constituent of soils. Laboratory and field analyses (Air Force 1997b) indicate that the pH of water in the soil or in a water body is the primary factor that determines the stability of the aluminum coating of chaff. The coating is the most soluble and likely to release aluminum if the soil or water pH is less than 5.0 (extremely acidic) or greater than 8.5 (strongly alkaline). In arid conditions such as those found in the ROI, soil pH tends to be neutral to high, but there is usually not enough water in the soil to react with the aluminum (Air Force 1997b). Water bodies in the ROI are neutral to slightly alkaline, less than the threshold necessary to degrade the aluminum coating. Chaff that falls into surface water would be chemically stable. No impact to water bodies would be anticipated, even in a highly unlikely event such as an entire clump of undispersed chaff falling into a small, confined water body.

Data on the chemical properties of the soils in the five counties that underlie most of the airspace in which chaff can be dispersed were reviewed. These include Chaves (NRCS 2002b), De Baca (NRCS 2002c), Guadalupe (NRCS 2002d), Lincoln (NRCS 2002e), and Roosevelt (NRCS 2002a) counties. According to these data, there are three soil series that have a pH in the surface layers ranging between 7.9 and 9.0. These soil series represent a very small percentage of the total area that could be affected, and all but one have a very low potential for soluble chemicals in the soil being lost to surface runoff or leaching into groundwater. The low percentage of soils in the ROI with a high enough pH to react with aluminum, in combination with the low soil water content, results in conditions that would be extremely improbable for aluminum concentrations to be produced from chaff particles that weather on the ground.

Under normal pH, the decomposition of chaff is extremely slow. Only under very high or low pH could the aluminum in chaff become soluble and potentially toxic (Air Force 1997b). Few organisms would be present in water bodies with such extreme pH levels. Given the small amount of diffuse or aggregate chaff material that could possibly reach water bodies and the moderate pH of regional water bodies, water chemistry would not be expected to be affected.

The magnesium in flares can be toxic at extremely high levels, a situation that could occur only under repeated and concentrated use in localized areas. Flare ash would disperse over wide areas; thus, no impact is expected from the magnesium in flare ash. The probability of an intact dud flare falling to the ground during training is exceedingly low (<1 percent) (Air Force 2001d). The probability of an intact flare falling into an aquatic system is much smaller, given

the very low proportion of water bodies in the ROI. Since toxic levels would require several dud flares to fall in one water body, no effect of flares on water quality would be expected.

Forage Quality. Given the exceedingly low concentrations of chaff deposition under the airspace, coupled with the non-reactive, arid, neutral-to-alkaline environment of the ROI, mobility of aluminum would not be expected to occur. Aluminum would likely remain inactive in an elemental state and be indistinguishable from ambient soils. Plants would not be expected to uptake any increased concentrations of aluminum. Therefore, no additional aluminum would enter the food chain or affect plant growth under the Proposed Training or alternatives.

Fire Potential. Fire risk and fire-frequency are a concern in arid environments. Fires can result in livestock and property losses. Although native vegetation in the Southwest is considered fire-adapted, past and current land-use practices, in combination with drought and invasive species, have altered fire regime and ecosystem processes (Brown 1994). Ecosystem changes include (1) the introduction and spread of invasive and exotic plants, which promotes the spread and intensity of fire or become established following fire; (2) habitat fragmentation by fire, leading to increased vulnerability of isolated populations; and (3) increased wind erosion of soil following fire. Therefore, even though most native species of the high plains are adapted to and even benefit from wildfire, any fire could result in direct losses and indirect negative effects.

Vegetation growth affects fire potential. During years with above normal or exceptional levels of precipitation, the overall fire risk may vary from the regional norm. When green, the vegetation reduces fire risk and when dry it increases the risks of fire. Such variations in fire risk normally occur during a natural multi-year cycle. Above normal levels of vegetation were cited as a contributing factor in the November 2005 fire that spread off of Melrose AFR.

The percentage of flares that malfunction is small (<1 percent probability for all categories of malfunction) (Air Force 2001d). The extremely rare dud flare that does not ignite at release and falls intact to the ground contains magnesium, which is thermally stable and requires a temperature in excess of 1,200°F for ignition. Self-ignition of a dud flare on the ground is highly unlikely under natural conditions. Cannon AFB has a fully staffed and equipped fire department and mutual aid agreements with fire departments in the region.

Landing Zones, Drop Zones, and Water Training

This section discusses the effect of activities in the LZs, which include Helicopter Landing Zones (HLZs), DZs, and water training within the airspace, including the activities of on the ground (or on the water) teams prior to, during, and after each exercise. Biological effects of establishment and operation of a landing zone and drop zones on Melrose AFR are discussed above in Section 4.6). As stated in Section 2.3.4, "LZ, DZ, or water training areas outside of Cannon AFB or Melrose AFR boundaries cannot be determined prior to a decision to beddown AFSOC assets at Cannon AFB. These locations are subject to review by Air Force real property personnel and required property ownership and environmental conditions must be evaluated before a state, federal, or private property could be leased or otherwise agreed to or used for off-base or off-range training."

Once a decision to beddown at Cannon AFB has been made, then the search for sites, discussions with landowners, and tiered environmental compliance can be conducted. It is assumed that LZs supporting fixed-wing aircraft outside of Melrose AFR would be established on existing runways within the ROI. LZs and DZs would require minimal site preparation and could be established within the airspace on lands owned or leased by the federal government

(Table 2.3-1). Additionally, drops of personnel or equipment could be accomplished over water (e.g., a lake or reservoir). See Section 5.5.2 for discussion of existing lake conditions.

LZs or DZs would most likely be established in agricultural or grazing land. Effects on vegetation and soils would depend on the nature of the site, conditions during use, and the degree of repeated use. Vehicular access, human foot traffic, and landing of helicopters, CV-22s, or air-dropped materials would have short-term effects on vegetation and soils. Repeated traffic over the same site would lead to local reduction in vegetative cover and increased susceptibility of soils to wind or water erosion and compaction. These effects could be reduced or avoided by preparation of sites that would receive repeated use to protect the soils. Wildlife would be expected to avoid the activity by taking cover or temporarily leaving the immediate vicinity, resuming their activities upon completion of the training exercise. Effects would be very localized, temporary, and less than significant.

Water Training could involve personnel and boats accessing the site prior to a personnel drop for safety of personnel and/or later retrieval of dropped personnel and equipment. No CWA Section 404 permit would be required for water training. Activities would occur during the mission itself and during recovery of personnel and materials for transport back to Cannon AFB. Support vehicles (light trucks, vans) and support boats would use existing infrastructure including roads, parking areas, and launch ramps. Typically there would be one training event a week in a given lake during spring to fall, water levels and weather permitting. A typical event would last 4 to 5 hours. A typical event could include one to two boats launched from existing ramps, a C-130 or a CV-22 aircraft fly over several times, and 3 to 5 drops with 7 to 10 Special Operations personnel dropped into the lake with each drop. These events could be during day or night, but when they are at night they would generally avoid lights from campers and homes along the shore. For safety and operational realism, drops would be toward the middle of the lake, away from shorelines and trees. After the drop, the Special Operations personnel would be expected to move to shore in a dark area of the lake and proceed covertly on foot to the objective. Either a vehicle or a CV-22 would come in to pick them up to complete the mission. Where they would land and where the Special Operations personnel come ashore would have to be surveyed at each lake similar to the survey for the other LZ/DZ locations. They would do such surveys sometime over the next 3 years before any CV-22s are assigned to Cannon. Preparation of separate environmental analysis, tiered from this EIS, would be expected for each LZ/DZ site.

Activities during daylight would be expected to temporarily disturb wildlife in the immediate vicinity and could cause migrating or wintering waterfowl to flush or swim away from the immediate vicinity of the activity. Training activities could result in species reactions similar to those occurring as the result of rapid motorboat or jet skis. Perched raptors (e.g., migrating/wintering bald eagles, osprey) would be expected to fly to another perch if closely approached by boats, personnel on the ground, or C-130 or CV-22 aircraft discharging personnel. Activities taking place at night could cause similar responses by these species but would generally require a closer approach to elicit a response at nighttime compared to daytime. Hovering flight by CV-22s or UH-1s associated with some water training would increase the magnitude and duration of the noise exposure and would be more likely to cause a response by species such as waterfowl or raptors that may be in the area. If there were a response to the training activity, the most likely response would be movement of birds to another part of the lake during the activity and would not be expected to represent an adverse effect. Over time, in the absence of direct threats, it is possible that some degree of habituation

would occur. The degree of response would be species-specific and individuals of a given species could show variation in their response. The response of wildlife to project activities would be well within the range of responses to a wide variety of human and non-human stimuli and would not be expected to result in adverse effect due to the infrequency of the activities and the low degree of expected response.

The only federally listed endangered or threatened species likely to be present during AFSOC water training is the bald eagle, which occurs during winter at each of the reservoirs likely to be used for the training. It is only present during the winter months, with numbers peaking in January, when AFSOC water training would be infrequent or not occur. Given the low level of the anticipated response coupled with the infrequency of the training at a given locality, effects on bald eagles would be insignificant and not be expected to reach the level of take. Therefore, it is concluded that the action may affect but is not likely to adversely affect the bald eagle.

5.6.3.2 No Action Alternative

No Action would result in no movement of AFSOC assets to Cannon AFB although AFSOC would maintain and operate the properties. Airspace use would be solely by transient aircraft. There would be minimal use of the MTRs and the MOAs, mostly by jet aircraft (F-16s and B-1Bs) that currently use it. There would be little or infrequent nighttime use of the MTRs and nighttime use of the Pecos and Taiban MOAs would average about 1 sortie-operation per flight day. Nighttime use of the Bronco and Mt. Dora MOAs would be infrequent.

5.7 Cultural Resources

5.7.1 Definition of Resource

Cultural resources underneath the airspace conform to the same definitions as for Cannon AFB (Section 3.7.1). To summarize, cultural resources are any prehistoric or historic district, site, building, structure, or object considered important to a culture, subculture, or community for scientific, traditional, religious or other purposes. Historic properties (as defined in 36 CFR 60.4) are significant archaeological, architectural, or traditional resources eligible for listing, or listed in, the National Register of Historic Places (NRHP). Historic properties are evaluated for potential adverse impacts from an action, as are significant traditional resources identified by American Indian tribes or other groups.

The ROI for cultural resources consists of the areas that lie beneath the airspace, as illustrated in Figure 5.1-2.

Several State and National Register-listed historic sites are under the airspace including areas located in the community of Fort Sumner.

There are seven Apachean-speaking tribes thought to have inhabited the southwestern portion of the United States and the Northern portion of Mexico; of these seven, it is believed that the Mescalero Apache and the Jicarilla Apache were the primary inhabitants of the area underlying the affected airspace (Opler 1983; Tiller 1983). The Mescalero Apache native lands were generally located in the southern portion of the affected airspace extending well into northern Mexico. At the time of European contact, the lands of the Mescalero were extensive, being defined by a series of mountain ranges with peaks greater than 12,000 feet, separated by flats and valleys. The differences in elevation are marked by noticeable changes in flora, fauna, and

climate. In the mountain regions, winters are severe with very short growing seasons, which made cultivation difficult. The flats were generally hot and dry, making cultivation almost impossible until the introduction of irrigation. The striking differences in topography and climate had a great and lasting influence on the political and economic development and structure of the Mescalero, who until the later part of the historic period, remained in small hunter-gatherer groups scattered throughout their territory (Opler 1983).

The Jicarilla aboriginal lands were generally located in the northern portion of the airspace extending as far north as south-central Colorado. It is believed that the Jicarilla migrated into the southwest between A.D. 1300 and 1500, although their route of migration is much in dispute. The Jicarilla Apache native lands consist of the Southern Rockies, which extend from north-central New Mexico north into southern Colorado, and east into the high plains country, which is defined by mesas, plateaus and intermontane basins. Similar to the Mescalero native lands, the elevational changes are drastic, ranging from 14,000 feet in the Rockies to 3,800 feet in some of the valleys (Tiller 1983).

Although the Apachean-speaking groups that migrated south into the region settled into separate locations, they preserved much of their Athapaskan culture. Eventually, many of these groups such as the Mescalero and the Jicarilla were influenced by contact with other native groups such as the Pueblos, and later by the introduction of the horse. These influences led to a change in culture towards a more sedentary life style (Tiller 1983).

By the early 1600s, Apachean groups occupied the region on a permanent basis. Apache occupation continued until the mid-18th century when the Comanche people entered the region. Comanche raids against eastern Pueblo and Spanish settlements led to military campaigns by the Spanish, defeating the Comanches in the 1780s. Kiowa groups also traversed the region, using the same lands as the Comanche for hunting and raiding from the 1790s until the 1870s (Air Combat Command [ACC] 2004).

Commerce between the U.S. and a Mexico newly independent from Spain was instrumental in bringing American settlers to the region in the early to mid-19th century. Traveling the Santa Fe Trail, business interests came into increasing conflict with the Apache and other tribes along the route, resulting in the construction of forts. During the Mexican-American war of 1846-1848, American troops traveled west along the Santa Fe Trail as did troops during the American Civil War. Once New Mexico became American territory, trade continued to flourish and traffic included travelers on their way to the gold fields of California (National Park Service 2004). The Santa Fe Trail also provided a link to the Old Spanish Trail, which connected New Mexico to the markets in California and Mexico.

In 1810, a treaty between the Spanish and the Mescalero Apache included a reservation for the Mescalero. The treaty was renewed by the Mexican government in 1832 (Rothman 1998). In the following decades, Mescalero encounters with the American military led to short-term treaty and reservation arrangements. In 1863, under General James H. Carleton, Colonel Christopher "Kit" Carson forced some 400 Mescalero Apache to walk approximately 200 miles from Fort Stanton to Fort Sumner. Later that year, over 8,000 Navajo from the Canyon de Chelly in eastern Arizona were forced to march over 300 miles to the Bosque Redondo Reservation at Fort Sumner (Banks 1998). From 1863 to 1868, as many as 9,000 Navajo people (Dineh) and more than 400 Mescalero Apache were incarcerated at the Bosque Redondo Reservation (ACC 2004). The forced movement of the Dineh to Fort Sumner is memorialized in Navajo history as "The Long Walk."

In 1868, the Navajo Treaty was signed at Fort Sumner, conceding the right of the Dineh to live on their homelands to the west (Museum of New Mexico 2001a). After a period of instability following the Civil War, a new reservation was established in 1873 for the Mescalero and Chiricahua Apache at its present location near the Sacramento Mountains (Rothman 1998) southwest of the area of potential effect, as well as the establishment of a new reservation for the Jicarilla Apache north of the area of potential effect (New Mexico Blue Book 2004).

Currently, the Mescalero and Chiricahua Apache Indian reservation occupies approximately 460,000 acres and is home to 3,000 tribal members (New Mexico Blue Book 2004). The Jicarilla Apache Indian Reservation is also home to approximately 3,000 members and consists of approximately 750,000 acres (New Mexico Blue Book 2004).

The Goodnight-Loving trail followed the Pecos River valley, through Fort Sumner to markets in states to the north; the Stinson Trail entered the region from Texas to the east. Growth in the cattle ranching industry was driven, in part, by the expansion of railroads throughout the region (ACC 2004). Small towns grew up along the rail lines, including Clovis, Melrose, and others in the Cannon AFB area. North of the ROI lie the remnants of Route 66, now largely replaced by other highways. This historic route once connected Chicago to Santa Monica, California.

Paleontological Resources

Paleontological resources, usually thought of as fossils, include the bones, teeth, body remains, traces, or imprints of plants and animals preserved in the earth through geologic time. Paleontological resources also include related geological information, such as rock types and ages. All fossils offer scientific information, but not all fossils offer noteworthy scientific information. Fossils generally are considered to be scientifically noteworthy if they are unique, unusual, rare, diagnostically or stratigraphically important, or add to the existing body of knowledge in a specific area of science. Although experienced paleontologists generally can predict which rock formations may contain fossils and what types of fossils may be found, based on the age of the formation and its depositional environment, predicting the exact location where fossils may be found is not possible.

5.7.2 Existing Conditions

Record searches of both the New Mexico State Register of Cultural Properties and the NRHP indicate that there are NRHP and state-listed properties throughout the counties underlying project MOAs and MTRs. Table 5.7-1 lists only the airspace where such properties are located. It also lists properties in the vicinity of LZ/DZ areas of interest. As Table 5.7-1 indicates, listed properties in De Baca County include the De Baca County Courthouse, which was constructed in 1917; the Fort Sumner Railroad Bridge, which was constructed in 1906; the Rodrick Drug Store; the Fort Sumner Women's Club; and the Fort Sumner Ruins. Fort Sumner was constructed in 1863 as a resettlement center for the Navajo and Apache Indians. Fort Sumner, near what had been the Bosque Redondo Indian Reservation, is also a New Mexico State Monument and has been identified as a Registered Cultural Property by the State of New Mexico. In addition to NRHP and state-listed cultural resources under project MOAs, there are also archaeological, architectural, or traditional resources that are either eligible or potentially eligible for the NRHP under the MTRs.

TABLE 5.7-1. STATE AND NATIONAL REGISTER-LISTED PROPERTIES UNDER AIRSPACE (PAGE 1 OF 2)

	County	*Property*	*Location*	*State Register*	*NRHP*
Airspace					
Mt. Dora MOA, New Mexico	Union	Clayton Public Library	Clayton	X	X
		Clayton Public Schools NRHD	Clayton	X	X
		Eklund Hotel	Clayton	X	X
		Herzstein Memorial Museum (Methodist Episcopal Church	Clayton	X	
		Rabbit Ears (Clayton Complex NHL	Clayton	X	X
		Union County Courthouse	Clayton	X	X
		Folsom Hotel	Folsom	X	X
		Folsom Museum	Folsom	X	
		Stadler Mercantile	Grenville	X	
	Colfax	Dorsey, Stephen W. Mansion	Abbott	X	
		Folsom Man site NHL	Folsom	X	X
	Mora	Farmers & Stockmans Bank	Wagon Mound	X	
		Santa Clara Hotel	Wagon Mound	X	X
		Wagon Mound/Santa Clara Canyon, NHL	Wagon Mound	X	X
	Harding	(maybe: Bueyeros School) (maybe: Sacred Heart Church)	Bueyeros Bueyeros	X X	X
Mt. Dora MOA, Colorado	Las Animas	Trinchera Cave Archaeological District	Trinchera vicinity	X	X
Pecos MOA, New Mexico	De Baca	De Baca County Courthouse	Fort Sumner	X	X
		Fort Sumner Railroad Bridge	Fort Sumner	X	X
		Fort Sumner Ruins, State Monument	Fort Sumner	X	X
		Rodrick Drug Store	Fort Sumner	X	
		Fort Sumner Women's Club	Fort Sumner	X	X
	Chaves	(maybe Causey Ranch House)	Caprock	X	
	Lea	Rattlesnake Draw Site	Buckeye	X	
		Lea County Courthouse	Lovington	X	X
		Pyburn House & Assoc. Structures	Lovington	X	X
		(maybe Monument Springs Site)	Monument	X	

Table 5.7-1. State and National Register-Listed Properties Under Airspace (Page 2 of 2)

	County	*Property*	*Location*	*State Register*	*NRHP*
Drop Zones and Landing Zones					
W of IR-107, New Mexico	San Miguel	Bell Ranch HQ	Conchas	X	X
		Conchas Dam	Conchas	X	
		Conchas Dam Historic District	Conchas Dam	X	
		Indian Writings	Conchas Lake	X	
Near Logan, New Mexico	Quay	McFarland Brothers Bank	Logan	X	
		Shollenbarger Mercantile Company building	Logan	X	
Near Cannon AFB, New Mexico	Curry	Clovis Baptist Hospital	Clovis	X	X
		Clovis Central Fire Station	Clovis	X	X
		Clovis City Hall and Fire Station 1908	Clovis	X	X
		Clovis Post Office (Old)	Clovis	X	X
		Curry County Courthouse	Clovis	X	X
		Dillon, Dr. Fred A. House	Clovis	X	X
		First Methodist Church of Clovis	Clovis	X	
		Hotel Clovis	Clovis	X	X
		Railway Express Agency Building	Clovis	X	X
		Santa Fe Passenger Depot	Clovis	X	X

No Indian reservations underlie the Pecos, Bronco, or Mt. Dora MOAs (Bureau of Indian Affairs 1998). The Mescalero Apache Reservation is near IR-113. Native American groups with historic ties to the area include the Mescalero Apache, Jicarilla Apache, Comanche, and Navajo. The Mescalero Apache Reservation is approximately 50 miles southwest of the Pecos MOAs near Ruidoso, New Mexico. The Jicarilla Apache Reservation is about 150 miles northwest of the Pecos MOAs and is near IR-111. The Comanche Reservation is in Lawton, Oklahoma, outside the airspace ROI.

In the 1960s, the Fort Sumner State Monument was placed near the Old Fort Sumner Museum to commemorate the signing of the peace treaty with the Navajo people 100 years earlier (Banks 1998). Fort Sumner State Monument is an NRHP-listed site of significant cultural activity. Throughout the year, the Monument is host to Navajo visitors who conduct ceremonies and prayer services to commemorate The Long Walk and their confinement at Bosque Redondo. Fort Sumner State Monument is currently protected by a Noise Sensitive Area that has been effective in reducing noise impacts from overflights (personal communication, Smith 2005). As part of the ongoing process to turn the routes associated with The Long Walk into a National Historic Trail, ground-breaking for a more extensive Bosque Redondo Memorial began in November of 2003. Another point of interest, although not listed on the State or National Registers, is Billy the Kid's gravesite near the Old Fort Sumner Museum.

No NRHP or state-listed properties are located under the following Airspace: Mt. Dora Texas and Oklahoma; Pecos MOA in Lincoln and Guadalupe Counties; Bronco MOA in New Mexico and Texas; Taiban MOA, VR-100/125, R-5104A and B, and R-5105. No NRHP or state –listed properties are located near the Drop Zones and Landing Zones in Harding County, in the zones in Guadalupe, De Baca, or Roosevelt Counties. In Curry county, only the zone near Cannon AFB has properties, listed in Table 5.7-1.

Four water training locations are under consideration, all of which are New Mexico State Parks: Conchas Lake, Santa Rosa Lake, Sumner Lake, and Santa Rosa Lake (Figure 2.3-3). No NRHP-listed historic properties occur within the boundaries of any of the state parks proposed as water training locations. However, there are cultural properties listed on the New Mexico State Register of Cultural Properties (SRCP) at Conchas Lake State Park in San Miguel County (Table 5.7-1). Also, cultural properties — both archaeological and historical — have been documented at all four parks that may be eligible for the NRHP or SRCP.

Several State Register-listed cultural properties are located at Conchas Lake State Park including these petroglyphs. (NMEMNRD 2006).

There are a number of state or federally recognized trails underlying or within the vicinity of the affected airspace. The primary trail that partially underlies the affected airspace is known as The Long Walk, which is discussed in detail in Section 3.6.2.1. Other trails that do not directly underlie the affected airspace include the Santa Fe trail to the west, which links Santa Fe and Mexico; the Turquoise Trail, which links Albuquerque and Santa Fe, located to the north of the airspace ROI; the Old Spanish Trail to the northwest of the ROI, which links Los Angeles and Santa Fe; and historic Route 66, which linked Chicago and Santa Monica, California. The Goodnight-Loving and Stinson Trails are not officially recognized by either the state or federal government.

Native American Consultation and Coordination

The Air Force has initiated contact with the Comanche Tribe of Lawton, Oklahoma; Jicarilla Apache Tribe of Dulce, New Mexico; Kiowa Tribe of Carnegie, Oklahoma; Apache Tribe of Andarko, Oklahoma; and the Mescalero Tribe of Mescalero, New Mexico to identify potential concerns associated with the Proposed Training (Appendix C).

Paleontological Resources

Three of the proposed water training locations have exposures of geologic strata known to contain fossilized fauna and flora specimens.

Conchas Lake contains rocks of the Jurassic and Upper Triassic Periods. The southern margins of the lake have exposures of the Upper Triassic Santa Rosa Formation sandstones in which fossils have been found (New Mexico Energy, Minerals, and Natural Resources Department [EMNRD] 2006).

Santa Rosa Lake contains rock exposures of the Triassic Anton Chico Formation (New Mexico Bureau of Geology and Mineral Resources 2006) in which an amphibian fossil has been found, although not near the lake. Upper Triassic Santa Rosa Formation strata are also found at Santa Rosa Lake, and fossilized tree branches, leaves, and other plant remains have been found in the local sandstones and mudstones (New Mexico Bureau of Geology and mineral Resources 2006).

Sumner Lake has exposures of the Santa Rosa Formation from which fossilized flora specimens have been discovered. Also occurring at Sumner Lake are exposures of the Middle Triassic Moenkopi formation in which fossil amphibians have been found elsewhere (New Mexico Bureau of Geology and mineral Resources 2006).

5.7.3 Environmental Consequences

5.7.3.1 Proposed Training of AFSOC Assets

A number of NRHP and state register-listed properties underlie the various pieces of airspace included in the Proposed Training (refer to Table 5.7-1). The Proposed Training includes only one potential change in the airspace environment, consisting of adding an unmanned aerial system (UAS) corridor between Cannon AFB and the Melrose AFR restricted airspace to allow the transit of UAS aircraft. No NRHP-listed properties lie beneath the proposed corridor. Because there would be no change in the noise or visual environment for historic properties beneath the existing or proposed airspace, there would be no effects.

LZ/DZ locations will be designated for AFSOC training. Once LZ/DZ locations have been identified, the Air Force will comply with Section 106 of the National Historic Preservation Act (NHPA) by determining the presence or absence of historic properties, determining whether the Proposed Training will have an effect on any properties that may be present, and either avoid, minimize or mitigate any impacts to such properties.

Cultural properties—both archaeological and historical— that may be eligible for the NRHP or SRCP have been documented at parks associated with all four lakes under consideration for water training locations. All cultural resources within park boundaries are subject to federal cultural resource protection laws. In order to avoid adverse impacts to cultural resources, training activities within the parks should be coordinated with the State Park Resources Planner and the New Mexico Historic Preservation Division.

Paleontological resources have been reported at Conchas Lake State Park (New Mexico EMNRD 2006), and the other three potential water training locations have the potential to contain fossils from the Middle and Upper Triassic Period. So long as the proposed water training exercises are restricted to the water of the lakes and the boat ingress and egress points are conducted at already established boat ramps or other recreational access locations, there is a very low probability that paleontological resources would be adversely impacted.

Although no traditional cultural resources have been identified in the project area, a portion of the Long Walk National Historic Trail also passes beneath the Pecos MOA airspace to Fort Sumner. Current conditions for all resources include overflights by military and civilian aircraft, including flights at supersonic speeds above 30,000 feet MSL. Neither the noise nor the visual presence of these overflights have affected the NRHP eligibility of the resources.

The Goodnight-Loving Trail passes through the Pecos MOA, the Mt. Dora MOA, and is crossed by several MTRs on its way from Texas north to Colorado. The Santa Fe National Historic Trail also crosses underneath the Mt. Dora MOA from west to east. Both trails pass beneath existing airspace, and neither is affected by the air traffic. Increased low-level flights on the MTRs could be noticed by groups replicating historic travel on these trails should an active campsite coincide with a low-level overflight.

5.7.3.2 No Action Alternative

Under the No Action Alternative, no AFSOC flights would occur. There would be a reduction in the use of existing airspace, including noise or visual environment, and a reduction in aircraft overflights and use as the 27 FW F-16s were deactivated. Cannon AFB would continue to consult with the New Mexico and other State Historic Preservation Offices (SHPOs) to manage any impacts that might be identified underneath the airspace.

5.8 Land Use and Recreation

5.8.1 Definition of Resource

Land use addresses general land use patterns, land ownership, land management plans, and special use areas under existing military training area. General land use patterns characterize the types of uses within a particular area such as agricultural, rangeland, military, and urban areas. Land ownership is a categorization of land according to type of owner. The major land ownership categories include private, state and, federal. Federal lands are described by the managing agency, which may include the USFWS, the U.S. Forest Service, Bureau of Land Management, or DoD. Land management plans prepared by agencies are used to establish appropriate goals for future use and development. As part of this process, sensitive land use areas were designated by agencies as being worthy of more rigorous management.

Recreation resources consider outdoor recreational activities that take place away from the residences of participants. This includes natural resources and man-made facilities that are designated or available for public recreational use in remote areas. The scarcity of water bodies results in all public reservoirs and lakes in the New Mexico area serving as recreational sites.

The ROI for land use and recreation consists of all the lands under the existing training airspace which includes the Pecos MOA, Mt Dora MOA, Bronco MOA, and the MTRs. Land use under R-5104 and R-5105 is covered in Section 4.8

5.8.2 Existing Conditions

Pecos MOA

Military training airspace covers a vast area characterized by high plains and grasslands with sparse vegetation and few permanent bodies of water. The area underlying the airspace includes portions of Guadalupe, Torrance, Roosevelt, San Miguel, Lincoln, De Baca, Chaves, Quay, and Curry counties.

Lands under the special use airspace are primarily flat terrain with broad expanses of treeless, short grass prairie. The landscape reflects the predominant use of the land for grazing and agriculture. It is characterized by crop and rangelands, infrequent one or two-story residences, and outbuildings. Santa Rosa and Sumner Lakes, outside the SUA, are manmade impoundments of the Pecos River that interrupt the vast semi-arid plains. Some forested areas occur along the western edges of the study area.

The majority of the land under the airspace is privately held (Figure 5.8-1). The majority of the public land that would be affected by the Proposed Training is administered by the Bureau of Land Management. Public lands managed by the Bureau of Land Management typically provide a variety of recreational experiences such as hiking, caving, camping, hunting, and nature viewing.

As shown in Table 5.8-1, approximately 99 percent of the land under the MOAs is used for rangeland and agriculture. The remaining land (less than 1 percent) is designated as forest, water, wetland, developed, or urbanized land. Residences exist within the community of Fort Sumner, as well as on large acreages. An average density within the total project area is about one person per square mile (U.S. Census 2000b). Section 5.9 provides further discussion of population data under the airspace.

Table 5.8-1. Existing Land Use under MOAs and MTRs Used by the 27 FW (in Acres)

MOA/MTR	*Agriculture*	*Forest*	*Rangeland*	*Water/ Wetland*	*Urban/ Built-Up Land*	*Total*
Bronco MOA	2,147,725	0	2,184,910	9,870	23,815	4,366,320
Mt. Dora MOA	244,665	253,525	2,846,945	5,995	8,770	3,359,900
Pecos MOA	16,635	430	1,975,175	4,615	1,430	1,998,285
Taiban MOA	780	0	198,590	495	40	199,905
IR-107	311,085	490,090	4,419,015	16,460	7,780	5,244,430
IR-109	130,255	750,115	3,074,655	5,620	3,765	3,964,410
IR-111	216,710	883,120	3,184,015	5,635	5,215	4,294,695
IR-113	198,895	464,400	3,677,220	6,430	2,660	4,349,605
VR-100/125	159,700	490,985	5,067,150	5,515	10,040	5,733,390
VR-108	168,850	506,930	2,774,645	15,100	5,625	3,471,150
VR-114	919,510	279,075	3,927,240	21,720	8,065	5,155,610

Source: Air Force 1995.

Under the existing and proposed airspace, private ownership accounts for approximately 78 percent, with a variety of state, Native American, military, and other federal interests overseeing the remainder of the land. Federal lands in the ROI are managed by the Bureau of Land Management and the Air Force. Land status is depicted on Figure 5.8-1.

The Bureau of Land Management's Roswell Approved Resource Management Plan (RMP) and Record of Decision (ROD) present a plan for managing all public land administered by the Bureau of Land Management in the Roswell Resource Area. The Roswell Resource Area includes about 1,490,000 acres encompassing all counties under the MOA airspace except for a portion of Chaves County (Bureau of Land Management 1997a). This portion of Chaves County is included in the Carlsbad Approved RMP Amendment and ROD (Bureau of Land Management 1997b). The RMP covers a wide variety of natural and cultural resource management areas. The Carlsbad RMP Amendment and ROD relate to general land management and use determinations for management of oil and gas resources in the Carlsbad Resource Area. Management of the land is guided by De Baca and Chaves counties.

State lands underlying the Pecos MOA airspace include the Fort Sumner State Monument, approximately 10 miles southeast of Fort Sumner. This monument is an improved destination with restroom and visitor facilities, historic exhibits, and guided tours.

Noise Sensitive Areas are defined in the Flight Information Publication reviewed by military pilots for their training missions. Sensitive noise receptors have been identified under the airspace. Citizens seeking information about military overflights contact Cannon AFB Public Affairs directly. The Pecos North Low MOA is restricted to 1,500 feet AGL over Fort Sumner and its associated airport. This "bubble" in the airspace is designed to avoid sensitive receptors in the area.

Recreational uses in this area vary from hunting and fishing to hiking and biking, as well as off-highway vehicle use. Hunting on public lands under the current and proposed airspace fall within the jurisdiction of the New Mexico Department of Game and Fish (NMDGF). Hunting seasons vary by sporting arm (i.e., rifle, bow, or muzzleloader) and species per state. In general, open seasons (i.e., any sporting arm) for deer are two separate periods of three to four days in November, while bow-only seasons are in September and January.

MT. DORA MOA

Counties under Mt. Dora are identified in Section 5.9.2. In general, this area is characterized by large, sparsely inhabited areas with scattered, isolated towns, small communities, and homesteads. Land in the area is owned and managed by a variety of entities, including private owners, the states of New Mexico and Texas, and various federal agencies. The primary land use outside population centers is livestock grazing (Air Force 2006). This MOA overlies the communities of Clayton, Roy, Abbott, and Mt. Dora. Approximately 6,000 people live under the Mt. Dora MOA.

Special use land management areas that underlie this MOA are listed in Table 5.8-2 and include Capulin Volcano National Monument, Chicosa Lake State Park, Kiowa National Grassland, and Rita Blanca National Grassland. In addition, segments of the Santa Fe National Historic Trail are located under this MOA. These recreational areas provide a wide range of recreational opportunities, including hiking, camping, fishing, picnicking, wildlife viewing, and boating. In general, recreational use tends to be greatest from the spring to fall months.

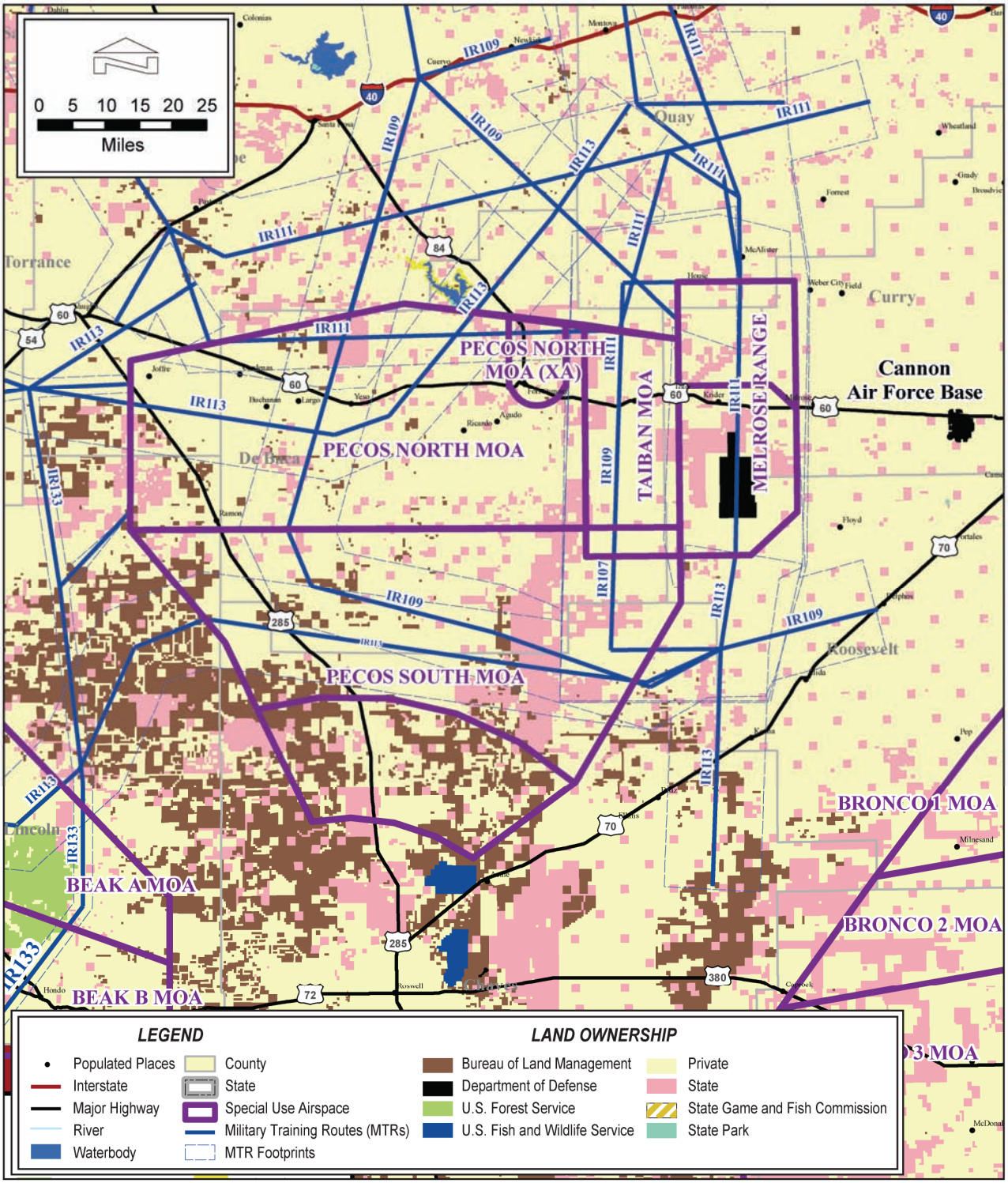


Figure 5.8-1. Land Ownership under the Pecos MOA

Table 5.8-2. Special Use Land Management Areas under MOAs and MTRs Used by the 27 FW (Page 1 of 2)

Land Use Area	*Type*	*MTR/MOA*	*Acreage*
Capitan Mountains	National Forest Wilderness	IR-113 VR-100/125	12,010 25,038
Capulin Volcano	National Monument	IR-107, VR-108, and Mt. Dora MOA	840 (each)
Carson	National Forest	IR-109 IR-111	204,015 137,175
Chamas River Canyon	National Forest Wilderness	IR-109	26,105
Chicosa Lake	State Park	IR-107 VR-108 Mt. Dora MOA	115 470 475
Cibola	National Forest	IR-113 VR-100/125	29,960 17,940
Cimarron Canyon	State Park	IR-109	33,000
Clayton Lake State Park	State Park	Mt. Dora MOA	471
Comanche	National Grassland	IR-107	59,230
Conchas Lake	State Park	IR-107 VR-108 and VR-114	1,255 1,545 (each)
Fort Sumner	National Monument	Pecos MOA	119,000
Jicarilla Apache	Indian Reservation	IR-109	64,600
Kiowa	National Grassland	IR-107 VR-108 Mt. Dora MOA	165,280 134,320 305,420
Lincoln	National Forest	IR-113 VR-100/125	104,610 109,770
Little Black Peak Carrizozo	Wilderness Study Area	IR-113	21,905
Melrose AFR	Military Reservation	IR-107, IR-111, and IR-113	22,000 (each)
Muleshoe	National Wildlife Refuge	Bronco MOA	5,415
Pecos	National Forest Wilderness	IR-111	93,315
Rio Chama	Wild and Scenic River Wilderness Study Area	IR-109 IR-109	13,260 3,425
Rio Grande	Wild and Scenic River	IR-109	6,375
Rita Blanca	National Grassland	Mt. Dora MOA	29,250
Sabinoso	Wilderness Study Area	IR-109 IR-111	12,275 3,745
Salinas Pueblo Missions	National Monument	IR-113 and VR-100/125	750 (each)
San Pedro Parks	National Forest Wilderness	IR-109	3,335
Santa Fe	National Forest	IR-109 IR-111	88,515 192,540

Table 5.8-2. Special Use Land Management Areas under MOAs and MTRs Used by the 27 FW (Page 2 of 2)

Land Use Area	*Type*	*MTR/MOA*	*Acreage*
Sumner Lake	State Park	IR-109 IR-111 IR-113 VR-100/125 Pecos MOA	410 7,575 8,430 11,835 665
Taos	Indian Reservation	IR-109	8,000
Valley of Fires	State Park	IR-113	550
Villanueva	State Park	IR-111	1,655
Wheeler Peak	National Forest Wilderness	IR-109	345
White Sands Missile Range	Military Reservation	IR-113	4,650

Source: Air Force 1995.

Approximately 95 percent of the land under the Mt. Dora MOA airspace associated with this alternative is public and privately owned rangeland used primarily for livestock grazing (Figure 5.8-2). Approximately 12 percent of the remaining land is forested. Agricultural uses make up approximately 4 percent; surface water/wetland and urban/built-up areas make up less than 1 percent each. Private ownership accounts for approximately 78 percent of the land underlying the affected airspace with a variety of state, U.S. Forest Service, and other federal interests overseeing the remainder of the land below the airspace (Air Force 2006b).

Bronco MOA

The Bronco MOA covers approximately 6,820 square miles in eastern New Mexico and northwestern Texas. Counties under the Bronco MOA are identified in Section 5.9.2. An estimated 88,300 persons live under the Bronco MOA. In general, this area is characterized by large, sparsely inhabited areas with scattered, isolated towns, small communities, and homesteads. Land in the area is owned and managed by a variety of entities, including private owners, the states of New Mexico and Texas, and various federal agencies. The primary land use outside population centers is livestock grazing (Air Force 2006).

Land use under the Bronco MOA is characterized by large, sparsely inhabited areas with scattered, isolated towns, small communities, and homesteads. Approximately 97 percent of land use outside population centers is livestock grazing and agriculture. Land is owned and managed primarily by private owners. The State of New Mexico and the USFWS manage the remaining lands (Figure 5.8-3). Designated special land uses are limited to the Muleshoe National Wildlife Refuge administered by the USFWS.

MTRs and Outside Cannon AFB Scheduled Airspace

Approximately 93 percent of the land under MTR airspace is used for rangeland and agriculture. Approximately 6.5 percent of the land is forest, water, or wetland, and approximately 0.4 percent is developed or urbanized land.

Private ownership accounts for approximately 86 percent of the land underlying the affected airspace with a variety of state, military, and other federal interests overseeing the remainder of the land below the airspace. Federal lands in the ROI are managed by the Bureau of Land Management and the DoD. Santa Rosa and Sumner lakes are owned and operated by the U.S. Army Corps of Engineers (USACE) (USACE 2001). The Bureau of Land Management's Roswell RMP applies to all land underlying MTR airspace except for land in Torrance County. Land in Torrance County is managed under the Bureau of Land Management's Rio Puerco RMP (Bureau of Land Management 1986). Table 5.8-2 lists special land use management areas under the MTRs.

As presented in Section 2.3.4, AFSOC also proposes water training and there are four area lakes that could meet training requirements. The year-round lakes are Conchas, Sumner, and Ute, and Santa Rosa is a seasonal location (refer to Figure 5.8-4). Their attributes are described in Physical Resources, Section 5.5.2. Each of these lakes is surrounded by large open areas, including public land areas. Some of the lakes also have residential development in the vicinity. AFSOC training activities would be proposed within the State Parks located at each lake, where they would avail themselves of the boat ramps and beaches.

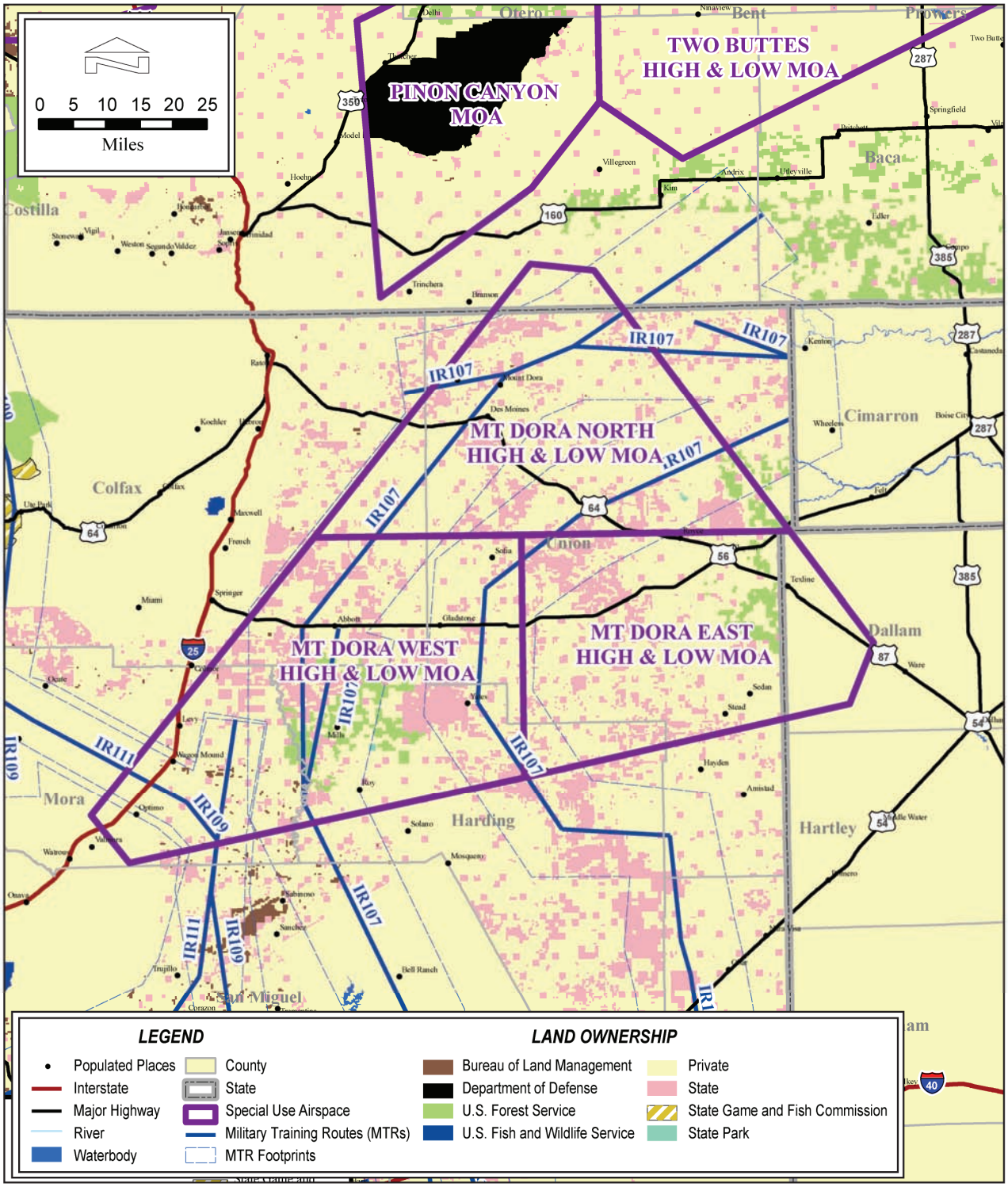


Figure 5.8-2. Land Ownership under the Mt. Dora MOA

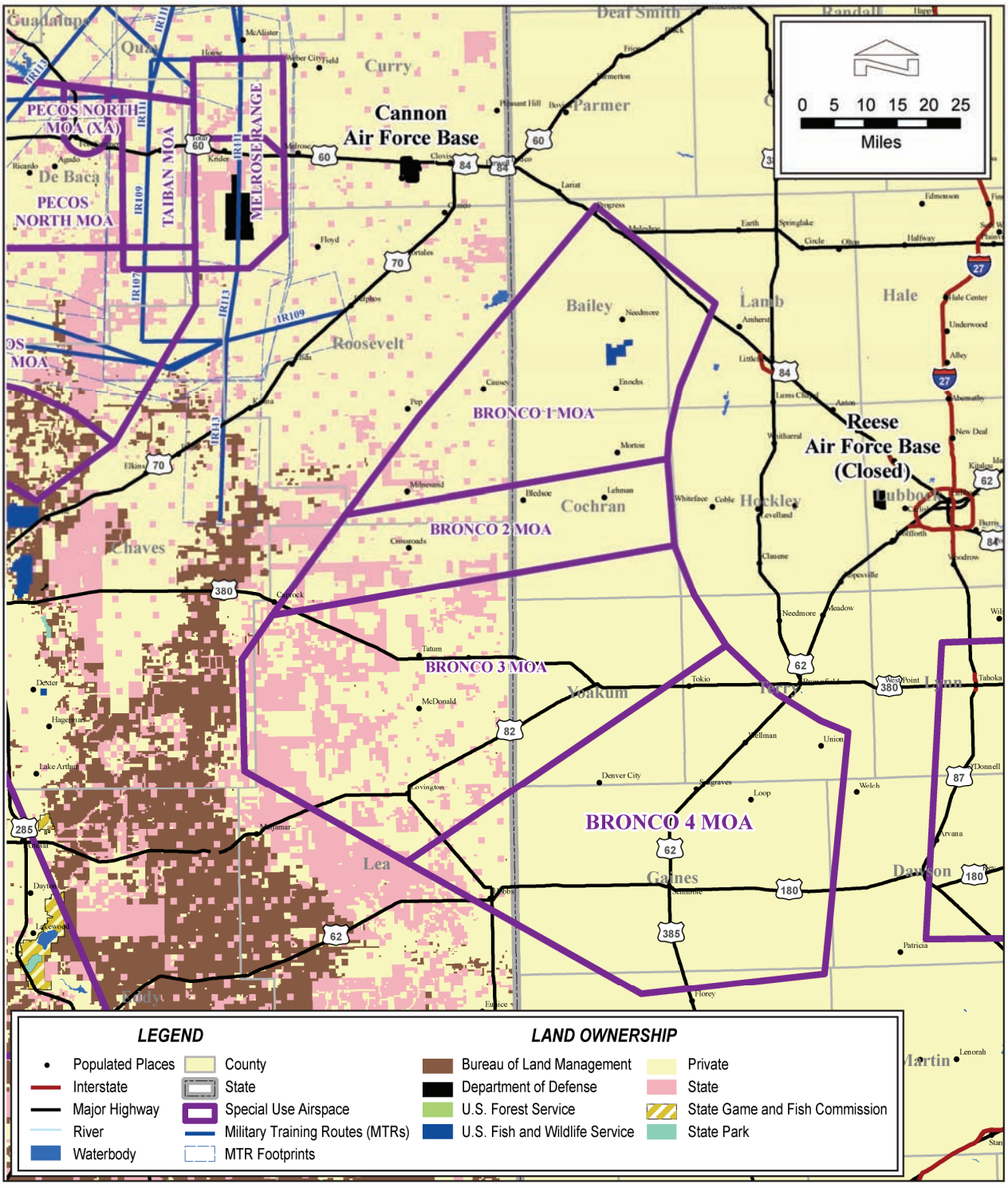


Figure 5.8-3. Land Ownership under the Bronco MOA

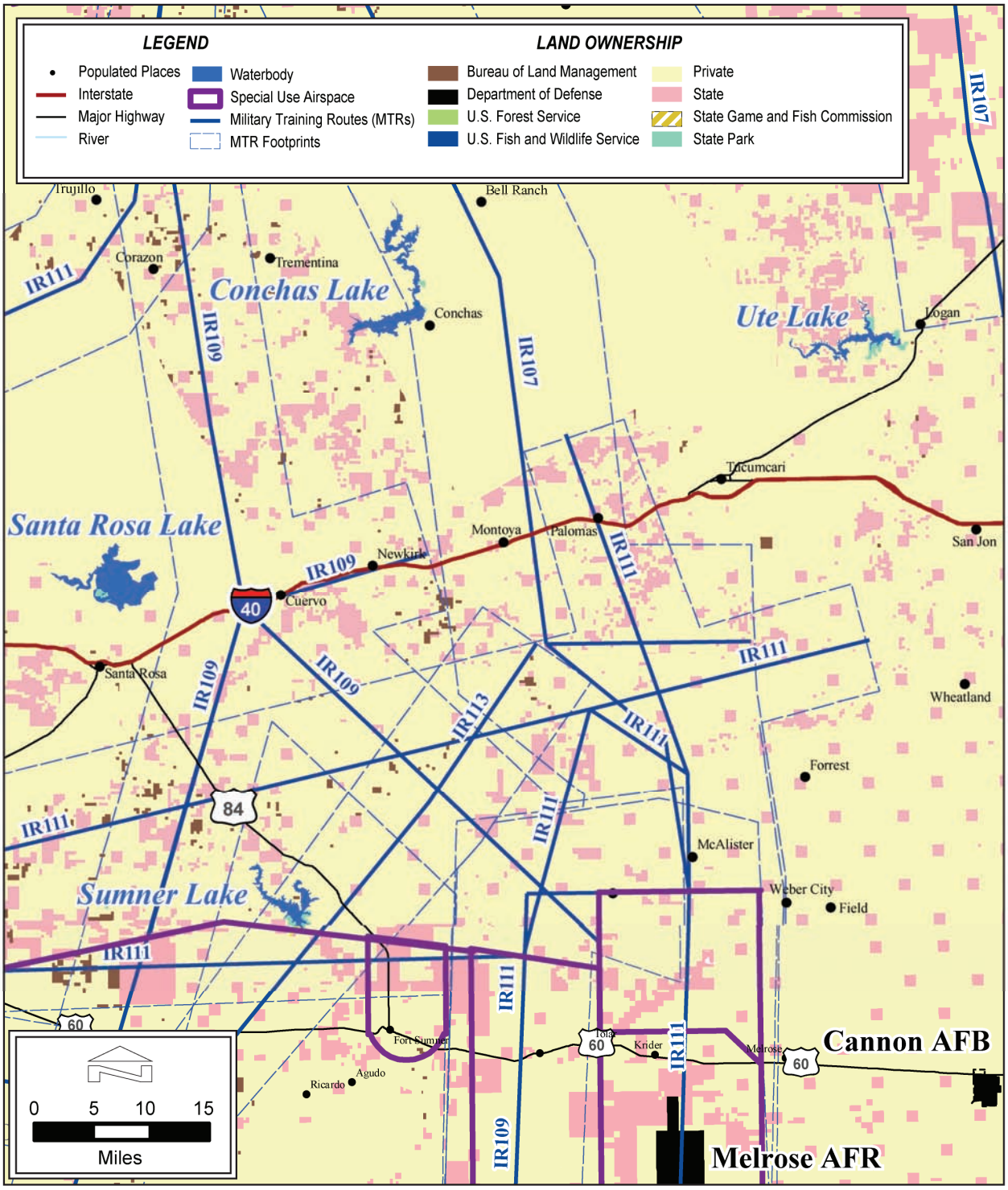


FIGURE 5.8-4. LAND OWNERSHIP SURROUNDING AREA LAKES

Each park is open 24 hours a day and offers a wide variety of recreational opportunities that may be summarized as follows:

Conchas Lake State Park is approximately 290 acres. There are camping and picnicking facilities, as well as a variety of boating amenities (ramps, marina, etc.).

Santa Rosa Lake State Park is approximately 500 acres in size. It offers camping at 76 developed sites and 25 electric sites. Picnic facilities are available, as well as a number of hiking trails. Boating, swimming, wind surfing, and waterskiing are popular activities.

Sumner Lake State Park comprises approximately 6,700 acres. It offers 50 developed camp sites and 18 electric sites. A visitor center and group shelter are also available. In addition to the popular fishing and swimming opportunities, hiking and mountain bike trails are also available.

Ute Lake State Park is approximately 1,500 acres and offers a marina and hosts a variety of water sport activities. Camping amenities include 142 developed sites, 77 electric sites, a visitor center, and group shelter.

UTE LAKE RECREATION IS REPRESENTATIVE OF ACTIVITIES ON THE LAKES PROPOSED FOR WATER TRAINING.

5.8.3 ENVIRONMENTAL CONSEQUENCES

5.8.3.1 PROPOSED TRAINING OF AFSOC ASSETS

Five general areas of concern regarding land use under the airspace were identified during scoping for this EIS. These areas of concern are as follows:

- Would the Proposed Training or an alternative affect land access?
- Would restrictions on property occur, including restrictions on use as a result of AFSOC training?
- Would the Proposed Training or an alternative interfere with the building of wind farms, radio, or cellular phone transmission towers, or similar structures?
- Would low-level overflights or chaff and flares affect residents or cattle operations?
- Would refueling operations affect biological or land use resources?

These and other land use and recreational aspects are discussed below.

Land under the Cannon AFB-scheduled airspace is predominantly agriculture or range land. There would be no anticipated change in general land use patterns, land access, land ownership, land management plans, and special use areas for the lands underlying the MOAs or MTRs. AFSOC training within the airspace would not place restrictions on private property under the MOAs or MTRs. The Proposed Training would involve a change in aircraft and a change in airspace use. Changes in airspace use have not historically affected land uses and are not anticipated to affect existing land usage. Military aircraft currently train throughout the Cannon AFB-managed airspace. Land uses such as wind farms and towers that have height and land requirements would be identified and avoided by AFSOC aircraft during training. Structures in excess of 200 feet currently have FAA warning requirements. These requirements would apply to new structures under or outside military training airspace. These requirements would not affect wind energy generation.

AGRICULTURE IS THE DOMINANT INDUSTRY IN COUNTIES UNDER THE TRAINING AIRSPACE WITH 93 PERCENT OF THE LAND IN AGRICULTURE, PREDOMINANTLY GRAZING.

The change in use of training airspace would be expected to increase ambient noise levels along the MTRs (see Section 5.2). In no case does the resulting average noise level approach the 55 dB identified by the USEPA as being protective of the public health and welfare (USEPA 1974). Some public concern was expressed that the changes in noise levels may affect property values. Although the increased noise could be an annoyance, noise levels would not approach the 65 dB level identified around airports as locations where modifications may be implemented to reduce interior noise levels.

Areas of Critical Environmental Concern (ACECs) and Special Recreation Management Areas (SRMAs) under the airspace would not likely be affected by the AFSOC overflights for the following reasons. Sites currently under the Pecos MOA where the airspace floor is 500 feet AGL have been designated as environmental management areas with active military training overflights. Sites under MOAs would have a slightly lower noise level as turboprop aircraft replace jets. Areas under the MTRs where there is an estimated ambient noise level of 25 to 36 dB would be expected to detect increased noise levels. As noted in Section 5.2, AFSOC will coordinate with land management or other resource agencies to increase avoidance of sensitive areas. Access to land would remain unaffected. Management of these resources would continue as at present.

Recreational hunting was identified as a concern by participants during scoping for this EIS. Approximately 89 percent of the pronghorn antelope taken annually are on private property. Hunters pay for hunting rights on the ranches under the airspace and at least one rancher was heard to say that he netted more income annually from antelope than he did from cattle. Since ranches under the existing airspace with jet overflights currently have successful recreational hunting, it is not likely that hunting on ranches under C-130 or CV-22 overflights would be detrimentally affected. In the extremely rare case of a low-flying aircraft causing game to startle during a hunt, the hunter would likely be annoyed. Even in such a case, land used for recreation activities such as hunting would not overall be affected by AFSOC training aircraft in the MOAs or MTRs.

AFSOC training would not change general land use patterns, land ownership, land management plans, or special use areas on the lands underlying this airspace. Access to recreation areas or public/private land under the MOAs and MTRs would continue as under current conditions. Agriculture, the predominate land use, would not require a change in land management.

Military aircraft currently use RR-188 chaff and M-206 (or equivalent) defensive flares within the Pecos MOA complex. Other flares and ordnance can also be used in Restricted Airspace over the Melrose AFR. In airspace outside the Restricted Airspace, including the Pecos and Taiban MOAs, and the Sumner ATCAA, only RR-188 chaff and M-206 flares have been assessed for use. Under the Proposed Training, the use of RR-188 chaff and M-206 defensive flares by AFSOC aircraft in the currently assessed airspace would also be authorized.

There would be no anticipated change in general land use patterns, land ownership, land management plans, or special use areas for the lands underlying the airspace associated with chaff and flare use. The proposed AFSOC training decreases the total chaff or flare use within the airspace. The release of chaff and flare end caps, aluminum coated mylar, or other residual

materials together would average less than one piece per 11 acres per year over the Pecos and Taiban MOAs. Over VR-100/125, average residual material from chaff would be one piece per 552 acres. Although the likelihood of encountering any chaff or flare residual components is low, if such were found it could result in annoyance to the observer. Participants at scoping meetings expressed annoyance at finding residual flare and chaff materials on private property.

Chaff fibers are extremely difficult to discern from naturally occurring materials found in the area (Air Force 1997b). Chaff fibers break down to the consistency of background materials. Animals do not typically consume chaff, and it is unlikely that modern chaff or its residual components would accumulate in sufficient quantities to impact land uses, affect recreational resources, or even be found. In rare instances, chaff does not deploy correctly and rather than disperse in a large cloud, the fibers may clump together and fall to the ground. When this occurs, tufts or clumps of chaff can be discernible to the naked eye. These tufts may catch on vegetation or blow across the landscape with the wind. Tufts may stay together or separate into individual fibers to some degree as the wind blows. Depending upon the context, the chaff may appear to resemble naturally occurring tufted seed pods or be viewed as foreign material.

During scoping meetings, participants expressed concern regarding potential detrimental effects to property values due to the presence of chaff or flare residual components or a fire hazard of flares. Use of chaff and flares would be directly correlated to the pilot's response to a threat within the airspace. Residual deposition of chaff or flare end cap materials would be the result of altitude of chaff use, wind directions, and wind speeds. Due to the dispersal nature of deployed chaff and flares, the average wind in the area, wind at altitudes, and the altitude at which chaff and flares are deployed, chaff or flare materials could be carried on wind currents outside, and, possibly, back inside the airspace. This analysis assumes that all chaff and flare end caps would fall on lands under the airspace. This conservative assumption could produce a higher annual concentration of chaff or flare materials than may actually be experienced under the airspace.

With regard to both chaff and flares, the likelihood of adverse impacts associated with these elements is low. For example, in the proposed and existing airspace, chaff concentrations would be less than approximately 0.80 gram per acre per year. Fewer than an estimated one flare would be dispensed annually in the Pecos airspace complex over each 80 acres.

Fire risk and the damaging effects of fire were identified as issues during scoping. AFSOC aircraft use of live 105 mm cannon fire and other munitions increase the risk of fire. AFSOC proposes to relocate personnel at Melrose AFR and increase fire management and fire response capabilities. Activities would include an increase in fire breaks and additional fire management practices. Agreements with neighboring communities would support joint fire control.

The risk of fire associated with flare use is extremely low compared to other potential sources of fire (e.g., lightning). Existing environmental conditions and potential fire hazard in the region are accounted for in current property values. A significant on and off Melrose AFR fire was started by a practice bomb deployed by a B-1B in November 2005. In the event of a military training-caused fire, the Air Force has established procedures for damage claims reimbursement. Section 4.3, Safety, further discusses fire.

Chaff and flare use are widely dispersed when used within MOAs (Air Force 1997b), reducing the potential for encountering residual components on private residences or within sensitive land use areas. Fort Sumner State Monument and a variety of ACECs and SRMAs underlie the existing

airspace already designated for both chaff and flare use. Chaff or flare residual components have not been identified in these areas of public visitation at a level that would disturb scenic quality or diminish the recreation experience. Chaff or flare use is unlikely to change land use patterns, land ownership, or land management practices.

Potential land use effects from fuel loss during refueling was mentioned at scoping. Of particular concern was potential refueling over red and yellow cedar trees under the Mt. Dora MOA. These trees have a limited habitat and are very susceptible to fire. AFSOC refueling operations could occur in the Mt. Dora MOA. The amount of jet fuel lost during an AR is normally less than a gallon. The refueling normally occurs at altitudes where that amount of fuel would vaporize before reaching the ground. AFSOC aircraft have the ability to jettison fuel in an emergency situation, but they do not regularly jettison fuel and emergency situations with the C-130 aircraft are very infrequent. As noted in Section 3.3, the C-130 has an excellent safety record. Land use impacts from refueling or other loss of fuel are not expected as a result of the proposed AFSOC beddown.

The proposed water training activities would not result in changes to land use patterns. The training activities would not require permanent disturbance to the lake or surrounding lands. Similarly, ownership of these areas would not change due to the temporary and transient nature of the activity.

Water training could have a temporary effect on recreational use of reservoirs and lakes. Safety provisions would be required to exclude recreational boating or other activities in the area of an AFSOC water training exercise during the exercise. Noise from night exercises could affect, disturb, or annoy some campers on the shores of the lakes. Other individuals camping, in homes, or at recreational sites near the water training location could view initial water training exercises with interest. Recreationalists visiting the lakes could view the training exercise as comparable to a private air show brought to them by AFSOC. Longer term residents could view the continued regular night water training exercises as an annoyance.

Therefore, it is likely that management plans would require amendment to address the potential disruption caused by 4 or 5 drops a month on a lake (more than one could occur per sortie). The timing and extent of these activities would be coordinated with Park Superintendents to ensure that they occur during low visitation (not holiday weekends, for example) and in locations that already allow disturbance and access to the shore. Permits for low-flying aircraft and to use the lakes for training would be required.

5.8.3.2 No Action Alternative

No Action would result in no movement of AFSOC assets to Cannon AFB although AFSOC would maintain and operate the properties. The Cannon-based F-16s would depart by 2008, but MTRs and MOA use would continue. Land ownership under this alternative would remain the same and noise levels would decrease under the airspace.

5.9 Socioeconomics

5.9.1 Definition of Resource

Socioeconomics is defined as the basic attributes and resources associated with the human environment, particularly population and economic activity. Economic activity typically encompasses employment, personal income, and regional industries. Changes to these

fundamental socioeconomic components can influence other resources such as housing availability, utility capabilities, and community services.

Agriculture is the dominant industry in the area under the proposed airspace. Much of the socioeconomic activity, including employment and related services provided by communities adjacent to the airspace, is related to ranching and more intensive agriculture such as dairies and irrigated cropland.

The following section considers a demographic analysis of the affected region under the airspace and a general description of regional economic activity in eastern New Mexico.

5.9.2 EXISTING CONDITIONS

The ROI for socioeconomics related to the Cannon AFB scheduled airspace consists of 23 counties in three states. This airspace overlies rural areas in east-central New Mexico, the western panhandle of Texas, and the southeast corner of Colorado (see Figure 5.1-2). The ROI counties associated with each airspace element are listed in Table 5.9-1.

TABLE 5.9-1. COUNTIES WITH LAND AREA UNDER THE AFFECTED AIRSPACE

Airspace	*Counties with Land Area Under Airspace (by State)*	
Bronco MOA	New Mexico Texas	Chaves, Lea, Roosevelt Andrews, Bailey, Cochran, Dawson, Gaines, Hockley, Lamb, Terry, Yoakum
Mt. Dora MOA	Colorado New Mexico Texas	Las Animas Colfax, Harding, Mora, Union Dallam
Pecos MOA	New Mexico	Chaves, De Baca, Guadalupe, Lincoln, Roosevelt
Taiban MOA	New Mexico	De Baca, Roosevelt
Melrose AFR	New Mexico	Curry, Quay, Roosevelt

5.9.2.1 POPULATION CHARACTERISTICS

Throughout this section, the term "affected area" refers to the specific land area under the MOA and MTR airspaces. These airspaces typically include only portions of each ROI county. Generally speaking, population centers in the ROI counties tend to be situated outside of the airspace. Consequently, county-level data tends to be dominated by the socioeconomic characteristics of communities outside the training airspace. More detailed data, at the census block group level, is available regarding certain demographic characteristics, including total population. Based on the acreage within each county under the airspace, estimates of the population and population density associated with each airspace element were developed (Table 5.9-2).

Table 5.9-2. Estimated Population and Density under the Affected Airspace

Airspace	*Acres*	*Population*	*Population Density (per square mile)*
Bronco MOA	4,779,360	88,300	11.8
Mt. Dora MOA	3,710,883	6,012	1.0
Pecos MOA	2,170,909	2,236	0.7
Taiban MOA	199,364	89	0.3
Aggregate MTRs	37,327,857	34,696	0.6

Source: U.S. Census Bureau 2000a.

The Cannon AFB-scheduled airspace associated with AFSOC beddown assets has been in existence for many years. Because military airspace is typically configured to avoid densely populated and metropolitan or urban areas, such airspace by design tends to be located over rural and less developed areas. Population under the training airspace is typically scattered and relatively low in density compared to urbanized areas. Training airspace generally seeks to avoid population concentrations to the maximum extent possible.

The total potentially affected population under the Bronco, Mt. Dora, Pecos, and Taiban MOA airspaces is estimated to be 96,637 persons. An additional approximately 35,000 persons are estimated to reside under the MTR. Population change over the past decade has varied greatly across the 23 counties. Overall, the ROI counties have experienced less population growth than the three-state region over the same period. Average population density under the individual airspace elements ranges from a high of 11.8 persons per square mile under the Bronco MOA, to a low of 0.3 persons per square mile under the Taiban MOA. With the exception of Bronco, population density averages are 1.0 person or fewer per square mile under the affected airspace. Even this figure tends to overstate the actual density on the majority of the affected land area because much of the affected population is concentrated in small communities under the airspace. For comparison, population densities in the states of New Mexico and Texas are 15.4 and 79.6 persons per square mile, respectively. Population density in the U.S. averages 79.6 persons per square mile, the same as Texas.

5.9.2.2 Economic Activity

A number of factors have influenced economic activity and employment in New Mexico in recent years, contributing overall to moderate growth despite some industry-specific declines. Since the early 1990s, New Mexico's numerous U.S. military sites and related enterprises have experienced reduced federal defense spending, resulting in a loss of more than 8,500 jobs in the past decade (University of New Mexico 2001). The mining and manufacturing sectors, particularly copper and potash mining and textile manufacturing, declined during the 1990s, losing hundreds of relatively high-wage jobs. High-tech manufacturing, on the other hand, has shown growth since 1990. Employment in this sector, which contributed an estimated 30,000 total jobs in 2000, has helped offset federal job losses during the same period.

The 1990s were a period of expansion for the ranching industry in New Mexico, particularly dairy operations. Agriculture, food processing and food-related industries together employ over 100,000 people in New Mexico and contribute $2 billion in annual crop and livestock sales

(NMDA 2004). Milk production in New Mexico has increased 400 percent since 1990, ranking the state 7th in the nation in milk production, 5th in the nation in production per cow, and first in the nation in herd size (New Mexico State University 2004). The dairy industry has noticeably grown in the past decade in Chaves, Curry, and Roosevelt counties (see Section 3.8.2.3).

Additional industry trends in recent years include the influx of call centers to the state, due to favorable legislation, and the growth of the gaming industry, particularly Native American-owned casinos. By 2000, these two industries contributed 12,000 and 6,000 jobs, respectively (University of New Mexico 2001). There also were substantial job gains in the retail sector due to the proliferation of Wal-Marts across the state. While job growth was moderate overall, the losses in relatively high-paying federal, mining, and manufacturing jobs compared to the gains in high-tech manufacturing and relatively low-paying call center, gaming, and retail jobs resulted in slow growth in the state's average wage level.

AGRICULTURE

Agriculture represents an important component of New Mexico's economy and to the economy under the affected airspace. Livestock grazing is the dominant agricultural activity under the airspace. Annual crop and livestock sales in the state amount to $2 billion (New Mexico Department of Agriculture 2004). Farming employment and related food processing and food service jobs comprise 10 percent of state employment. A variety of agricultural commodities are produced on New Mexico's farms and ranches, including beef, chile, corn, milk, apples, lamb, sorghum, wheat, peanuts, and wool. In addition to its direct contributions to state output and employment, agricultural activity in New Mexico supports a number of secondary industries, including those associated with farm equipment, feed, and fertilizer.

Milk and other dairy products are the largest income generators for New Mexico farmers and ranchers. New Mexico ranks 7th in the nation in terms of overall milk production, up from 30th in 1990. Three of the seven ROI counties (Chaves, Curry, and Roosevelt) rank among the top four milk-producing counties in the state and in the top 20 dairy counties in the nation (New Mexico Department of Agriculture 2004). The dairy industry provides additional contributions to local and regional economies from the hiring of labor and the purchase of feed and other farm supplies. New Mexico dairies provide 4,000 annual jobs, with an estimated payroll of $81 million, and are among the largest consumers of New Mexico-grown feed crops. Dairy operations in New Mexico include 194 dairy farms, nine fluid milk plants, four cheese plants, one condensed powdered milk plant, and one ice cream plant.

OIL AND GAS DEVELOPMENT

New Mexico is among the nation's leading developers of extractive energy resources. The state ranks 2nd in natural gas production and 5th in crude oil production, with proven natural gas and oil reserves ranked 3rd and 4th in the country, respectively. There are about 21,800 active oil-producing wells in New Mexico, and 23,300 active gas-producing wells. Total crude oil production in the state in 2002 was 67.4 million barrels and total natural gas production was 1,625 billion cubic feet (New Mexico EMNRD 2003).

Oil and gas development occurs in Chaves and Roosevelt counties. Over 90 percent of the oil and gas production in these two counties occurs to the south, outside the area under the affected airspace. There are 200 oil-producing wells and 1,800 gas-producing wells located in the affected area, representing 4 percent of active wells in the state. These wells produced

86,000 barrels of crude oil and 1,967 million cubic feet of natural gas in 2003, accounting for 0.13 percent of the state's total oil and gas output (New Mexico Oil Conservation Division 2003).

Gross oil and gas revenues, in the form of taxes and royalties, contributed approximately 20 percent to the state's General Fund in recent years: $500 million in 2002 (New Mexico EMNRD 2003). Wells on lands in the affected area account for less than 1 percent of this total contribution. Oil and gas extraction activities employ about 3,500 persons in the state and an estimated 100 persons in Chaves and Roosevelt counties. Of the total two-county employment, it is likely that fewer than ten are directly associated with oil- and gas-producing wells under the affected airspace.

Wind Power

Wind power generation is a renewable source of electricity that produces power without depleting water resources, producing emissions or generating solid waste. Commercial wind power generation in the U.S. currently is concentrated in the western and central states. Development of wind energy facilities in these states primarily reflects state policies designed to encourage their development rather than the state's wind energy potential. California has the most installed wind power capacity but its potential is less than one-seventh New Mexico's potential (New Mexico EMNRD 2000). New Mexico ranks 5th in the nation in annual wind energy potential, estimated at 497 megawatts (New Mexico State University 2007).

Four commercial scale wind turbines, with a combined capacity of 2.64 megawatts, are located near Texico in Curry County. The New Mexico Wind Energy Center is the world's fourth largest wind generation facility consisting of 136 turbines with a production capacity of 204 megawatts of energy, or enough electricity to power 100,000 typical homes (Public Service Company of New Mexico 2004). Each of the 136 turbines is powered by blades 110 feet in length and sits atop a 210-foot tower. The Center is located about 20 miles northeast of Fort Sumner on 9,600 acres of private and state-owned land in De Baca and Quay counties. In 2000, the Wind Center was expected to generate $40 million in regional economic benefits over the next 25 years through lease payments to private landowners, payments in lieu of taxes, and worker salaries (New Mexico EMNRD 2000).

WIND TURBINES ARE LOCATED UNDER SELECTED MTRS AND WOULD BE AVOIDED BY AFSOC.

Other wind generation facilities occur in the vicinity of Cannon AFB. Caprock Wind Ranch is located near San Jon. It has 80 turbines and a capacity of 80 megawatts. San Juan Mesa, near Elida, has 120 turbines and a generation capacity of 120 megawatts. The Argonne Mesa project in Guadalupe County, with 90 turbines and a generation capacity of 90 megawatts, went online at the end of 2006 (New Mexico State University 2007).

New Mexico State University Agricultural Science Center supports a wind monitoring project 13 miles north of Clovis. The center erected a 50-meter meteorological tower in November 2006 and has begun collecting site-specific wind data. The project will evaluate the potential for further wind energy generation in east-central New Mexico (New Mexico State University 2007).

5.9.3 Environmental Consequences

5.9.3.1 Proposed Training of AFSOC Assets

The socioeconomic impact analysis addresses the potential effects of the proposed airspace use and chaff and flare use on the social and economic resources of the ROI. These social and economic resources are defined in terms of population and economic activity.

Public concern has been expressed regarding potential effects on land values under the airspace.

Issues and concerns involving socioeconomic resources were identified during public scoping. Concerns related to property values, economic pursuits, damage to structures, and safety. Public concern was expressed regarding potential detrimental environmental conditions associated with low-level overflights that could reduce land values in the affected area. There was concern that wildlife and livestock in the affected areas may be vulnerable to noise and fire hazard, leading to negative economic impacts to the agriculture and recreation industries. Concerns were raised regarding potential hazards to structures or activities associated with oil and gas extraction and wind power generation. The risk of fire damage to rangelands and area infrastructure, including livestock and fences, was identified as a concern. Potential safety issues related to joint airspace military training use and general aviation flight were identified as public concerns. Concerns were expressed that wind farms and training could have potentially detrimental effects on each other. Existing and any new wind farms would be mapped on airspace maps and avoided by training aircraft. This is the same procedure as currently applied for towers or oil or gas well drilling rigs that could project into training airspace. Cannon AFB would continue to work with federal, state, and local agencies to identify the impacts caused by the development of tall structures to Cannon AFB operations and training.

Based on the issues and concerns noted during scoping, potential socioeconomic impacts were evaluated related to three elements: (1) changes in airspace use, (2) disturbances from overflights, and (3) chaff and flare use.

Changes in Airspace Use

Changes to use of MOA and MTR airspace associated with AFSOC training would increase the number of low-altitude aircraft flights throughout the airspace. The AFSOC missions frequently require low-altitude and lights out navigation training. Concern was expressed during scoping that such low-altitude lights out training could increase the risk to general aviation using the airspace.

AFSOC aircraft normally fly at 250 to 1,000 feet AGL on MTRs with training to 100 feet AGL and missions of four to five hours. During night missions, these altitudes would be below altitudes used by general aviation. No potential impact would be anticipated. During daylight missions, low-altitude general aviation aircraft such as agricultural aircraft could be encountered at training altitudes. The C-130 and CV-22 have both a pilot and co-pilot and fly at speeds that support see-and-avoid procedures during daylight (and night) operations.

As explained in Section 5.3.2, there is little or no potential for structural damage to windmills from level flight of AFSOC aircraft flying at or above 250 feet AGL and there is very low potential for a maneuvering aircraft at 100 feet to create the wind vortex level at exactly the

point where a windmill would be located. Continued and projected transient users of Cannon AFB scheduled airspace also include larger aircraft such as B-1B and B-52 aircraft. Under normal flight conditions and all but rare atmospheric conditions, wake vortices from low altitude flights fail to generate sufficient velocities to damage structure and vehicles or to pose a hazard to people or animals on the surface. Under infrequent circumstances, such as unusual aircraft maneuvers, damage could occur (Jurkovich and Skujins 2007).

Neither the C-130 nor the CV-22 is expected to fly for long periods at 100 feet AGL. In most cases, this would be expected to occur when the aircraft crosses a higher topographic feature. Stock windmills are typically located in lower topographic areas where the groundwater is closer to the surface. However unlikely, if damage resulted in a stock windmill no longer pumping, this may not be discovered immediately and could result in loss of water for grazing or other animals. Although unlikely, if damage occurred, it could have an undetermined economic impact on a ranching operation subject to the damage. The Air Force has established procedures for damage claims that begin by contacting Cannon AFB Public Affairs Office.

AR of AFSOC aircraft could occur on designated refueling tracks at both tactical altitude as low as 1,000 feet AGL and strategic altitudes between 5,000 feet AGL or higher. AR could last from a few minutes to a few hours if different AFSOC aircraft cycle to the KC-135/10 tanker at 5,000 feet AGL or higher. This refueling could be with or without lights. Tactical refueling would occur at altitudes below those used by general aviation at night. Strategic refueling would occur on an identified refueling racetrack. The altitudes and identified locations for refueling would provide general aviation information to reduce any potential for impacts. No significant impacts are anticipated from refueling.

The width of the MTRs, the AFSOC goal to avoid populated areas, and the avoidance of airfields would further reduce the risk for AFSOC aircraft and general aviation interaction. No significant socioeconomic impacts are anticipated as a result of changed airspace use by AFSOC training aircraft in the MTRs or MOAs.

Noise Disturbances

The duration of training flights would increase from the F-16 average flight of 1.5 hours to the C-130 and CV-22 average flight times of five and four hours. Increased training in the MOAs and on the MTRs would result in higher levels of noise. Noise levels in Pecos, Mt. Dora, and Taiban MOAs would increase, however they would not be expected to exceed Day-Night Average Sound Level (L_{dn}) 55 dB. Animals in these areas are expected to be temporarily more sensitive to noise due to lower previous exposure. Humans would be exposed to higher noise levels than currently experienced. The typical human response to noise effects associated with aircraft overflights is annoyance. Noise levels on selected MTR segments could increase from an existing <30 to 36 dB to 40 to 49 dB. The USEPA has identified a Day-Night Average Sound Level (L_{dn}) of 55 dB to be a level protective of the public health and welfare. This represents a threshold below which adverse noise effects are generally not expected. AFSOC training seeks to avoid areas of population concentration or lights. Nevertheless, some homes in rural areas would be overflown by training aircraft. The change from low ambient noise conditions to increased noise from low-altitude night overflights would be expected to annoy some residents.

Concern was expressed at public hearings that noise conditions may negatively affect wildlife and livestock in particular. Five cases of loss or injury to penned livestock under the Pecos MOA complex have been attributed to low-flying jet aircraft between 1994 and 2005. Wildlife and livestock have demonstrated that they can habituate to regular noises such as low-level

flights and impulse noise from munitions. The levels of noise anticipated as a result of AFSOC aircraft could startle penned individual livestock, but are not expected to result in biological effects that would impair overall animal populations.

Individual low-altitude overflights by slower turboprop aircraft would not be expected to have the same startle effect as low-altitude jet aircraft. C-130s or CV-22s flying in aircraft mode would present an audible and visible signature to which species would quickly become habituated. Despite habituation, low-altitude overflights could result in short-term negative impacts to wildlife, livestock, or humans (e.g., increased heart rate, flight, potential injury). The low population of less than one person per square mile in the remote affected area and the change from jet to turboprop aircraft make it highly unlikely that flight activity associated with AFSOC training would result in any significant social or economic impacts. It is possible that an individual or animal could be startled by an overflight at a specific time and place, but such an event would be difficult to predict given the rural nature of the area, the dispersed nature of flight operations, and the large airspace area. This is particularly the case with approximately 75 percent of the training activity occurring during after dark hours and up to 40 percent of the training occurring between 10:00 p.m. and 7:00 a.m. Speculation regarding potential injury to humans as a result of startle reaction to an overflight has not been supported by any documented incidents or studies.

During scoping, AFSOC personnel offered to implement a procedure to brief Cannon AFB-based pilots when ranchers notify them of concentrations of cattle during roundups. A Public Affairs telephone number would be distributed through ranching organizations to support avoidance of low-level overflights during sensitive roundup periods. AFSOC would use rancher-provided information in the scheduling of other users of the MOAs and MTRs.

Recreational hunting for game mammals and birds was identified as a concern by participants in scoping comments. Approximately 89 percent of the pronghorn antelope taken annually are on private property. Hunters pay for hunting rights on the large ranches under the airspace. Since ranches under the existing airspace with jet aircraft overflight currently have successful recreational hunting, it is not likely that hunting on ranches under the new or expanded airspace would be detrimentally affected by turboprop aircraft overflights. In the extremely rare case of a low flying aircraft causing a game species to startle during a hunt, the results would likely be temporary annoyance to the hunter. Land used for recreational activities such as hunting would not be affected by AFSOC overflights. Overall, economic impacts to the recreation and agriculture industries as a result of overflights or noise are not anticipated under the Proposed Training to beddown AFSOC assets.

Munitions use on Melrose AFR would result in impulse noise that would not produce overpressures of sufficient magnitude that could cause damage to property or structures off the range. The noise levels and vibrations anticipated to occur as a result of munitions use could result in annoyance to residents within audible range of the target areas.

There is little to suggest that overflights on the MTRs would impact land values in the affected area. The complex nature of property valuation factors makes any estimation of the potential effects of airspace modifications on land values highly speculative. Ranching operations, communities, and private airports all exist and function under the existing Pecos airspace and under existing MTRs. Other socioeconomic factors, such as business activity, employment, interest rates, and land scarcity (or availability) are much more likely to affect property values than an increase in MTR use.

Recreational and long-term users of the four lakes within 100 miles of Cannon AFB could experience increased noise and disturbance from water training. Socioeconomic impacts could be reduced by scheduling water training during daylight or before 10:00 p.m. to avoid extensive nighttime disturbance. Avoidance of lakes during high-use recreational times, such as holiday weekends, would reduce exposure of individuals to unwanted noise. The increased noise levels associated with water training are not expected to approach the annual average of 40 to 49 dB, similar to some MTR segments. The increased activity could be initially viewed as interesting, but the activity could be viewed as an annoyance as training continues. Rotating training missions among locations and combining missions to perform several exercises sequentially during one day-night period could limit the exposure to noise and any resulting annoyance. There is little likelihood of land values being affected by the changes in airspace or airspace use associated with the Proposed Training.

Outdoor structures such as water towers, wind turbines, and radio towers are routinely subject to wind loads in excess of normal wake turbulence from low-altitude C-130 or CV-22 overflights (see Section 5.3.3.1). In the unlikely event of property damage due to Air Force activity, the Air Force has established procedures for damage claims. Cannon AFB would continue to work with federal, state, and local agencies to identify the impacts caused by the development of tall structures to Cannon AFB operations and training.

CHAFF AND FLARE USE

Chaff and flare use in the existing airspace would continue as under current conditions. The volume of chaff and flare use is projected to decrease with AFSOC training in the airspace.

Through numerous studies, chaff has never been found to be specifically harmful to wildlife, domestic animals, or humans. Chaff dispenses widely when ejected from aircraft and can travel for long distances before settling to the ground. Once settled to the surface of the earth, chaff breaks down to constituent parts indistinguishable from soil. Chaff is highly unlikely to accumulate in quantities that would result in any negative impact to surface conditions on land or water. Furthermore, it is highly unlikely that chaff debris or residual flare components would accumulate in sufficient quantities to affect property values or land uses. Some individuals could express annoyance if a chaff or flare end cap, wrapper, or other residual material were found on their property or at a recreation location, but this is not expected to affect land values or regional economics.

M-206 flares are designed to be fully consumed before reaching the ground. Flare use in existing airspace would be reduced from current conditions. The risk of fire as a result of flare use is minimal due to the low failure rate and procedures that require flare use above 2,000 feet AGL. When the National Fire Danger Rating System indicates high fire condition, chaff and flare use is limited to above 5,000 feet AGL. Concerns with fire of any cause are real and the use of flares minimally increases fire risk. Any additional fires of a non-natural source may adversely affect vegetation, injure wildlife or livestock, and destroy property such as fences and outbuildings. On November 30, 2005, a practice bomb released by a B-1B aircraft at the Melrose AFR started a fire that burned 26,000 acres of grazing and farmland and damaged or destroyed privately owned structures, fencing, wells, livestock, animal feed, and crops. These impacts were not the result of a flare, but any potential loss of forage, livestock, or infrastructure due to fire could result in economic impacts to affected landowners. The Air Force follows established procedures for claims in the event that an Air Force-caused fire should occur and subsequently damage livestock or infrastructure.

Summary Consequences

The airspace use and related activities associated with AFSOC training within the airspace are not expected to have any significant adverse impacts on the human, social, or economic resources of the region. Recreational land use, ranching operations, wind energy operations, oil and gas exploration and production, and other economic pursuits are not expected to experience any limitations or negative effects as a result of beddown of AFSOC assets. Cannon AFB would continue to work with federal, state, and local agencies to identify the impacts caused by the development of tall structures to Cannon AFB operations and training. Noise associated with increased low-altitude training, particularly night training, would likely be viewed as a significant impact by residents under the MTRs.

5.9.3.2 No Action Alternative

No Action would result in no movement of AFSOC assets to Cannon AFB although AFSOC would maintain and operate the properties. No Action would continue use of the airspace MOAs and MTRs as described under existing conditions. NMANG and transient users would train in the airspace after the 27 FW at Cannon AFB was disestablished.

5.10 Environmental Justice

5.10.1 Definition of Resource

Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations. In addition to environmental justice issues are concerns pursuant to EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, which directs federal agencies to the extent permitted by law and appropriate, and consistent with the agency's mission, (a) make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children; and (b) ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

For purposes of this analysis, minority, low-income and youth populations are defined as follows:

- *Minority Population*: Persons of Hispanic origin of any race, Blacks, American Indians, Eskimos, Aleuts, Asians, or Pacific Islanders.
- *Low-Income Population*: Persons living below the poverty level.
- *Youth Population*: Children under the age of 18 years.

Estimates of these three population categories were developed based on data from the U.S. Bureau of the Census. Total and minority population figures are based on recent demographic data released from Census 2000 (Census 2000a). The census does not report minority population, per se, but reports population by race and by ethnic origin. These data were used to estimate minority populations potentially affected by implementation of the Proposed Training. Low-income and youth population figures were also drawn from the Census 2000 Profile of General Demographic Characteristics (Census 2000a).

Environmental justice analysis applies to adverse environmental impacts. Potential disproportionate impacts to minority or low-income populations are assessed only when adverse environmental consequences to the human population are anticipated, otherwise no analysis is required. The same is true for analysis of special risks to children, which would be driven by adverse environmental impacts. If adverse impacts are not anticipated, no special risk to children analysis is required. Environmental factors assessed in relation to determination of environmental justice concerns often include air quality, safety, hazardous materials, and noise. In the event that adverse environmental impacts to the human population were anticipated, the effects would be identified and the impact footprint would be mapped for the specified ROI.

5.10.2 Existing Conditions

The ROI for environmental justice related to the Special Use Airspace consists of 23 counties in three states that contain land area under the airspace associated with the AFSOC proposal. This affected airspace overlies rural areas in east-central New Mexico, the western panhandle of Texas, and the southeast corner of Colorado (see Figure 5.1-2). The ROI counties associated with each airspace element are listed in Table 5.10-1.

Table 5.10-1. Counties with Land Area Under the Affected Airspace

Airspace	*Counties with Land Area Under Airspace (by State)*	
Bronco MOA	New Mexico Texas	Chaves, Lea, Roosevelt Andrews, Bailey, Cochran, Dawson, Gaines, Hockley, Lamb, Terry, Yoakum
Mt. Dora MOA	Colorado New Mexico Texas	Las Animas Colfax, Harding, Mora, Union Dallam
Pecos MOA	New Mexico	Chaves, De Baca, Guadalupe, Lincoln, Roosevelt
Taiban MOA	New Mexico	De Baca, Roosevelt
Aggregate MTRs	New Mexico	Fly through all above counties.

Disadvantaged groups within the ROI, which include minority and low-income populations, are specifically considered in order to assess the potential for disproportionate occurrence of impacts (see Table 5.10-2). Minority persons represent a range of 7.9 percent of the population under Melrose AFR airspace to a high of 46.2 percent under Bronco MOA. With the exception of Melrose, minorities represent greater than 30 percent of the population in the affected areas. Under all airspace units, Hispanic or Latino persons represent the largest minority group. Relative to state levels, minority populations under the Special Use Airspace represent a smaller portion of the total population. Minorities account for 55.3 and 50.2 percent of the population in New Mexico and Texas, respectively. A very small segment of Mt. Dora MOA extends into Las Animas County, Colorado. In Colorado, minorities comprise 27.5 percent of the population.

Low-income populations, also defined as those individuals living under the poverty level, account for a low of 7.3 percent of the Taiban MOA population and a high of 18.7 percent of the Bronco MOA population. The population of New Mexico has a comparable poverty status, with 18.4 percent of the population identified as low-income. The low-income population in Colorado and Texas account for 10.0 percent and 16.2 percent of the state populations, respectively. Youth populations represent approximately 25 percent of the population under the training airspace.

Table 5.10-2. Environmental Justice Data

	2000 Population	Minority Population		Low-Income Population		Youth Population	
		Number	Percent	Number	Percent	Number[1]	Percent
Bronco MOA	88,300	40,820	46.2	16,533	18.7	23,000	26.0
Mt. Dora MOA	6,012	2,343	39.0	521	8.7	1,443	24.0
Pecos MOA	2,236	837	37.5	309	13.8	552	24.7
Taiban MOA	89	29	32.4	7	7.3	22	25.0
Aggregate MTRs	34,696	19,745	56.9	5,739	16.5	9,700	28.0
State of New Mexico	1,819,046	1,005,932	55.3	334,704	18.4	509,333	28.0
State of Texas	20,851,820	10,467,614	50.2	3,377,995	16.2	5,817,658	27.9

Note: 1. Estimated based on county data.
Source: U.S. Census 2000a

5.10.3 Environmental Consequences

5.10.3.1 Proposed Training of AFSOC Assets

Table 5.10-2 can be used to identify areas of potential impact. The AFSOC beddown and subsequent training would be expected to increase impulse noise in the Taiban MOA but this would not be expected to have a disproportionate effect upon minorities or low-income populations. Aircraft noise from overflight, especially night overflight, would increase under the MTRs. The northern MTRs scheduled by Cannon AFB are generally representative of the Pecos and Mt. Dora MOA populations, and are not disproportionately minority or low-income when compared with the State of New Mexico as a whole. The aggregate MTR population does exhibit a slightly higher minority population than the state; however, the difference is less than 3 percentage points and would not be considered inconsistent with rural agricultural portions of the state. Youth population percentages under the New Mexico airspace are somewhat lower than the State of New Mexico.

Under the Bronco MOA, minority populations are somewhat lower than the states of New Mexico and Texas. Low-income populations are comparable to the percentage of low-income persons in New Mexico and are somewhat higher than the low-income population in the State of Texas.

Overall, populations affected by increased overflight on the MTRs are not disproportionately minority or low-income. No disproportionate impacts are expected on minority or low-income populations. Low-altitude overflights would be widely dispersed and would not be expected to impact children.

5.10.3.2 No Action Alternative

Under No Action, there would be a reduction in military training overflight in the airspace when the 27 FW depart Cannon AFB. Overflights on the MTRs and in the airspace would continue as NMANG and transients trained in the airspace. The overall effect of No Action within the MOA and MTR airspaces would be a reduction in overflights and a corresponding reduction in noise.

6.0 CUMULATIVE EFFECTS AND OTHER ENVIRONMENTAL CONSIDERATIONS

6.1 Cumulative Effects

Council on Environmental Quality (CEQ) regulations and 32 Code of Federal Regulations (CFR) Part 989 stipulate that the cumulative effects analysis in an Environmental Impact Statement (EIS) should consider the potential environmental impacts resulting from "the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR 1508.7).

The first step in assessing cumulative effects involves identifying and defining the scope of other actions and their interrelationship with the Proposed Action or alternatives (CEQ 1997). The scope must consider other projects that coincide with the location and timetable of the Proposed Action and other actions. Cumulative effects analyses evaluate the interactions of multiple actions.

This chapter identifies relevant past, present and reasonable foreseeable actions. These include military actions in the region as well as other federal actions. Non-federal actions are also identified and discussed. An analysis of how the impacts of the identified actions might be affected by those resulting from the Proposed Action for each of the environmental resources is also presented. The chapter concludes with a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity and irreversible and irretrievable commitment of resources.

6.1.1 Past, Present, and Reasonably Foreseeable Actions

6.1.1.1 Cannon Air Force Base and Other Military Actions

Recent past and present military actions in the region were considered as part of the baseline or existing conditions in the region of influence (ROI). As presented in Table 6.1-1, these actions were considered for their relevance to the beddown of Air Force Special Operations Command (AFSOC) assets at Cannon Air Force Base (AFB) and Melrose Air Force Range (AFR).

Each environmental document or other information regarding the actions was reviewed to consider the implication of each action and its synergy with the Proposed Action. Of particular concern were potential overlap in affected area, and project timing. As depicted in Table 6.1-1, not all actions are relevant to the beddown of AFSOC assets.

The F-16s were based at Cannon AFB in 1995. In 2001, the use of defensive countermeasures throughout Cannon airspace was assessed. In 2003, Cannon AFB was authorized to use white phosphorus rockets on Melrose AFR. In 2004, an Environmental Assessment (EA) of infrastructure development and improvement projects at Cannon AFB and Melrose AFR was prepared to address the Wing Infrastructure Development Outlook (WINDO) plan. Current base and range use, as well as current aircraft operations were considered for this EIS, as presented in Chapter 2.0.

Table 6.1-1. Past and Present Military Actions

Action	*Documentation*[1]	*Relevance to AFSOC*
Proposed Force Structure Changes and Related Actions at Cannon AFB, New Mexico	United States Air Force (Air Force) 1995	No
Proposed Force Structure and Foreign Military Sales Actions	Air Force 1998	No, a management action only
Defensive Training Initiative (DTI)	Air Force 2001e	Yes, affects use of defensive countermeasures within the airspace
Use of White Phosphorus Rockets at Melrose AFR, New Mexico	Air Force 2003	Yes, affects munitions use at Melrose AFR
The Deactivation of German Air Force F-4F Aircraft Operations at Holloman AFB, New Mexico	Air Force 2004c	No
Cannon AFB WINDO Plan	Air Force 2004d	Yes, affects infrastructure at Cannon AFB
Decision by the Republic of Singapore to terminate training operations at Cannon AFB	N/A – Foreign Military Decision	No, baseline conditions evaluated in this document reflect departure of aircraft
Base Realignment and Closure (BRAC) Act of 2005 decision to include Cannon AFB on the closure list unless other missions for the base are identified	Department of Defense (DoD) 2005	Yes, recommended Cannon AFB remain open as an enclave until at least 31 December 2009 unless other missions assigned
Realistic Bomber Training Initiative	Air Force 2006b	Yes, changes use of Mt. Dora airspace proposed for scheduling by AFSOC
Transforming the 49th FW Combat Capability, Holloman AFB	Air Force 2006c	No, assesses beddown of F-22A at Holloman AFB. Holloman AFB airspace not proposed for use by AFSOC.

Reasonably Foreseeable Actions

Cumulative analysis also requires consideration of reasonably foreseeable actions. The Final New Mexico Training Range Initiative (NMTRI) EIS was made available to the public on October 20, 2006. The EIS analyzes the potential environmental consequences of providing more realistic training opportunities for the 27th Fighter Wing (27 FW) and the New Mexico Air National Guard (NMANG) in Cannon AFB-managed airspace. NMTRI includes modifying the configuration of existing airspace in the Pecos Military Operations Area (MOA) complex, creating new airspace in the vicinity of the Pecos MOA complex , authorizing supersonic flight above 10,000 feet above mean sea level (MSL) in the complex, or about 5,000 to 6,000 feet above ground level (AGL), and expanding the use of defensive countermeasures (chaff and flares) into the new and modified airspace. The Proposed Action and the Preferred Alternative would expand the size, operational altitudes, and usefulness of the Pecos MOAs and associated Air Traffic Control Assigned Airspace (ATCAA).

A Record of Decision (ROD) for the NMTRI EIS was signed on 13 February 2007. The ROD states that the Air Force, after considering the potential environmental consequences of the Proposed Action and alternatives as well as other factors related to national defense, including current military operational needs, has decided to implement Alternative A, the Preferred Alternative. Pursuant to the ROD, the Air Force has requested the Federal Aviation Administration (FAA) to proceed with processing and coordinating the NMTRI airspace proposal. Also, as directed by the ROD, the 27 FW has prepared a mitigation plan (in accordance with 32 CFR Part 989.22(d)) relative to the use of chaff and flares. The resulting provisions of the mitigation plan, as well as the airspace modifications to Cannon-managed airspace, are relevant for the AFSOC based aircraft.

NMTRI is intended to support the existing training mission of New Mexico F-16 aircrews as well as transient users. These aircrews will need airspace adequately sized and configured for worldwide deployment under their Aerospace Expeditionary Force (AEF) responsibilities. Although the 27 FW will be deactivated, planes assigned to the 150th Fighter Wing (150 FW) of the NMANG and transient aircraft, including the B-1B aircraft, would continue to train in Cannon's airspace and use Melrose AFR. The 150 FW currently flies approximately 960 sorties in the Melrose, Pecos, and Taiban airspace. As stated in a letter dated August 11, 2006, the 150 FW expects their usage to "increase approximately 25 percent if the Cannon fighter jets are dispersed" (Air National Guard 2006).

The NMANG is proposing to create the Smitty MOA underneath the current CATO MOA, which is 60 miles southwest of Albuquerque. An EA was prepared and a Finding of No Significant Impact was signed in autumn 2006. Creation of this new MOA would not affect Cannon AFB or its airspace, although it may affect the NMANG use of the Pecos MOA complex.

Holloman AFB completed an EA and a Finding of No Significant Impact was signed in 2006, transforming the 49th Fighter Wing's combat capability by replacing the F-117A and T-38A aircraft with 36 (plus 4 back-up) F-22A aircraft. These aircraft will use New Mexico airspace associated with Holloman AFB. There is an overlap of airspace to be used by AFSOC, in the vicinity of the Beak MOAs (refer to Figure 5.1-1). AFSOC aircraft will utilize area Military Training Ranges (MTRs) including VR-100, VR-108, VR-114, VR-125, IR-107, IR-109, IR-111, and IR-113. Portions of VR-100/125 and IR-113 occur within the Beak MOA and underlying the Cowboy ATCAA. The Beak A, B, and C MOAs, the Beak ATCAA, and the Cowboy ATCAA are

all projected for use by the F-22A. This will result in some increased subsonic noise, as well as sonic booms.

Cannon AFB completed an EA evaluating the Air Force housing privatization initiative and a Finding of No Significant Impact was signed in 2003. The contractor for this project would manage, upgrade, demolish, and construct family housing units for Cannon AFB over a 50-year period. A new housing market analysis is currently underway to determine the current market given the new AFSOC mission for Cannon AFB. The Housing Requirements and Market Analysis was completed in January 2007. The Housing Privatization project is currently ongoing and scheduled to close in 2008.

6.1.1.2 Other Federal Actions

Other past, current, and future federal actions in the area could also contribute to cumulative effects of the Proposed Action or alternatives. Federal agencies with jurisdiction within the ROI include the Bureau of Land Management, Bureau of Reclamation, United States Army Corps of Engineers (USACE), United States Fish and Wildlife Service (USFWS), FAA, Federal Highway Administration, and Federal Energy Regulatory Commission. Potential actions within the area and occurring in the same time frame as the beddown of AFSOC assets were identified and considered in preparation of this EIS.

Bureau of Land Management

The Bureau of Land Management manages large areas of land in the vicinity of Cannon AFB and Melrose AFR (refer to Figures 5.8-1, 5.8-2, and 5.8-3). Activities on Bureau of Land Management land include livestock grazing, oil and gas development, and recreation. The Roswell Field Office published its *Resource Management Plan* in 1997 (Bureau of Land Management 1997a). The Bureau of Land Management completed an EA for its *Fire and Fuels Management Plan Amendment*; the Decision Record was signed in September 2004.

United States Fish and Wildlife Service

The USFWS is currently preparing an EA to evaluate the proposed release of northern aplomado falcons (*Falco femoralis*) in eastern New Mexico and west Texas. It is currently not known whether aplomado falcons would be released in the ROI.

Bureau of Reclamation

The Bureau of Reclamation operates the Carlsbad hydroelectric project, which includes Santa Rosa (a USACE dam), Sumner, Brantley, and Avalon dams on the Pecos River. The Bureau of Reclamation continues mechanical clearing of salt cedar (*Tamarisk* spp.), an exotic and invasive shrub. The goal of this project is to restore native riparian vegetation communities along the Pecos River.

6.1.1.3 Non-Federal Actions

Non-federal actions include State of New Mexico, county, and private projects. General ongoing state activities include oil, gas, and grazing leases on state trust lands, land exchanges, road projects, and improvements to state parks.

Some land development projects are occurring under the airspace. Such projects include the construction of the Bosque Redondo Memorial at Fort Sumner to commemorate the "Long Walk" of some 8,000 Navajo People from their homeland to life in captivity at Bosque Redondo during the 1860s. The Memorial will include an exhibit space, resource rooms, and educational

facilities as a forum for interpretation of the fort and surrounding reservation (Museum of New Mexico 2001). Fort Sumner is under the existing Pecos MOA.

Wind energy development continues to be an important industry in New Mexico; New Mexico is ranked 5th in the U.S. for wind power potential. The New Mexico State University Agricultural Science Center is currently evaluating the potential for further wind energy generation in east central New Mexico. The center (13 miles north of Clovis) erected a 50-meter meteorological tower in November 2006 and has begun collecting site-specific wind data (New Mexico State University 2007).

There are plans to extend the Clovis Municipal Airport's runway to accommodate more corporate aircraft, larger turboprop planes, and 30-passenger regional jets. Once the runway is extended by 1,800 feet to 8,000 feet, roundtrip flights to Dallas-Fort Worth and Houston, Texas, could be offered at the Clovis airport. The city purchased land for an extension in 1998. The airport currently offers roundtrip flights to Denver and Albuquerque through Great Lakes Airlines on airplanes that accommodate approximately 19 passengers. Construction for the runway extension will occur between April 2007 and October 2007. Ultimately, airport officials want to extend the runway to 8,800 feet to support 100-passenger flights. Federal funds will be used for the majority of the 1,800-foot extension, with the city supplying 2.5 percent, or about $1,500, and the state supplying another 2.5 percent. The total cost of the project is estimated at $60,000 (Clovis News Journal 2006)

ConAgra Trade Group, Inc. and Carlyle/Riverstone Renewable Energy Infrastructure Fund are applying for an air quality permit from the New Mexico Environment Department to operate a 110-million-gallon-a-year ethanol plant at the highway site near ConAgra's existing Peavey Co. West grain handling facility. Once operational, the plant is projected to require 50 new positions at the plant and 50 to 75 indirect jobs in service of the plant. The Clovis plant would be the largest producer of ethanol in New Mexico. Public meetings on the proposed development occurred on November 9, 2006 at the Clovis Civic Center.

6.1.2 Cumulative Effects Analysis

The following analysis examines how the impacts of the actions presented above might be affected by those resulting from the Proposed Action, whether such a relationship would result in potentially significant impacts not yet identified when the Proposed Action or alternative are considered together, and identifies what those impacts might be.

Airspace and Range Management, Noise, and Safety

The cumulative actions identified in Section 6.1.1 may affect airspace and range management, noise, and safety. As described in Section 2.3, AFSOC intends to use military training airspace in proximity to Cannon AFB. Should a ROD be filed for an action alternative described in the NMTRI EIS, and the FAA charts the airspace, the Pecos MOA complex would be modified. AFSOC aircraft could avail themselves of this modified airspace for their aircraft.

NMTRI assessed the impacts of the 27 FW and the NMANG F-16s, as well as transient users on the Pecos MOA complex. Chapter 5.0 of this EIS presents the impacts of the array of AFSOC aircraft, the F-16 aircraft associated with the NMANG 150 FW (since the 27 FW will be disestablished), as well as the on-going transient users within the Pecos, Taiban, Mt. Dora, and Bronco MOAs, and several MTRs. The cumulative effect that remains to be analyzed is the potential for the activities presented in Chapter 5.0 of this EIS to be distributed in the larger

Pecos MOA complex, when the NMTRI airspace is charted. The result of this could be noise levels for most of the Pecos MOA complex less than those presented in Section 5.2.3, because NMTRI would enable a larger volume of airspace for the aircraft to train. Noise levels, if the Pecos MOAs were expanded under NMTRI, could change from current conditions. An increase could be noticed if the areas were used for AFSOC training and low-level flights. Even with AFSOC using propeller aircraft, NMANG and transient jet aircraft would be expected to dominate noise conditions in these areas. Cumulative noise levels would not be expected to exceed those described in the NMTRI EIS.

The AFSOC action when combined with the replacement of F-117 and T-38s by F-22A's should not result in noise levels in excess of the 31.3 decibels (dB) projected for the Beak MOAs and Cowboy ATCAA.

PHYSICAL AND BIOLOGICAL RESOURCES

Impacts associated with the AFSOC project relate to ground-disturbing activities associated with construction and munitions use, primarily on Cannon AFB and Melrose AFR respectively. Both physical and biological resources will be impacted by the AFSOC Proposed Action and alternatives, as described in Chapters 3.0, 4.0, and 5.0 of this EIS; however, since no cumulative actions have been identified for these specific project areas, no additional cumulative impacts are anticipated.

CULTURAL RESOURCES

There are no projected adverse effects to cultural resources as a result of the EIS Proposed Action and alternatives. Issues and concerns related to cultural resources should not add to any adverse effects to cultural resource resulting from other projects, either recently completed, ongoing or proposed within the project area

Any federal project that includes ground disturbing activities has the potential to adversely affect cultural resources and is subject to National Environmental Policy Act (NEPA) compliance and Section 106 consultation. Such projects include construction, including wind farms, pipelines, or other facilities; highway work; or any other ground-disturbing undertaking that affects public land.

LAND USE, RANCHING, TRANSPORTATION, AND RECREATIONAL RESOURCES

Land use impacts associated with this action relate to land management on Melrose AFR. Actions identified above that occur at Melrose AFR consist of the use of white phosphorus rockets and reduced F-16 training resulting from BRAC actions. The increased personnel and construction activity that might coincide with other local projects, such as the airport and ethanol plant projects, will likely be absorbed in the local transportation network. Recreational resources should not see a cumulative impact from these projects.

SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

No anticipated cumulative consequences beyond those described for the Proposed Action are expected to have any significant adverse impacts separately or cumulatively on minority or low-income communities. The incremental effects of this proposal, in combination with potential impacts associated with the reasonably foreseeable future actions described in the previous sections, would also not be expected to have any cumulative effects on children.

6.2 Other Environmental Considerations

6.2.1 Relationship Between Short-Term Uses and Long-Term Productivity

CEQ regulations (Section 1502.16) specify that environmental analysis must address "…the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity." Special attention should be given to impacts that narrow the range of beneficial uses of the environment in the long-term or pose a long-term risk to human health or safety. This section evaluates the short-term benefits of the proposed alternatives compared to the long-term productivity derived from not pursuing the proposed alternatives.

A short-term use of the environment is generally defined as a direct consequence of a project in its immediate vicinity. Short-term effects could include localized disruptions and higher noise levels in some areas. Beddown of AFSOC assets will result in short-term uses of the environment due to the extent of the construction activities on both Cannon AFB and Melrose AFR. Multiple construction projects are proposed. Depending on their location, humans and animals cumulatively experience somewhat increased levels of noise in some areas. Humans and animals would continue to be exposed to one sonic boom per 5 days (or one per 4 days toward the center of the airspace from NMANG and transient aircraft training). Off-base or off-range aircraft noise levels would be generally below the United States Environmental Protection Agency (USEPA)-identified level of 55 dB. Noise effects would be short term and would not be expected to result in permanent damage or long-term changes in wildlife and livestock productivity or habitat use.

The beddown of AFSOC assets largely involves improvements to existing military lands and some change in airspace use. It should not impact the long-term productivity of the land. Cumulative use of chaff and flares would be less than existing use and would not negatively affect the long-term quality of the land, air, or water. Changes in the aircraft mix using the existing airspace would not be projected to affect long-term productive use of natural resources.

6.2.2 Irreversible and Irretrievable Commitment of Resources

NEPA CEQ regulations require environmental analyses to identify "...any irreversible and irretrievable commitments of resources which would be involved in the Proposed Action should it be implemented" (40 CFR Section 1502.16). Primary irreversible effects result from permanent use of a nonrenewable resource (e.g., minerals or energy). Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action (e.g., disturbance of a cultural site) or consumption of renewable resources that are not permanently lost (e.g., old growth forests). Secondary impacts could result from environmental accidents, such as accidents or fires. Natural resources include minerals, energy, land, water, forestry and biota. Nonrenewable resources are those resources that cannot be replenished by natural means, including oil, natural gas and iron ore. Renewable natural resources are those resources that can be replenished by natural means, including water, lumber and soil.

For the AFSOC assets beddown, most impacts are short-term and temporary, or longer lasting but negligible. Short-term reactions of wildlife or livestock could include temporary shifts in habitat use or activity, but long-term habituation is expected. Military training necessarily

involves consumption of nonrenewable resources, such as gasoline for vehicles and jet fuel for aircraft. Cumulatively, training operations would increase from current levels, so increased military energy consumption is expected. No irreversible or irretrievable effects are expected for cultural resources or other natural resources, including land and water.

Direct and secondary impacts to natural resources could occur as a result of live munitions use on Melrose AFR. Additional aggressive fire management practices would be introduced to reduce the risk of an accidental fire exiting Melrose AFR. While any fire can affect agricultural resources, wildlife, and habitat, the increased fire management procedures should reduce the risk of fire hazard due to AFSOC and cumulative military operations.

7.0 COMMENTS AND RESPONSES

This chapter contains comments received from federal, state, and local agencies, and the general public during the public comment period for the Draft Environmental Impact Statement (EIS). The 45-day public review process began with the publication of the Notice of Availability (NOA) of the Draft EIS in the *Federal Register* on March 30, 2007. Either a hard copy or compact disc (CD) of the Draft EIS was distributed to individuals who requested a copy and to agencies and repositories that are required to have a copy. Appendix C includes a list of the libraries and repositories that were provided a hard copy or CD of the Draft EIS for the purpose of making the document available for public review. The Draft EIS also was posted on the World Wide Web at http://www2.afsoc.af.mil/fonsi, the Air Force Special Operations Command (AFSOC) website, which is accessible to the public.

In accordance with the National Environmental Policy Act (NEPA), public and agency comments were reviewed and incorporated into this Final EIS. The United States Air Force (Air Force) has considered these public and agency comments in the decision making process. This chapter presents the comments from the public meetings and other comments received during the public review process that occurred following publication and distribution of the Draft EIS. Public meetings are a regulatory requirement of the Council on Environmental Quality (CEQ) regulations implementing the NEPA and Air Force Instruction (AFI) 32-7061, as promulgated in 32 Code of Federal Regulations (CFR) Part 989, (Environmental Impact Analysis Process).

Public comment was encouraged at each of the three public meetings in April 2007. It was noted that these comments would be published in the Final EIS (and that providing personal information on those comments was considered consent to publish it). It was noted that these comments would be published in the Final EIS. It was also noted in various Privacy Advisory's included in the public meeting information brochure, the briefing given at the public meetings, as well as the written comment forms and speaker registration cards that providing personal information on those comments was considered consent to publish it. A copy of the Privacy Advisory published on the internal title page of the Draft EIS is included in Appendix C. Public notification materials included newspaper display ads, press releases, public service announcements, postcards, flyers, and the Headquarters AFSOC website. The formal public comment period ended on May 14, 2007.

This chapter includes a narrative description of the Air Force comment and response process, a directory of commenters, copies of public comments, transcripts, agency comments, and associated response codes and responses.

7.1 Comment Receipt and Review

Comment Receipt: Comments on the Draft EIS included both written correspondence and verbal comments received during the 45-day public comment period. All comments received during that period are included in the Comments section following the directory.

Comment Review: In accordance with 40 CFR 1503.4, comments were assessed and considered as follows:

- Each letter or verbal comment was assigned an identification number and each comment letter and each individual's verbal comments was read and reviewed carefully.
- Within each comment letter or verbal statement, substantive comments were identified and bracketed. Three guidelines were used for determining substantive comments:

1. The comment questioned the proposed action, alternatives, or other components of the AFSOC Assets Beddown at Cannon Air Force Base, New Mexico EIS.
2. The methodology of the analysis or results was questioned.
3. The use, adequacy, or accuracy of data was questioned.

- The bracketed comments were reviewed by environmental resource specialists who drafted the responses. In some cases, similar comments were assigned the same response. If the same comment was repeated within the same letter or verbal comments, it was bracketed the first time it appeared.
- The individual bracketed comments were assigned a response code. These responses are organized alphabetically and may be found in the Responses section immediately following the comments.

Comment Organization: The comment letters are printed in numerical order and are organized into three sections:

- Written comments and submitted letters - public written comments begin with 001.
- Public meeting transcripts and summaries - verbal comments begin with 2000.
- Agency letters - agency written comments begin with 3001.

7.2 Locating Your Comments and Responses

A directory (Table 7-1) to locate your name begins on page 7-3. As noted on the public displays, sign-in and comment sheets, providing your name in the EIS process meant that you understood that your name and comment would be made a part of the public record for this EIS. An identification number was assigned to your comment letter and is located in the upper right hand corner of the letter or next to your name in the verbal comment.

Table 7-1 provides an alphabetical listing of commenters by last name. Look for your last name in the first column and note the letter/commenter identification number in the fourth column. This is a number that was assigned to your comment and appears on your letter or next to your verbal comments.

Written comments, submitted letters, public meeting transcripts, and agency letters are located immediately following the directory (beginning on page 7-5). All substantive comments within each comment letter and verbal comment were bracketed and given a response code. Response codes are printed next to the bracket in the right margin of the comments. Every bracketed comment has a corresponding response. Each response is designed to be read along with the comment it addresses. Air Force responses to comments are located immediately following the comment section (see page 7-123). They are organized alphabetically by response code. The first page of the responses provides a key to the response codes.

The responses refer to both the Draft EIS and Final EIS documents, as appropriate. For example, if the commenter suggests a deficiency in the Draft document, the response may refer to the Draft EIS for clarification. If the Final EIS includes amended information, the reader will be directed to that section of the Final EIS.

Public and agency involvement is an important part of the NEPA process, and all letters and their associated comments whether bracketed or not are taken into consideration by the Air Force in its decision making process.

Table 7-1. Directory of Commenters

Last Name	*First Name*	*Organization*	*Letter #/ Commenter #*	*Date of Comment*	*Response Code*
		Fort Sumner Community Development Corporation	012	4/17/2007	GE-1
Ashley	Jeff		016	5/11/2007	SA-4, LU-2, PR-1
Beck	Robert		2018	4/19/2007	GE-1
Birdsong	Ronnie		2005	4/17/2007	GE-1
Blakeley	D. Ray		003	4/14/2007	LU-1
Blakeley	D. Ray		2020	4/19/2007	LU-1
Boyce	Garth		2016	4/19/2007	GE-1
Boyce	Garth	Town of Clayton	3001	4/9/2007	GE-1
Buzard	Kendell		009	4/18/2007	PR-1
Carruthers	Kent		2003	4/17/2007	GE-1
Carter	Powhatan		2009	4/18/2007	GE-1
Carter, III	Powhatan, Joe Steele, Tommy Roybal	County of DeBaca	3006	4/17/2007	GE-1
Chavez	Juan		2007	4/18/2007	GE-1
Chavez	Juan	Village of Fort Sumner	3005	4/10/2007	GE-1
Davis	Chad		005	4/17/2007	SA-1, SA-2
Davis	Sharon		006	4/17/2007	GE-1
Davis	Tom		004	4/17/2007	GE-1
Elliott	A.S.	El Bigote Cattle Co., LLC, Gottomittee Ltd.	015	5/11/2007	NP-2, SA-3, NP-1, NO-1, LU-3, LU-4, DO-4, SA-4
Frost	Everett		2010	4/18/2007	GE-1
Gates	Billy		002	4/7/2007	DO-1, AM-1, BI-2, SA-3
Greathouse	Betty		008	4/18/2007	BI-1
Grider	Paul		017	5/11/2007	SA-2, SA-4, LU-2
Gutierrez	Gina	ENMR Plateau	014	5/10/2007	GE-1
Heringa	J.W.		2019	4/19/2007	DO-3
Ingle	Stuart		2015	4/18/2007	GE-1
Jansky	Michael	U.S. Environmental Protection Agency, Region 6	3008	5/11/2007	GE-1
Lansford	David		2001	4/17/2007	GE-1
Lansford	David	City of Clovis	3003	4/17/2007	GE-1
Leslie	Lonnie		2004	4/17/2007	GE-1
Leslie	Lonnie & Everett Frost	Local Growth Management Organization	011	4/18/2007	GE-1
Lopez	Dennis		2002	4/17/2007	GE-1
Lopez	Dennis	Roosevelt County,	3002	4/17/2007	GE-1

Last Name	*First Name*	*Organization*	*Letter #/ Commenter #*	*Date of Comment*	*Response Code*
		Office of Finance & Administration			
Luce	D.W.		019	5/14/2007	SA-2
Luce	Dennis & Donna		018	5/14/2007	LU-2
Luce	Donna		010	4/18/2007	BI-2, LU-2
Luce	Donna		2014	4/18/2007	DO-2
Moore	Brian K.	State of New Mexico, House of Representatives	3000	4/23/2007	GE-1
Ortega	Orlando		2000	4/17/2007	GE-1
Ortega	Orlando		2008	4/18/2007	GE-1
Ortega, Jr.	Orlando	City of Portales	3004	4/15/2007	GE-1
Pyle	Lance		2006	4/17/2007	GE-1
Pyle	Lance	Village of Melrose	3009	5/7/2007	GE-1
Robertson	Van		2017	4/19/2007	BI-2
Scott	Hanson		2012	4/18/2007	GE-1
Sparks	Allen		2011	4/18/2007	GE-1
Sparks	Allen		2013	4/18/2007	GE-1
Spencer	Stephen	U.S. Department of the Interior, Office of Environmental Policy and Compliance	3007	5/7/2007	GE-1
Thompson	Micah		007	4/17/2007	GE-1
Vick	Carl		001	4/4/2007	GE-1
West	William	The Citizens Bank of Clovis	013	4/25/2007	GE-1

Comments

001

[redacted]

April 4, 2007

Carl T. Hoffman, R.A.
Environmental Planning & Program Manager
HQ AFSOC/A7PP
427 Cody Avenue, Suite 303
Hurlburt Field, FL 32544-5434

GE-1

Dear Carl,

Please allow me to re-introduce myself. I had the pleasure of meeting you at the last public hearing in Ft. Sumner. My attendance at this and other meetings reflects my continued commitment to the defense of our country. As further testament to my dedication, I gave 30 years of my life to military service, and two of my brothers received Purple Hearts for their service during World War II.

On April 18th, 2007, you have another public hearing in Ft. Sumner. I extend an invitation to you and your colleagues to arrive in Ft. Sumner a few hours early for the purpose of offering a guided tour of the terrain of the Pecos MOA. Please take advantage of my far-reaching familiarity with the area, both as a native resident since 1934, and as a military professional. As Launch Assistant at the Ft. Sumner Municipal Airport since 1987, I have overseen security and maintenance of the facility which requires detailed knowledge of the airport and its adjacent area, the outlying ranch lands, and Sumner Lake to carry out military operations. Additionally, my professional military career in the U.S. Navy and National Guard provided the opportunity to utilize my technical skills in many ways, including plotting position of aircraft and ships, identifying aircraft as friendly or foe, and launching and assisting with layout of pilot balloons for meteorologists and scientists.

It would be my honor to serve as your personal guide and liaison and assist your training efforts. I will call you soon to arrange a convenient meeting time.

Sincerely,

Carl Vick

Carl Vick

002

(1)

attn: Carl Hoffman April, 7 2007
This letter to you is to find out what your intentions are when your wing occupies Cannon Air force base in october 2007.

DO-1

1. Are your aircraft going to fly over Clovis, NM like the F-16's have for years?

AM-1

2. We here in the City have enough noise with 96 trains daily, engine brake retarders on trucks & Sirens & such to run you crazy.
3. The Committee of 50 believe they own the base, which in fact the taxpayers have supported that $ 25.00 air base for over 50 years. all they want is your dollars for Clovis, they're a bunch of thugs doctors, lawyers, 1-employee of a local bank "Randy Harris" who thinks that Clovis cannot survive without that base.
They don't want any industry here, they don't even know what that word means.
4. The Wing Commder at Cannot permit F-16's to fly over Clovis day & night.
5. You can't sleep anymore for the excessive noise that these overrated planes make.
6. I've got news for Colonel West. If in the state of California no Military —

of any Kind are (2) permitted to fly
over their cities in their state.
7. the people of California banned
them from flying over their cities years ago.
8. they told the air force to train in
the majave ~~desert~~ desert for their guns +
games. + that's what they do.
9. From what I've seen of the USAF
they are guns + games.
10. Cannon AFB has lost 8 F-16's
in the past. at the cost of about
$25,000,000 apiece. one Captain got lost
near Santa Rasa, NM + ejected out + broke
his arm but the F-16 Crashed + Burned.
would you believe the air force Investigators
accepted that he was lost + Crashed.
11. What will be your mission here. DO-1
Remember Cannon AFB's record is not good
& I believe it should be closed probaly
30 years ago. Considering their record in Iraq.
yes a few of the older pilots went over there.
They bragged that they dropped 27 tons of
munitions over there & could have accomplished
this with (1) B-52 with a good crew.

3.

12. New mexico is primarily a ranching
enviroment, some of these ranches have been
handed down for generations.
13. aircraft can scatter cattle into
Barbed wire fences + cut them to piece.
14. aircraft from Davis Monthan AFB
at tucson, arizona have been seen flying
tree-top levels of flight on ranches near
Socorro, N.M. + surroding areas.
15. Scattering herds of elk + deer, shaking houses BI-2
apart, collapsing windmills, + scattering livestock SA-3
all over the country. people complained, but
to no avail. Is this training or just seeing
what they can destroy.
16. If your wing is going to do this kind
of damage to our ranchers. I suggest you
think again before you try it.
17. The Committee of 50 sold you a bill
of good when they told you that the
bombing range Containing 60,000 acres terrain
was similar to Iraq + afganistan, you'll be
surprised to know that Contains lots of grass,
sand, + bushes, some antelope + deer etc.
you told you a lie + that's all there is to it.

(4).

18. Secretary Rumsfeld told the truth when the BRAC Committee leaned about jobs instead of effiency.
CAFB is a joke in my opinion.
19. The Navy pilots land at Cannon AFB side by side + the air force pilots complain about lack of landing lights + they fly at night + sound like 100 freight trains they say that they need the light of clouds to find the base + land.
20. Sounds like Navy Carrier pilots are far superior in flying effiency. than our high + mighty air force jet jockeys.
21. They can find there Carriers out in the oceans at night. a Carrier can carry 75+ aircraft. a Carrier is a little longer than a football field. what does that tell you!
22. CAFB is just a training base + the number of aircraft lost due to one Malfunction or another.
23. But the pentagon + the Secretary of the air force seems to walk around with blinders on. + are sold a bill of goods Concerning the effiency of CAFB. I think the wing Commander Colonel West should go to Marinas tops your training + if he can go (2) rounds [illegible] will brag + be demoted to 1st Lt

(5.)

If your wing is as good as Navy pilots + Navy Seals. + army rangers. + can be half as good as they are trained, you'll see who is the best.

24. New mexico has under 2 Million people + California has approx. 40 Million Here are the reasons that the people Banned Military aircraft from flying over their Cities

#1. Noise
2. Danger
3. Heavy commercial air traffic
4. San francisco airport + oakland airport handle more aircraft daily than you have (Do you want to bet me on this.
(you will lose if you want to pursue youve bet.
25. Cannon had a fire recently that burned 27,000 acres. + nearly burned up a small towns name of Floyd. New Mexico.
26. The Committee of 50 Controls what base out there. I hope your officers + pilots + men will not tell you what to do. It'll be a blessing to see them damn loud F-16's leave here for parts unknown.

6.

27. you remember what I said about this being a ranching state.
The federal government owns 40% of the land in New Mexico
Ted Turner owns 10% of the land in NM.
Indian reservations own 20% of the land in new mexico.
30% is privately owned by ranches + such.
I have written this letter + it is the truth.
please respect our City + not fly over it.
We don't need the noise from your aircraft,
+ please respect the ranchers + farmers right
scattering their livestock, starting grass fires + such. BI-2
I look forward to the Change of Command
at CAFB + Wish you the best that the
Citizens of Clovis will support you also.
The F-16's have 26,000 square miles to
use for trainings they say. why do they
not use it?
I'll be glad to answer any questions
you may have Concerning this letter to you.
I have lived in New Mexico since 1943.
I served 6 years in the U.S. army 1st Infantry
division. I wish you the best. Write me back
if you so desire if I can be any help to you.
Thanks — Billy J. Gates

(7)

I have enclosed some articles Concerning
the Change of Command in October
at CAFB
I would like for you to read the
highlighted articles
especially "Colonel West's statement"
"We want to be good neighbors"
He just wants to make general I think.
Remember the taxpayers have supported
that base since the early 50's
Take Care of the base + it will carry
you to your mission

God Bless

Billy J. Gates

+ Remember this!
It takes a lot more than fancy flying
to make a good pilot?

The air force may have the Meat.
But the Navy has the gravy.

Cannon impact study released for public review

❑ Environmental report available on base's transition to Special Operations.

By Sharna Johnson
CNJ STAFF WRITER
sharna_johnson@link.freedom.com

A draft of an Environmental Impact Statement to evaluate the effect of Cannon Air Force Base's switch in October to the 16th Special Operations Wing is available for public review at public libraries in Clovis, Portales and Fort Sumner, according to base officials.

Residents are welcome to view the executive summary and copy of the draft available at the reference desk, said Vivian Grimes, Clovis-Carver Public Library reference librarian. Though the documents cannot be taken from the library, copies can be made.

A notice of availability, informing the public the document is available for review, will be published March 30 in the Federal Registry and public hearings will be held. The hearings are designed to help community members learn about the statement, receive community-specific input and give residents an opportunity to consider and comment on the document and proposal, an information flier from Air Force Special Operations Command public affairs said.

Inside

■ A timeline of events following the environmental impact study's release

— Page 13

In a separate press release, AFSOC said the Air Force proposes to transfer aircraft and personnel from Hurlburt Field, Fla., or other existing operational locations to Cannon. Those potential asset transfers include aircraft, weapons sys-

CANNON/Page 13

Article attached to Comment Letter 002

002

Cannon

From Page 1

tems, equipment and personnel.

Oral and written comments from residents are welcome during the hearings or by mail prior to the close of the public comment period.

Timeline of events

The following timeline of events following the release of the draft of an Environmental Impact Statement to evaluate the effect of Cannon Air Force Base's switch in October to the 16th Special Operations Wing was provided Thursday by Cannon officials:

■ **March 30** — Draft Environmental Impact Statement notice of availability published in Federal Registry. This notice announces that the AFSOC Draft EIS is available for public review. This also begins the 45-day public review and comment period. A copy of the Draft EIS can be reviewed at public libraries in Clovis, Portales, Fort Sumner and Clayton and in Santa Fe at the New Mexico State Library.

■ **April 17** — Public hearing, 6-8 p.m. Clovis Community College Auditorium, Room 154

■ **April 18** — Public Hearing, 6-8 p.m. Fort Sumner Community House

■ **April 19** — Public Hearing, 6-8 p.m. Clayton High School Auditorium

■ **May 14** — End of public comment period. The Air Force will review all public comments received and begin preparing the Final EIS.

■ **Summer** — Notice of Availability announcing the release of the Final EIS will be issued. This announcement is followed by a 30-day waiting period. After the 30-day period, a Record of Decision, setting forth the Air Force's final decision will be signed by the office of the Secretary of the Air Force.

■ For information about the public hearings, call AFSOC public affairs (850) 884-5515 or Cannon public affairs 784-4131.

■ Comments and input can be mailed to Carl Hoffman, HQ AFSOC/A7pp, Hurlburt Field, FL 32544-5434.

—Compiled by CNJ staff writer Sharna Johnson

Article attached to Comment Letter 002

Cannon moving forward with housing privatization

❑ Cannon commander announces at Chamber meeting base dorm renovations are slated for summer.

By Sharna Johnson
CNJ STAFF WRITER
sharna_johnson@link.freedom.com

Cannon Air Force Base commander Col. Scott West gave an overview of base programs and highlighted upcoming projects Wednesday at a monthly board meeting of the Clovis/Curry County Chamber of Commerce.

The base has started moving toward housing privatization, and dormitory renovations are expected to commence this summer, West said. He said many projects were halted in the wake of the Base Realignment and Closure process during which Cannon was assigned a new mission.

West also said Cannon is awaiting the results of an Environmental Impact Survey to evaluate the effect of Cannon's switch in October to the 16th Special Operations Wing. A draft of the survey will be released publicly March 30, and forums will be held in April to gain public input.

Col. West
Commander, Cannon Air Force Base

"We want to be good neighbors," he said.

Also discussed at the meeting:

■ Liz Eisenbraun, Chamber marketing and events coordinator, said she felt the "Believe in Me" movie premiere and related events were a success. The Chamber is expecting to receive a two-hour and 20-minute extended version of the

Article attached to Comment Letter 002

Clovis & Portales

Saturday, Oct. 21, 2006

Page 4A

[mpact report suggests airspace increase

[Marlena Hartz
arlena_hartz@link.freedom.com

Training airspace near Cannon Air Force Base could be expanded by the end of November, according to Air Force officials.

A report on the impact of increasing airspace near Cannon was officially leased Wednesday. Before the Air orce can make a decision on whether to xpand airspace, federal environmental w requires a 30-day public comment eriod.

The New Mexico Training Range nitiative Environmental Impact tatement concludes the airspace expanon would have minimal impact and sigficantly improve air combat training in ew Mexico.

The impact statement also outlines an alternative to the expansion, which is taking no action at all.

According to Initiative Project Manager Michael Jones of Langley Air Force Base, Va., the initiative would expand airspace above Cannon Air Force Base in De Baca, Chaves and Lincoln counties. A slice of sky above Guadalupe County would also be harvested, he said.

> This will not enable (Air Force Special Operations) to use the space.
>
> — Michael Jones, Initiative Project Manager

Jones said the expansion is needed for F-16 training, especially in time of war.

"This is certainly valid for all New Mexico-based F-16 aircrews," he said.

The primary users of the expanded airspace would be members of the Kirtland National Guard unit, the 27th Fighter Wing at Cannon and the 150th Air Refueling Wing at Fort Sumner. The initiative would permit supersonic training at 10,000 feet above mean sea level and ing Air Force Special Operations mission at Cannon, Jones said.

"This will not enable (Air Force Special Operations) to use the space," Jones said.

The Air Force Special Operations Command will assume ownership of Cannon in October 2007.

A separate environmental impact study is being crafted for Special Operations intents and purposes. A draft of that study is slated for release in March.

According to Jones, the Air Force Special Operations Command would also need to research the impact of its use of Initiative airspace, even if the Initiative is approved in November.

Jones said doubts about Cannon's future and the subsequent assignment of a new mission delayed the Initiative by about a year.

A copy of the Initiative statement can be viewed online at www.cannon.af.mil. Hard copies are available at Clovis-Carver, Roswell, Portales, Fort Sumner, Moise Memorial and Vaughn public libraries.

Public comments concerning the New Mexico Training Range Initiative can be submitted to: U.S. Air Force, Headquarters Air Combat Command, A7ZP, 129 Andrews St., Suite 102, Langley AFB, VA 23665-2769, Attention: Michael Jones.

The Air Force is not required to respond to comments received in this 30-day window, but comments will be considered in determining the final initiative decision, according to an Air Force press release.

Article attached to Comment Letter 002

003

Written Comment Sheet

Public Hearing for the Air Force Special Operations Command
Assets Beddown at Cannon Air Force Base, NM
Draft Environmental Impact Statement (EIS)

Thank you for your input!

Please hand this form in or mail before **MAY 14, 2007** to:

Mr. Carl T. Hoffman
HQ AFSOC/A7PP
427 Cody Avenue, Suite 303
Hurlburt Field, Florida 32544-5434

NAME:	D. Ray Blakeley
ORGANIZATION:	[redacted]
ADDRESS:	[redacted]
CITY/STATE/ZIP:	[redacted]

Your name and address will be used to compile a mailing list for distributing future information regarding this Environmental Impact Statement (EIS). Names and addresses will not be published in the EIS. However, by including your name and address, it will become part of the EIS public record.

PLEASE PRINT **DATE:** April 19, 07

ADD CLI

LU-1

****** CONTINUE ON BACK FOR MORE SPACE ******

004

Written Comment Sheet

Public Hearing for the Air Force Special Operations Command
Assets Beddown at Cannon Air Force Base, NM
Draft Environmental Impact Statement (EIS)

Thank you for your input!

Please hand this form in or mail before **MAY 14, 2007** to:

Mr. Carl T. Hoffman
HQ AFSOC/A7PP
427 Cody Avenue, Suite 303
Hurlburt Field, Florida 32544-5434

NAME:	Tom Davis
ORGANIZATION:	[redacted]
ADDRESS:	[redacted]
CITY/STATE/ZIP:	[redacted]

Your name and address will be used to compile a mailing list for distributing future information regarding this Environmental Impact Statement (EIS). Names and addresses will not be published in the EIS. However, by including your name and address, it will become part of the EIS public record.

GE-1

PLEASE PRINT **DATE:** 4/17/07

I am a lessee of the Melrose Bombing Range and I request that you use the Two Target alternative and do not use the high velocity 25 mm round

****** CONTINUE ON BACK FOR MORE SPACE ******

005

Written Comment Sheet

Public Hearing for the Air Force Special Operations Command
Assets Beddown at Cannon Air Force Base, NM
Draft Environmental Impact Statement (EIS)

Thank you for your input!

Please hand this form in or mail before **MAY 14, 2007** to:

Mr. Carl T. Hoffman
HQ AFSOC/A7PP
427 Cody Avenue, Suite 303
Hurlburt Field, Florida 32544-5434

NAME:	Chad Davis
ORGANIZATION:	[redacted]
ADDRESS:	[redacted]
CITY/STATE/ZIP:	[redacted]

Your name and address will be used to compile a mailing list for distributing future information regarding this Environmental Impact Statement (EIS). Names and addresses will not be published in the EIS. However, by including your name and address, it will become part of the EIS public record.

PLEASE PRINT **DATE:** 4/17/07

The two target alternative without the use of the outdated 25 mm rounds best suits the existing neighboring ranching community.

Regarding item 4.3.3.1 "LZ's would need to be cleared of all vegetation" - this ground is extremely fragile and can not be cleared without creating blowing SA-1

without grazing the area will once again be covered with tumble weeds and become a sedere fire hazard SA-2

****** CONTINUE ON BACK FOR MORE SPACE ******

006

Written Comment Sheet

Public Hearing for the Air Force Special Operations Command
Assets Beddown at Cannon Air Force Base, NM
Draft Environmental Impact Statement (EIS)

Thank you for your input!

Please hand this form in or mail before **MAY 14, 2007** to:

Mr. Carl T. Hoffman
HQ AFSOC/A7PP
427 Cody Avenue, Suite 303
Hurlburt Field, Florida 32544-5434

NAME:	Sharon Davis
ORGANIZATION:	
ADDRESS:	[redacted]
CITY/STATE/ZIP:	[redacted]

Your name and address will be used to compile a mailing list for distributing future information regarding this Environmental Impact Statement (EIS). Names and addresses will not be published in the EIS. However, by including your name and address, it will become part of the EIS public record.

GE-1

PLEASE PRINT **DATE:** 4/17/07

I request using the two target alternative without the use of the high velocity 25 mm rounds. This ammunition has proven to be a fire hazard and the range can not afford another grass fire.

Grazing of the bombing range is extremely helpful when vegetation is heavy following rainy periods. Grass fires would not be devastating if vegetation is grazed. The military planners must make speedy decisions to facilitate placement and removal of cattle.

****** CONTINUE ON BACK FOR MORE SPACE ******

007

Written Comment Sheet

Public Hearing for the Air Force Special Operations Command
Assets Beddown at Cannon Air Force Base, NM
Draft Environmental Impact Statement (EIS)

Thank you for your input!

Please hand this form in or mail before **MAY 14, 2007** to:

Mr. Carl T. Hoffman
HQ AFSOC/A7PP
427 Cody Avenue, Suite 303
Hurlburt Field, Florida 32544-5434

NAME:	Micah Thomason
ORGANIZATION:	[redacted]
ADDRESS:	[redacted]
CITY/STATE/ZIP:	[redacted]

Your name and address will be used to compile a mailing list for distributing future information regarding this Environmental Impact Statement (EIS). Names and addresses will not be published in the EIS. However, by including your name and address, it will become part of the EIS public record.

PLEASE PRINT **DATE:** 4/17/07

GE-1

I request the implementation of the two target alternative without the use of the 25 mm rounds

****** CONTINUE ON BACK FOR MORE SPACE ******

008

Written Comment Sheet

Public Hearing for the Air Force Special Operations Command
Assets Beddown at Cannon Air Force Base, NM
Draft Environmental Impact Statement (EIS)

Thank you for your input!

Please hand this form in or mail before **MAY 14, 2007** to:

Mr. Carl T. Hoffman
HQ AFSOC/A7PP
427 Cody Avenue, Suite 303
Hurlburt Field, Florida 32544-5434

NAME:	Beth Greathouse
ORGANIZATION:	[redacted]
ADDRESS:	[redacted]
CITY/STATE/ZIP:	[redacted]

Your name and address will be used to compile a mailing list for distributing future information regarding this Environmental Impact Statement (EIS). Names and addresses will not be published in the EIS. However, by including your name and address, it will become part of the EIS public record.

PLEASE PRINT **DATE:** 4-18-2007

Need to know the make-up of Chaff - Complete ingredients - Chemical compounds - Do cows eat this And the effect of -

BI-1

****** CONTINUE ON BACK FOR MORE SPACE ******

009

Written Comment Sheet

Public Hearing for the Air Force Special Operations Command
Assets Beddown at Cannon Air Force Base, NM
Draft Environmental Impact Statement (EIS)

Thank you for your input!

Please hand this form in or mail before **MAY 14, 2007** to:

Mr. Carl T. Hoffman
HQ AFSOC/A7PP
427 Cody Avenue, Suite 303
Hurlburt Field, Florida 32544-5434

NAME:	Kendall Buzard (lease holder)
ORGANIZATION:	
ADDRESS:	
CITY/STATE/ZIP:	

Your name and address will be used to compile a mailing list for distributing future information regarding this Environmental Impact Statement (EIS). Names and addresses will not be published in the EIS. However, by including your name and address, it will become part of the EIS public record.

PLEASE PRINT **DATE:** _____

Concern on 5 wells on his property — wells need to be looked at + analyzed — PR-1

****** CONTINUE ON BACK FOR MORE SPACE ******

010

Written Comment Sheet

Public Hearing for the Air Force Special Operations Command
Assets Beddown at Cannon Air Force Base, NM
Draft Environmental Impact Statement (EIS)

Thank you for your input!

Please hand this form in or mail before **MAY 14, 2007** to:

Mr. Carl T. Hoffman
HQ AFSOC/A7PP
427 Cody Avenue, Suite 303
Hurlburt Field, Florida 32544-5434

NAME:	Donna Luce
ORGANIZATION:	
ADDRESS:	
CITY/STATE/ZIP:	

Your name and address will be used to compile a mailing list for distributing future information regarding this Environmental Impact Statement (EIS). Names and addresses will not be published in the EIS. However, by including your name and address, it will become part of the EIS public record.

PLEASE PRINT **DATE:** _____

has sheep farm + concerned @ noise during certain seasons + lease issue — BI-2, LU-2

****** CONTINUE ON BACK FOR MORE SPACE ******

LOCAL GROWTH MANAGEMENT ORGANIZATION
LGMO
300 N. Connelly Clovis, NM 88101

April 18, 2007

Mr. Carl T. Hoffman
HQ AFSOC/A7PP
427 Cody Avenue, Suite 303
Hurlburt Field, FL 32544

GE-1

Dear Mr. Hoffman,

We appreciate the opportunity to give input concerning the Cannon AFB Environmental Impact Study. The Local Growth Management Organization has been given the task of research and planning for the growth of Clovis, Portales, and the surrounding communities. Our group is made up of volunteers, selected by the local governing bodies with specific skills and experience in various professions.

These skills include: real estate and development, health care, emergency services, military affairs, infrastructure design and engineering, economic development and banking, elementary and secondary education, higher education, and higher education. It is our goal to work with local officials, state government, the Department of Defense, the United States Air Force, and the public to plan and facilitate growth in our local region.

The LGMO is currently pursing a grant with the Office of Economic Adjustment to develop a Growth Management Plan which will help our communities and agencies plan .and prepare for the military and related growth. Curry and Roosevelt Counties and the cities of Clovis and Portales are supplying matching funds and personnel to accomplish this task.

Clovis and Portales have had an excellent rapport with Cannon and its personnel for many years. We are excited about this change and look forward to a continuing relationship with our Air Force community. Please let us know if we can be of any assistance in the planning or implementation process.

Sincerely,

Lonnie Leslie
Chairman

Everett Frost Ph.D.
Vice Chairman

FORT SUMNER COMMUNITY DEVELOPMENT CORPORATION
P O BOX 453 - 762 N. 4TH
FORT SUMNER, NEW MEXICO 88119

April 17, 2007

GE-1

General Michael W. Wooley
Commander Air Force Special Operations Command
100 Bartley Street Command Suite
Hurlbert Field, Florida 32544-5273

Dear General Wooley:

The Fort Sumner/De Baca Chamber of Commerce and the Fort Sumner Community Development Corporation are honored to be allowed to welcome you to our community. We welcome visitors here every day. It is what we do. But rarely are we so honored as to be able to welcome a distinguished Military Command to our area. And it is even more of an honor to know that you have chosen to move here—to live among us.

Twice before the Military has called Fort Sumner home. The first was in the 1860's when General George Carlton established Fort Sumner and the Reservation to incarcerate the Apache and Navajos so that they would quit impeding the settlers traveling west through the western part of New Mexico. The Fort was officially closed down by General William T. Sherman in 1868.

The second time was during World War II. An Army Air Field was built here. It's mission was to train glider pilots and tow plane pilots. Their mission was to glide across the English Channel and behind German lines delivering 13 soldiers at a time. The Air Field also had a German prisoner of war camp. Fort Sumner was probably at its largest size during this time.

We understand that your operations will primarily be at Cannon. But we hope that you will avail yourselves of the assets we have to offer to the point that at least a part of your operations will be in our area all the time.

We have a vision that Fort Sumner could become a "play ground" for the people stationed at Cannon. We know that Clovis and Portales are limited in things to do for people who like outdoor activities. But the Fort Sumner area has things to do, such as

- Lake Sumner offers fishing, swimming, boating, a mountain bike trail, hiking, camping, etc. Water SKIN 6 –
- The Bosque Redondo Lake in the Valley currently offers camping and fishing; but it has the potential to offer camper dump stations, beach volleyball in the

sand, horseshoes, a riding stable and maybe even a golf course. These are just examples and since this area is currently not-fully-developed, it might be possible for Cannon personnel to assist in its planning and development.

- There is a very good dirt bike track--north of town on the way to the air base. It hasn't been used in a while, but it has had some very successful races there in the past.
- Hunting is big in De Baca County—dove, sometimes quail, deer and antelope.
- There is an antique six-lane bowling alley that is open and in very good shape.
- There is a unique 9 hole "sand green" golf course.
- There is a family workout center with lots of good weights and exercise equipment.
- It has also been suggested that we could have a skeet shoot; a rifle shooting competition range; and a longbow shooting competition.
- There are frequent team roping events; occasional ranch rodeos and regular rodeos.
- Trail rides and endurance events are possible for the horsemen.
- "A day at an actual working ranch" helping gather, brand, castrate and doctor calves is a possibility. This would be done the old fashion way by roping, dragging and throwing the calves.

If this concept could be further developed it could become something of an industry for a community desperately needing an economic boost and it could provide a valuable recreational outlet for Cannon personnel. It would be beneficial for you and for us.

Anyway we welcome you to our home! And thanks for coming!

Sincerely,

Chamber of Commerce

Community Development Corporation

William W. West
VICE PRESIDENT

The Citizens Bank of Clovis
Fort Sumner Branch

April 25, 2007

Mr. Carl T. Hoffman
HQAFSOC/A7PP
427 Cody Avenue, Suite 303
Hurlburt Field, FL 32544

GE-1

Carl:

This letter is written to fully support and welcome the (AFSOC) to Cannon Air Force Base. I recognize the importance of training and am happy to assist in any way to support those who protect us. In conservation here in Fort Sumner last Wednesday night, it was apparent that the military is concerned with the citizens and would be willing to compromise if within reach. Attitudes like this will prove to be very beneficial in Eastern New Mexico. Should you have any questions, please do not hesitate to contact me

Sincerely,

William W. West
VP

EQUAL HOUSING LENDER
319 Sumner Avenue
Fort Sumner NM 88119

www.citizensbankofclovis.com
E-mail: citizensftsum@plateautel.net

TEL (505) 355-2426
FAX (505) 355-9612

ENMR·PLATEAU

May 10, 2007

VIA FEDERAL EXPRESS

GE-1

Mr. Carl T. Hoffman
HQ AFSOC/A7PP
427 Cody Avenue, Suite 303
Hurlburt Field, FL 32544

RE: Resolution in support of AFSOC at Cannon AFB

Dear Mr. Hoffman:

Enclosed please find a signed resolution on behalf of the ENMR•Plateau Board of Directors in support of the deployment of Air Force Special Operations Command assets to Cannon Air Force Base.

Please call direct at 505-389-4271 should you have questions.

Sincerely,

Gina Gutierrez
Executive Assistant

gg

Enclosure

7111 North Prince • P.O. Drawer 1947 • Clovis, NM 88102-1947
(505) 389-5100 • 1-800-432-2369 • Fax (505) 389-1037

014

RESOLUTION

SUPPORTING DEPLOYMENT OF AIR FORCE SPECIAL OPERATIONS COMMAND ASSETS TO CANNON AIR FORCE BASE

Board of Directors, ENMR•PLATEAU

WHEREAS, ENMR•Plateau is a telecommunications cooperative serving approximately 10,000 families in rural Eastern New Mexico, including the communities of Ft. Sumner and Clayton; and

WHEREAS, ENMR•Plateau is the leading telecommunications provider in the region; and

WHEREAS, ENMR•Plateau believes in the need to maintain a strong defense and Eastern New Mexico offers unique resources necessary for Air Force Special Operations Command (AFSOC) training; and

WHEREAS, the deployment of AFSOC to Cannon Air Force Base is an essential part of that strategy.

NOW THEREFORE, BE IT RESOLVED that ENMR Telephone Cooperative, doing business as ENMR•Plateau and headquartered in Clovis, New Mexico, wholeheartedly supports the deployment of Air Force Special Operations Command assets to Cannon Air Force Base and commits to do everything reasonably possible to help make this a smooth transition.

DONE this 26th day of April, 2007

ENMR•PLATEAU

Frank Blackburn, President

(SEAL)

ATTEST:

Kenny Wilhite, Vice President

EL BIGOTE CATTLE CO., L.L.C.
GOTTOMITEE, LTD.
[redacted]

11 May 2007

Mr. Carl T. Hoffman, R.A.
Environmental Planning & Program Manager
HQ AFSOC/A7PP
427 Cody Avenue, Suite 303
Hurlburt Field, Florida 32544-5434

Re: **AFSOC ASSETS BEDDOWN AT CANNON AIR FORCE BASE, NEW MEXICO DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)**
or, ARE WE TO BELIEVE ANYTHING THE UNITED STATES AIR FORCE PROPOSES VIA NEPA?

Dear Mr. Hoffman:

Here we go again, having to comment, and to defend our property rights, in how the USAF is purporting not to disturb our livestock and hunting operations, damage or destroy our very valuable and necessary windmills and other buildings, facilities and personal property. Yet, in less than nine years time I've had to file nine damage claims. In my personal experience upon our 100% deeded, no public lands, ranchland in DeBaca County, New Mexico, USA, the USAF lies, libels, misrepresents facts, omits facts and FAA FAR, Part 91 violations, and is inept in legal presentations and knowledgeable in local repair costs, and livestock values, evolving from verifiable damage claims. My previous FAR and Cannon AFB NSA violation reports could not be identified by Cannon AFB personnel as they reported "…they didn't know where they were from." It is good to now know they were from Kirtland AFB, NM, all the time!

To review the disturbance and damages experienced and the underhanded history from the USAF and NGB, National Guard Bureau, I submit the following:

1) The 1978 NGB VFR MTR (now 1198/1107) was established with no local notification, confirmed by Mr. Lee Tillman, EPCOG, Clovis, New Mexico. There was gross conflict of the route height, 100' agl, versus the FAA FARs Part 91 vertical separation above cowboys and facilities. Numerous violations were reported but were conveniently omitted in the CHRONOLOGY reported to the Hon. Kay Bailey Hutchison, Senator, Texas, in a request via Congressional Inquiry Request in 1995. I have personal knowledge from a local participant along with the Inspector General, Col. Rogers, New Mexico National Guard, Santa Fe, NM. They set up a "sting" and almost immediately two NMANG A-7s violated the FAR over my ranch house on US 60, west of Fort Sumner, New Mexico. Why the omission? Also, in the route initiation propaganda from Wright Patterson, AFB. The chart depicting noise levels from various jet aircraft at various levels above ground failed to depict noises at 100' agl! Again, errors and omissions. The "Tacos" continuously flew lower than the "floor" of the 100' agl. Route. Note Exhibit #2.

2) The February 1987 agreement submitted by Col. Nicholson, Air Force Pentagon, not to overfly the ranch below certain altitudes, depicted by coordinates, was reneged/rescinded later that fall without any courtesy notification to me or without admission until presented by the same chronology at my ranch house in April 1995. What happened to the truth and integrity of the United States Air Force? Note Exhibit #3.

3) After continuing low overflight violations the next year, an NSA was established in December 1988, the very next year after the previous agreement was rescinded. After more violations and damage claims, it was expanded in January 1996, to 1500'agl for two nautical miles above and from my headquarters. For twenty-seven months (27), the "Tacos" continued to violate the new NSA because they forgot to add it to their FLIP chart!!! So what? It was continually violated, resulting in additional damage claims, even with annual phone calls to 27FW Public Affairs, Cannon AFB, NM, to remind them the NSA was there for a purpose with the annual practice of weaning calves under the NSA. Note Exhibit #4.

4) After a 1998 USAF scoping meeting in Fort Sumner, NM, Col. Phil Breedlove assured me if another FAR violation occurred to call him directly after reporting the incident via "the dog and pony show" to 27FW/PA. It did happen and I did report it to 27FW/PA as well as Col. Breedlove but, the "review of the tapes" continued for several months with each "explanation" getting farther away even though he did confirm that the two F-16s were at 450'agl. How'd he know that without confirming the proximity right over me and ranch HQ? After several months of absurd explanations, I requested an audience with then 27FW Commander Col. Jeffrey Remington. With all his staff present in his boardroom, and me in the "Commanders chair", he CYA'd the violation with the explanation that "…the avionics in the F-16 can be ten miles off!" What a crock!!!??? A twenty million dollar aircraft with "faulty avionics"? Can you believe that? Ironically, and coincidently, one of Col. Remington's staff members that was present at that meeting (note name page enclosed), was none other than one of your **RBTI SEIS** "scooping staff", at the DEC 05 Alpine, Texas meeting, Col. Joseph Miller. He had the audacity to remind me of that infamous meeting with that outrageous lie! Note Exhibit #5.

5) After I had notified 27FW/PA that we had, once again, as we do each year, weaned our calves, that is separating them from their mothers, the Cannon AFB hotdogs once again penetrated the NSA, 23 December 1999, resulting in livestock running through the five strand barb-wire fence. We missed being home for Christmas, you know, that holiday celebrated each year around December. We had to repeat the weaning process by catching horses, re-gathering the cows and calves, separating the calves,

driving the cows back to their respective pasture, repairing the busted fence, then returning the calves to their pasture, the weaning trap, in front of headquarters, well within the NSA. Why should we have to do this so often? Where's the respect? Note Exhibit #6.

6) Claim number six, 2 February 2001, involved the "Tacos". "Their very close and very low pass had nothing to do with my reaction to avoid being injured by an unknown aircraft crashing into my person." Remember, your continuous admission that the "startle effect" is imposed onto humans as well as livestock. The "tacos" presence was not responsible for my reactionary damages. Note Exhibit #7.

7) The damage claim 17 SEP 2001 involved a sonic boom. It remains uncompensated because the USAF will not compensate my time to report, find carpenters to see, acquire materials, and remedy the damage. Each function takes away my time from "my mission". And you claim little disturbance to the people on the ground, and their homes? Note Exhibit #8.

8) The **FINAL DEFENSIVE TRAINING INITIATIVE ENVIRONMENTAL ASSESSMENT, CANNON AIR FORCE BASE, NEW MEXICO, SEPTEMBER 2001**: First, USAF states that "trash" is not trash, it is left over material from its intended purpose, i. e., it is not "trash". Isn't all "trash" left over from its intended purpose? Col. Jeffrey P. Harrell, COL, USAF, Vice Commander, 27FW, in a letter dated 27 July 2005, calls it "debris" in an explanation to my three year old question. His explanation is for "trash" or "debris" of a type of flare not to be used outside Melrose Range! Not cleared by the **FEA NMDTI** of 2001!! In the last several years we have retrieved from our property numerous trash including end caps, metallic and fiber covered canisters and parts of trigger devices not disclosed in the EA, and wads of non-dispersed chaff, "trash" that is deployed upon private property. Copy of his letter enclosed. The explanation stated in the **EA** that …blowing dust is so bad in west Texas and eastern New Mexico that the "not trash" (but "debris") will be covered up by the dust. To investigate that absurd explanation, I requested, via FOIA, the source for that statement. USAF could not find the "source". Where did it come from? How can agriculture function if blowing dust is covering everything up? Why do we have the USDA? How can we grow forage to support our livestock? Pretty stupid isn't it? You've still condemned our property to deploy your "trash", not trash, but "residual debris", re: Letter from Col. Jeffrey Harrell, Vice Commander, 27FW, 27 July 2005, and is a violation of the FIFTH AMENDMENT to the UNITED STATES CONSTITUTION. What lies!!! CYA. At the **PRE-DRAFT SCOPING MEETING** held in Fort Sumner, NM, NOV or DEC 2006, Mr. Robert E. Van Tassel, with **TEC,** Boise, ID, admitted to me in front of several military and local New Mexicans that he had indeed authored that absurd statement! And we are to take you folks seriously? Note Exhibit #9.

NP-2

9) Then there is the fatal crash and total destruction of a 27FW F-16 within one mile of our house and HQ on 9 SEP 2002. We were, once again gravely interrupted by the crash, fires, fence damage, having to remove livestock for the USAF convenience,

the disturbance to properly wean our calves without the uninterrupted use of our weaning trap (pasture for those cowboy challenged!), death of a calf and occupation by USAF personnel for over three weeks. My son notified me 565 miles away in Uvalde and I notified Cannon Command and Control. They were not aware of the crash! My son who put out several grass fires and identified the pilot's remains was scheduled to be interviewed two days later. Maj. Thom Klopotek was the team member to take the interview. He came by himself with a handheld tape recorder and stated that he was going to record the statements. Both my son and I stated we had no problem with that as we both wanted the USAF to get the facts, all of the facts, right. At the same time, I told him that I was going to record the interview as well. Startled, he asked why and I told him that the USAF has a history of lying. He then stated that he would not record the interview! We both assured him that it was his duty as an AIB team member to record the facts. He shirked his responsibility and refused to record. I requested to copy his notes and he politely allowed me to copy them on my fax copier. I did but it was not what he presented to the AIB report (conveniently, covertly released on Christmas Eve morning, 24 DEC 2002) in that he omitted several entries, like other witnesses and the fact that the son had recovered the deceased pilot's scalp, and then libeled me in his after statement at the bottom of his report that I would not allow him to record the interview! Did that make you, the USAF look better? Why continuously lie to CYA, or whatever, Why must you destroy my character and reputation, when we're the ones being disturbed and inconvenienced? Where is the honesty in your statements that you have methods to file claims and your personnel are immune to be sued? Bull shit!!! There are numerous errors and omissions in the **AIB** report, e.g., numerous conflicting statements of elevation, incorrect legal description of crash site in clean-up report, false statement of forage reclamation (note picture taken three and one half years later), omission of BobCat trailer crash on return to Cannon, false reason of wreck of new fuel truck on NM SH 20, …where's the integrity? Where's the Secretary of the Air Force? And the 27FW/JAD offers fence construction and/or repair costs with a bulletin from IOWA STATE UNIVERSITY EXTENSION SERVICE? Folks, New Mexico topography and soil depth is quite different from Iowa! The 27FW hotshots decided to perform a missing man formation over the crash site, our HQ remember?, one week to the hour after the crash, and the additional noise and anxiety to my call to Public Affairs took over five months to confess, that it was they! The press release, 24 December 2002, differs from the **AIB SUMMARY** statement. Again, why? CYA? Note letter from Defense Finance and Accounting Service and E. Glenn Parr's letter; the procedure is "voluntary" but, the "…result in payment of your claim being delayed or denied." Denied? What continuing underhanded methods are we to be subjected to? Why? Note Exhibit #10.

10) We have had one windmill blown over. How? CAT (**C**lear **A**ir **T**urbulence for the ignorant) at the surface with no reported extreme winds during that time? Yes, we are reduced to having to carry a camera to verify your inconsideration to "our mission", but, to be everywhere with a camera is a near impossibility.

SA-3

Another fairly recent problem is the USAF has not included final public comments to public advertised Draft EAs and EISs. Examples are **DRAFT INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN** for Cannon AFB and Bombing Range Melrose, May/June 2003. You appear to have some of the same wildlife problems as we are experiencing with low populations …low flying jets, noise, and startle effect? The lessee's names were "blacked out" for what reason? Isn't this "Public Information"? By the way, you missed "blacking out" one entry but, I knew who it was anyway. Why the secrecy? Another is not to disclose solicited written comments to the **NEW MEXICO TRAINING RANGE INITIATIVE (NMTRI)**. These solicited public comments were not included in the DRAFT publication, what are you hiding? Public outcry? You wanted our input on how the proposed propaganda would affect our lives and yet you fail to include them for further public scrutiny. Why? **NP-1**

Because of the time extension to submit comments on the **SEIS RBTI,** I submitted two letters. I was caught without my "Exhibits" where I was writing from on 31 DEC 2005. With the (At Alpine, Texas, scoping meeting the public requested more time for such short notice) extended comment time period, as noted in the FEDERAL REGISTER, I submitted a second letter complete with Exhibits. In the **FINAL SEIS RBTI,** the United States Air Force elects to totally exclude my numerous exhibits proving the chicken-shit tactics and libel you choose to project upon the United States citizens to achieve your "mission" through fraudulent statements, errors and omissions.

1) Page 5-37, SEC 5.6.3.1 and page 5-41, TABLE 5.6-2 address noise consequences. Your proposed night fling sorties will disturb more than livestock and wildlife. You will disturb the farmers and ranchers that sleep during the nights to rest for the extended hours of work dedicated to putting food on your tables. As always, with each reference to noise levels, the decibel levels are averaged (compromised) over a "standard 24 hour period"! No worries! No bother, only to the people being disturbed! My annual repeated attempts to notify Cannon AFB PA and Airspace Manager not to overfly the NSA (1988, expanded 1996) seem to fall on disinterested pilots that cause the damages referenced on page 5-40, "Livestock". **NO-1**

2) Page 5-66, SEC 5.8.3 Increased noise will be averaged over a 24 hour period… no worries, all below USEPA concerns… Chaff and flare "residual debris" is still not welcome and is littering upon private property. Again, "authorized by fraudulent statements" via the 2001 **EA** Chaff and flare use in PECOS MOA, more trash will be deposited upon private property, 355 and ½ by your annual projection, page 5-68. We should not have to police your activities to keep our property clean and safe for our livestock and wildlife. **LU-3**

3) APPENDIX A, Page A-1. You fail to mention the additional parts or whole other components that fall upon our ranches. As noted above, canisters, trigger devices, non-authorized to deploy over private property chaff/flares 2x1" plastic end caps are omitted from your declaration. Why can't you be truthful? **LU-4**

4) APPENDIX B, Page B-1. Your presentation finally discloses the truth that has been omitted previously that more "trash" falls upon private property, oh excuse me, "approved areas". This accumulation of unwelcome littering causes additional aggravation and effort to retrieve your trash. You also fail to enumerate what volume of flares will be deployed. The witnessed incidents that USAF has recently chosen to deploy flares over the Fort Sumner area are startling. In just the past several weeks flares were deployed during extremely windy conditions. Remember the burning of tens of thousands of acres of eastern New Mexico from incendiary devices deployed by B-1 bombers? This was after numerous complaints and references to accumulating tumble-weed and trash accumulation along AF Range Melrose boundary fences during the scoping sessions for **EIS NMTRI**. A lot of damage claims could have been eliminated by preventive action. So what? Who cares? The USAF continuously doesn't. **DO-4** **SA-4**

Now, Mr. Hoffman, the United States Air Force has a duty to protect and defend our Constitution, including and not excluding the Fifth Amendment, to prohibit our government from condemning, from taking, our private property without due process and without compensation. For the past thirty some odd years, the USAF has been condemning our property through lies, fraud, libel, errors and omissions and inconsideration for our property rights. Again, if this is "so good", and necessary for the "USAF mission" and for the "common good" of the people of our United States, then the abuse, libel, character assassination, property condemnation, and lack of consideration, should be shared with the populace, the cities of Clovis and Portales (Did you hear "the giant sucking sound" as the speakers from Clovis and Portales "puckered-up" to welcome you at the Clovis scoping meeting? Wow!!), the National Forests, National Parks, etc., and not just the minority, production agriculture. Why are our "rights" inferior with the rest of the country? Please explain.

I'm not holding my breath as you, the USAF, has chosen not to answer questions from the public requested in our submitted comments. We've been sold out by our governor, state and federal politicians, you should be proud that the CLOVIS NEWS-JOURNAL is conspiring to keep you boys safe in denying my "Letters to the Editor" to be published with proof that the USAF lies. You should be proud.

Sincerely yours,

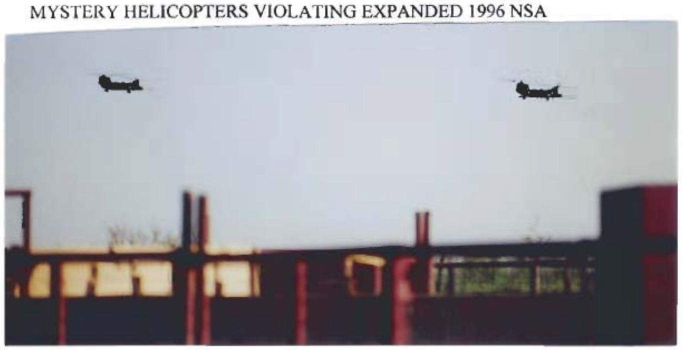
A. S. Elliott

A. S. Elliott
Individually and as Managing Partner, El Bigote Cattle Co., L.L.C.
And as Managing General Partner, Gottomitee, Ltd.

Encls.

DRAFT EIS AFSOC 11 MAY 07

MYSTERY HELICOPTERS VIOLATING EXPANDED 1996 NSA



TRASH NOT DISCLOSED OR APPROVED BY 2001 EA/CHAFF & FLARES

CRASH SITE 9 SEP 2002 LESS THAN ONE MILE FROM NM RANCH HOME

015

INJURY, OR DEATH — necessary. See reverse side for additional instructions. — 1105-0008 EXPIRES 4-30-

1. Submit To Appropriate Federal Agency:

2. Name, Address of claimant and claimant's personal representative, if any. *(See instructions on reverse.) (Number, street, city, State and Zip Code)*
A. S. Elliott
[redacted]
EX 1

3. TYPE OF EMPLOYMENT	4. DATE OF BIRTH	5. MARITAL STATUS	6. DATE AND DAY OF ACCIDENT	7. TIME (A.M. OR P.M.)
☐ MILITARY ☒ CIVILIAN	21 JUN 46	M	22-25 DEC 93	UNKNOWN

8. Basis of Claim *(State in detail the known facts and circumstances attending the damage, injury, or death, identifying persons and property involved, the place of occurence and the cause thereof) (Use additional pages if necessary.)*

I weaned our 1993 calf crop on or about 21DEC93 and they were in the herd trap just east of my house. The next day, and for the next three days I had to patch a five strand 12½ga domestic barbwire fence on the south and west sides of said trap and recover calves that had escaped and remove cows that had entered the trap. We've never experienced such "break-outs" before even with foreign imported calves. I had tickets to attend the John Hancock Bowl on CHRISTmas eve with my family andmy wife's family. I was unable to leave the ranch because I had to patch the fence and recover the calves dail After trying to ascertain just why I was having to patch fence this year and never before, I remembered the F-111's flying over that corner @below 100'A both day and night; North to South, and East to west over that corner.

9. PROPERTY DAMAGE

NAME AND ADDRESS OF OWNER, IF OTHER THAN CLAIMANT *(Number, street, city, State, and Zip Code)*

BRIEFLY DESCRIBE THE PROPERTY, NATURE AND EXTENT OF DAMAGE AND THE LOCATION WHERE PROPERTY MAY BE INSPECTED. *(See instructions on reverse side.)* Five 5½' steel T posts were bent over and broken, 6-7 different (I counting)locations were wire stretched and wire replaced along with clips and tie wire. Saddled horses, time spent gathering cattle, unable to attend game Jim Bryant, CAFB, inspected SW cor SEC1,T1N, R24E,NMPM

10. PERSONAL INJURY/WRONGFUL DEATH

STATE NATURE AND EXTENT OF EACH INJURY OR CAUSE OF DEATH, WHICH FORMS THE BASIS OF THE CLAIM. IF OTHER THAN CLAIMANT, STATE NAME OF INJURED PERSON OR DECEDENT.

NOTE: I have complained before about low flying F-111 aircraft over my house corrals, and ranch personnel. I've made several personal trips to OPERATIONS CENTER on Cannon AFB, to show numerous officers where my house is located. AF personnel continue to abuse flight restrictions and FAR's. NOTE ENCLOSED CORRESPONDENCE

11. WITNESSES

NAME	ADDRESS (Number, street, city, State, and Zip Code)
Jan Elliott (Wife) Benjamin Elliott Stephen Elliott Erin Elliott Rebecca Elliott	[redacted]

12. *(See instructions on reverse)* AMOUNT OF CLAIM *(in dollars)*

12a. PROPERTY DAMAGE	12b. PERSONAL INJURY	12c. WRONGFUL DEATH	12d. TOTAL (Failure to specify may cause forfeiture of your rights.)
Material: $ 25.00 Labor 400.00	Unable to attend game: $500.00	Calves were cut but, did not die	$925.00

I CERTIFY THAT THE AMOUNT OF CLAIM COVERS ONLY DAMAGES AND INJURIES CAUSED BY THE ACCIDENT ABOVE AND AGREE TO ACCEPT SAID AMOUNT IN FULL SATISFACTION AND FINAL SETTLEMENT OF THIS CLAIM

13a. SIGNATURE OF CLAIMANT (See instructions on reverse side.)	13b. Phone number of signatory	14. DATE OF CLAIM
A. S. Elliott 28 FEB 94	[redacted]	22-25DEC93

CIVIL PENALTY FOR PRESENTING FRAUDULENT CLAIM

The claimant shall forfeit and pay to the United States the sum of $2,000. plus double the amount of damages sustained by the United States. *(See 31 U.S.C. 3729.)*

CRIMINAL PENALTY FOR PRESENTING FRAUDULENT CLAIM OR MAKING FALSE STATEMENTS

Fine of not more than $10,000 or imprisonment for not more than 5 years or both. *(See 18 U.S.C. 287, 1001.)*

95-107 NSN 7540-00-634-4046
Previous editions not usable.
28 CFR 14.2

Exhibit H

ENCLOSED: 13 FEB 87 LETTER DESCRIBING

CLAIM FOR DAMAGE, INJURY, OR DEATH

INSTRUCTIONS: Please read carefully the instructions on the reverse side and supply information requested on both sides of this form. Use additional sheet(s) if necessary. See reverse side for additional instructions.

FORM APPROVED OMB NO. 1105-0008 EXPIRES 4-30-88

1. Submit To Appropriate Federal Agency:

2. Name, Address of claimant and claimant's personal representative, if any. *(See instructions on reverse.) (Number, street, city, State and Zip Code)*

A. S. Elliott
[redacted]

3. TYPE OF EMPLOYMENT	4. DATE OF BIRTH	5. MARITAL STATUS	6. DATE AND DAY OF ACCIDENT	7. TIME *(A.M. OR P.M.)*
☐ MILITARY ☒ CIVILIAN	21JUN46	Married	4-9NOV94, Friday-Wednesda	Day/Night

8. Basis of Claim *(State in detail the known facts and circumstances attending the damage, injury, or death, identifying persons and property involved, the place of occurence and the cause thereof) (Use additional pages if necessary.)*

I weaned 141 calves on Sunday, 30OCT94, and left in pens overnight. I released the calves the next morning onto feed and water here at HQTRS. I called Cannon AFB, Public Affairs, same day, 31OCT94, to advise them of my operation and to ask/advise them not to overfly like last year causing excitement of animals & damage to fence and injury to livestock. Since it was a "Gold Day", I was told no military personnel were on duty; off trick or treating, I presume. I spoke with a civilian personnel. He assured me he would pass on the call. I fed and counted all 141 head until I left ranch on PM of 4NOV94. Upon my return, I discovered 4 h[illegible]ed missing & fence damaged; 2 wires broken, 2 steel "T"posts broken, and r[illegible]ing wires (3)had to be re-stretched. Fixed fence & gathered 3 hea[illegible] 1 on 10NOV94, 2 on 25NOV94, 1 found dead, 137 remained in trap. I took pictures

9. PROPERTY DAMAGE

NAME AND ADDRESS OF OWNER, IF OTHER THAN CLAIMANT *(Number, street, city, State, and Zip Code)*

BRIEFLY DESCRIBE THE PROPERTY, NATURE AND EXTENT OF DAMAGE AND THE LOCATION WHERE PROPERTY MAY BE INSPECTED. *(See instructions on reverse side.)* Same as last year! S fence, Sec1,T1N,R24E,NMPM, DeBaca Co NM. Spliced -12½ga domestic barb wires, re-stretched all five, and will have to replace 2 steel "T" posts. Two cowboys gathered calves from adjacent pasture.

10. PERSONAL INJURY/WRONGFUL DEATH

STATE NATURE AND EXTENT OF EACH INJURY OR CAUSE OF DEATH, WHICH FORMS THE BASIS OF THE CLAIM. IF OTHER THAN CLAIMANT, STATE NAME OF INJURED PERSON OR DECEDENT. NOTE: See claim of 22-25DEC93, submitted 28FEB94
B1 Bomber aircraft were seen and felt flying at extremely low altitudes over my pickup truck while feeding my livestock both before and after this damage clai[illegible] They wre flying some DOD certification out of HIAC (nee Walker AFB), Roswell, [illegible] I have pictures and witnesses. While I was feeding, I saw no F-111's, nor F-1[illegible]

11. WITNESSES

NAME	ADDRESS *(Number, street, city, State, and Zip Code)*
George Franklin Pat Morris Cowboys: Benjamin Elliott Stephan Elliott	[redacted]

12. *(See instructions on reverse)*

12a. PROPERTY DAMAGE	12b. PERSONAL INJURY	12c. WRONGFUL DEATH	12d. TOTAL *(Failure to specify may cause forfeiture of your rights.)*
Material: $ 5.00 Labor: 300.00	Inconvenience	1 Steer Cf:$475.00	$780.00

I CERTIFY THAT THE AMOUNT OF CLAIM COVERS ONLY DAMAGES AND INJURIES CAUSED BY THE ACCIDENT ABOVE AND AGREE TO ACCEPT SAID AMOUNT IN FULL SATISFACTION AND FINAL SETTLEMENT OF THIS CLAIM

13a. SIGNATURE OF CLAIMANT *(See instructions on reverse side.)*	13b. Phone number of signatory	14. DATE OF CLAIM
A. S. Elliott	[redacted]	27NOV94

CIVIL PENALTY FOR PRESENTING FRAUDULENT CLAIM
The claimant shall forfeit and pay to the United States the sum of $2,000. plus double the amount of damages sustained by the United States. *(See 31 U.S.C. 3729.)*

CRIMINAL PENALTY FOR PRESENTING FRAUDULENT CLAIM OR MAKING FALSE STATEMENTS
Fine of not more than $10,000 or imprisonment for not more than 5 years or both. *(See 18 U.S.C. 287, 1001.)*

95-107 NSN 7540-00-634-4046 S[illegible] F[illegible] :E
Previous editions not usable. 28 CFR 14.2

Exhibit I

015

CLAIM FOR DAMAGE, INJURY, OR DEATH

INSTRUCTIONS: Please read carefully the instructions on the reverse side and supply information requested on both sides of this form. Use additional sheet(s) if necessary. See reverse side for additional instructions.

FORM APPROVED OMB NO. 1105-0008 EXPIRES 4-30-88

1. Submit To Appropriate Federal Agency:

27 FW JAD
101 S DL Ingram Blvd
Cannon AFB, NM 88103-5219

2. Name, Address of claimant and claimant's personal representative, if any. *(See instructions on reverse.) (Number, street, city, State and Zip Code)*

A S Elliott
[redacted]

3. TYPE OF EMPLOYMENT	4. DATE OF BIRTH	5. MARITAL STATUS	6. DATE AND DAY OF ACCIDENT	7. TIME *(A.M. OR P.M.)*
☐ MILITARY ☒ CIVILIAN	21JUN46	M	14MAR96, Thursday	1455

8. Basis of Claim *(State in detail the known facts and circumstances attending the damage, injury, or death, identifying persons and property involved, the place of occurence and the cause thereof) (Use additional pages if necessary.)*

I was in my house(Cannon AFB NSA, DEC88) and heard aircraft approaching at low close range as they too often do. I ran outside and viewed a B-1B pass directly over my house at about 200'AGL. I looked up and right above me was the left engines pod and left wing attachment to the fuselage. I immediately called Cannon AFB Public Affairs and reported the violation of FAR and NSA. I also called Mr. Jerry Yudusa, Langly, VA, and as I was speaking with him, the aircraft (same or second) made a second extremely low pass just south of my ranch HQTRS. I later discovered a yearling filly was out from running into barbed wire fence, several posts and barbwire broken from excited livestock running over it, and 1 yearling heifer with severed hooves from barbed wire.

9. PROPERTY DAMAGE

NAME AND ADDRESS OF OWNER, IF OTHER THAN CLAIMANT *(Number, street, city, State, and Zip Code)* POB 58

Heifer is owned by partnership, GOTTOMITEE, affadavit attached. FT SUMNER, NM 88119

BRIEFLY DESCRIBE THE PROPERTY, NATURE AND EXTENT OF DAMAGE AND THE LOCATION WHERE PROPERTY MAY BE INSPECTED. *(See instructions on reverse side.)* 1 horse, out on left hip, trap fence west of HQ, yearling heifer in corral @HGTRS, Sec 2, T1N, R24E, NMPM. three fence posts were replaced and wire patched.

10. PERSONAL INJURY/WRONGFUL DEATH

STATE NATURE AND EXTENT OF EACH INJURY OR CAUSE OF DEATH, WHICH FORMS THE BASIS OF THE CLAIM. IF OTHER THAN CLAIMANT, STATE NAME OF INJURED PERSON OR DECEDENT. Horse was out on fence, not sutured, but scarred. Heifer's hooves(front, both feet) were severed typical with cattle getting caught in barbed wire and trying to reverse themselves to escape. From the evidence of the broken/laid over fence, the cattle were excited over the fence and one heifer was caught within the wires severing the hooves while escaping. Heifer was penned, doctored, and fed until released on 1JUL96.

11. WITNESSES

NAME	ADDRESS *(Number, street, city, State, and Zip Code)*
None other than Jerry Yudusa heard second pass over phone.	Airspace Person address unknown other than phone number in Langley, VA

*Note: Pictures taken by JAD personnel 10-14days after, maybe longer.

12. *(See instructions on reverse)* AMOUNT OF CLAIM *(in dollars)*

12a. PROPERTY DAMAGE	12b. PERSONAL INJURY	12c. WRONGFUL DEATH	12d. TOTAL *(Failure to specify may cause forfeiture of your rights.)*
Fence:Lbr&Mtl=112. Hfr:Vet&feed:102d	wge $10/day=$1020. Total=$1132.		$1132.00 US

I CERTIFY THAT THE AMOUNT OF CLAIM COVERS ONLY DAMAGES AND INJURIES CAUSED BY THE ACCIDENT ABOVE AND AGREE TO ACCEPT SAID AMOUNT IN FULL SATISFACTION AND FINAL SETTLEMENT OF THIS CLAIM

13a. SIGNATURE OF CLAIMANT *(See instructions on reverse side.)*	13b. Phone number of signatory	14. DATE OF CLAIM
A S Elliott	[redacted]	1JUL96

CIVIL PENALTY FOR PRESENTING FRAUDULENT CLAIM
The claimant shall forfeit and pay to the United States the sum of $2,000 plus double the amount of damages sustained by the United States. *(See 31 U.S.C. 3729.)*

CRIMINAL PENALTY FOR PRESENTING FRAUDULENT CLAIM OR MAKING FALSE STATEMENTS
Fine of not more than $10,000 or imprisonment for not more than 5 years or both. *(See 18 U.S.C. 287, 1001.)*

95-107 NSN 7540-00-634-4046 STANDARD FORM 95 (Rev. 7-85)
Previous editions not usable ***NCIS: 1)Partner affadavit [illegible] PRESCRIBED BY DEPT. OF JUSTICE
[illegible] 28 CFR 14.2

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 27TH FIGHTER WING(ACC)
CANNON AIR FORCE BASE, NEW MEXICO

12 April 96

27 FW/PA
100 S DL Ingram Blvd Suite 102
Cannon AFB NM 88103-6216

Mr A. S. Elliott
[redacted]

Dear Mr Elliott

I am writing to you in response to your noise complaint about a B-1 bomber penetrating your avoidance area March 14.

An investigation has revealed that two B-1s from Dyess Air Force Base, Texas, penetrated the avoidance area while participating in a combined mission with one of our squadrons. The Cannon squadron had reserved the Pecos military operating area with our scheduling office and invited the B-1s to join the mission.

The local squadron point of contact did not ensure the "strange user" B-1s had a copy of the appropriate avoidance area listing. The B-1 crews did not request a strange user military operating aera briefing from the airspace management office and the penetration of your avoidance area was a result.

As always we will continue to stress the importance for Cannon aircrews, as well as other operators of military aircraft, to fully comply with all Federal Aviation Adminstration and Air Force regulations regarding the use Cannon airspace.

Sincerely

DONNA LIEBER, SrA, USAF
Chief, Community Relations

015

Ex #2

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON, D.C.
Office of the Air Force Representative
FAA Southwest Region

Mr. Tex Elliott
[redacted]

5 May 1981

Dear Mr. Elliott

This letter is to advise you of action taken subsequent to the 29 March 1981 overflight of your ranch.

Headquarters 9AF, Shaw AFB, SC and Headquarters Tactical Air Command, Langley AFB, VA have investigated this particular overflight and have taken action to correct the matter. The crew of that aircraft was not properly briefed on the Special Operating Procedures regarding overflight of your ranch. The action taken by Tactical Air Command should insure that aircrews are made aware of such procedures and thereby reduce the annoyance to you.

Sincerely

WM Whorton
WILLIAM M. WHORTON, Lt Colonel, USAF
Air Force Representative
FAA Southwest Region

015

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 27TH TACTICAL FIGHTER WING (TAC)
CANNON AIR FORCE BASE, NM 88101

26 OCT 1981

REPLY TO ATTN OF: CC

SUBJECT: Complaint Regarding Usage of Route VR-198

TO: 150TFG/CC

1. Cannon Air Force Base representatives met recently with Mr Tex Elliott, a rancher from the Ft Sumner area, at the request of the Congresional Inquiry Division, HQ USAF. Mr Elliott has filed frequent complaints regarding low-level flights by users of VR-198 and, in particular, the 150th TFG, New Mexico Air National Guard. Although restrictions have been placed on the use of VR-198 over the Elliott property, it is obvious that some crews have not gotten the word.

2. Initial restrictions were announced for VR-198/1107 route on 17 February 1981. Recent coordination with Albuquerque Center confirms that scheduled traffic is being briefed on these restrictions. I cannot re-emphasize enough the need for all crews to observe the restrictions over and around Mr. Elliott's home and ranch headquarters. While Mr Elliott's expressed intention of filing a legal action for inverse condemnation of his property may stand little chance for success, valuable time and assets of both the USAF and NMANG will obviously be tied up unless future incidents can be avoided.

3. With the foregoing considerations in mind, I solicit your future cooperation to assure that aircrews are both briefed and encouraged to avoid future provocation of Mr. Elliott. Thanks for your help with a sensitive problem.

William K. James
WILLIAM K. JAMES, Colonel, USAF
Commander

Airpower is our Profession

Reid 3FEB82

STATE OF NEW MEXICO
OFFICE OF MILITARY AFFAIRS
MILITARY DIVISION
SANTA FE 87501

FRANKLIN E. MILES
MAJOR GENERAL
THE ADJUTANT GENERAL

NMAG 1 February 1982

SUBJECT: Complaints of A. S. Elliott

COL David L. Quinlan
HQ, 150th Tactical Fighter Group
P. O. Box 5510
Kirtland AFB, NM 87185

1. Attached is the latest correspondence of Mr. A. S. Elliott to Representative Colin R. McMillan. I have read his letter very closely and someone is lying to someone or there is a tremendous lack of communication with your staff.

2. In the letter prepared for my signature you definitely list LTC Seymore, 12AF/IG as one of those people in agreement with your cause; however, according to Mr. Elliott, LTC Seymore claims to be unaware of the problem. Lack of communication? His little remark about change of command is of no importance since that is a 1981 development and you were talking about 1980.

3. I was also informed by you that there would not be anymore flights over his property until this matter was settled. Colonel Rogers informs me that this was his understanding also. Evidently, flights were still made over his property on the 9th and 13th of January. Somewhere there is a misunderstanding, lack of communication or complete disregard of your directive.

4. He has made an offer for me to review these flights from his home and I plan to take him up on this invitation.

015

NMAG 1 February 1982
SUBJECT: Complaints of A. S. Elliott

5. This matter needs to be settled and if it cannot be settled any other way, I will have to call for an investigation or audit by the National Guard Bureau and/or Air Force to determine a solution to this problem.

Franklin E. Miles
FRANKLIN E. MILES
Major General, NMARNG
The Adjutant General

CF: Rep Colin R. McMillan
COL Rogers
Mr. A. S. Elliott

TEX

A2

EL BIGOTE CATTLE CO.

A. S. "TEX" ELLIOTT

[redacted]

3 February, 1982

Franklin E. Miles, MajGen
The Adjutant General
Office of Military Affairs
P. O. Box 4277
Santa Fe, New Mexico 87501

Dear MajGen Miles:

Thank you for the copy of letter of 1Feb82 to Col David Quinlan, HQ, 150TFG. It now seems that I've got your attention of what I've been saying all along, i.e., that the 150TFG "speak with forked tongue!"

QUINLAN WROTE IT MILES SIGNED IT!

I'm especially concerned about the second paragraph, though. Did Col Quinlan prepare "your" letter for your signature? Or, just who did write the letter? Because it sure substantiates my claims of the complete irresponsibility of the NMANG and especially your status.

Paragraph three omits the third flyover of the letter date, 28Jan82. Just one more incident...

You are most welcome to view the antics of the 150TFG from my house. If you remember, I have offered this opportunity over the phone before. Please advise a few days in advance when you'd like to come down so that I can get a disinterested third party to witness, i.e. the DeBaca County Sheriff, John McBride. You can then have the A-7's fly by "7-8nm away" and we'll look for them. Feel free to invite Col Rogers, Col Quinlan, Gov King, IG 12th and/or 9thAF, etc., etc.

HAS FAILED TO DO

I hope that the newspaper clipping struck home. Isn't that a waste to look forward to? Is moving your route over a few miles too much to ask for the safety of my family?

May I suggest, Sir, that you re-read my correspondence regarding the continued threats to shoot your aircraft... You and whoever is writing your letters are putting yourself in a position for a serious libel suit. Especially with the next to last paragraph, page two. The letter is dated, 29Jan81, and if that is a "threat to shoot at aircraft...", you are a fool. I have talked numerous times with Joel Carlson, ABQ FBI, and demanded an interview with Clovis, NM, FBI Agent Les Vannatta last year. You might want to verify this as you and/or Col Quinlan continuously fail to mention it. If I was a real threat to your 150TFG, the FBI would already have me in the slammer.

I notice, too, in your letter to me on 25Nov81, first paragraph: "...pilots are still required to avoid it (my house) by 2nm if below 1500'AGL. This is in accordance with your desires as expressed in

ERANGUS - HEREFORD - CHAROLAIS - CROSS / STOCKER AND FEEDER CATTLE

015

your (my) letter of 29Sep80 to LtCol Whorton." If you will read my original letter, nowhere in it do I say "avoid my house by 2nm if below 1500'AGL"! The "if below 1500'AGL is something that you've invented for obvious reasons. If you will also read the letter to LtCol McCasney, 1Jul81, from my attorney Robert Hammend, you will see the words "...prevent flying within 2nm of Mr. Elliott's house and lower than 1500 feet would be satisfactory." Surely you can read, Sir. The key word is prevent, see it? You again twist the facts in your letter to me, 25Nov81. And then you claim that I change my demands at times?! Continued misstatements of the facts is what really bothers me, Sir. You are painting yourself into a corner and I hope our government representatives can see this blatant manipulation of the facts. All this correspondence will come out in court to prove my allegations are not false. This is why I have to question your competency.

You keep defending your need of using the Yeso Wash (Creek), 13Jan82, for "a natural terrain masking feature for aircraft...". But, only one incident occured in the entire Yeso Wash watershed; that of 17Feb 81, when I personally complained to you by telephone. That, as well as the subsequent PIF Order are omitted by you (or Col Quinlan!) in your letter to Representative McMillan. Wasn't that violation of FAR's more significant than that? Which one of you two forgot that little incident?

Other omissions in "your" letter to Rep McMillan, some directly to you, from 25Mar81 to 22Oct81, only compounds your and/or Col Quinlan's incapacity to tell the whole true story. Do you seriously think that we are naive enough to believe that you're not just covering your mistakes by conveniently omitting the facts? Really, Sir!

For the record, LtCol ~~Seymour~~ SEYMORE was going to transfer my complaint to 9thAF/IG. If I heard nothing from them in short time, then I am to call Col Seymour back and he will personally follow up.

Four of your five "...independent individuals/agencies..." you mention are military- that's independent? The other one mentioned, Mr. Upchurch, AOPA, has only said that LtCol Whorton, AF Rep, FAA, SW Region, said my "specifics"of 29Sep80 letter are going to be met and strictly enforced." I can't figure out why "you" listed him at all. Excuse me, Sir, but I just have to laugh at your letter of 13Jan82, an exact copy, for the most part, of your letter of 12Dec80 to Senator Harrison Schmitt.

Coordinate your boys and "Come On Down!" But, let's get serious and be able to converse in an objective and intelligent manner. You have not shown me that to date.

cc: Colin McMillan
Hoyt Pattison
Col Rogers, IG 12
LtCol Seymore, 9thAF/IG
Gov King
Robert Hammond

Sincerely yours,

A. S. Elliott

A. S. ELLIOTT

SHOULD HAVE BEEN LtCol SHIELDS.

5 February, 1982

Colin R. McMillan
State of New Mexico
House of Representatives
Santa Fe, New Mexico 87503

Dear Colin:

By the content of MajGen Miles letter to you, I felt that I was getting the same old runaround that I've gotten from USAF Pentagon officials from inquiries from "Our Boys in Washington". You asked for a list of incidents, which I supplied you. Then here comes the Adjutant General's letter and he, for obvious reasons, omits things that he was personally responsible for!

It is evident now, that from the letter to Col Quinlan (Yes, I had received my copy.), that Gen Miles did not write his own letter! Now, aren't you even more concerned? That guy is a joke! Does he really believe that we can't see through all that?

By now you should have received your copy of my answer to his letter of 13Jan82 to you (I'm still laughing!) and the 1Feb82 letter to Col Quinlan, CO, 150TFG. This is just another verse to the same old song; Encourage them to tell the whole complete story and correct the manipulation and misstatement of facts.

The agreement Gen Miles questions Col Quinlan about is just another example of the strength of "their agreements". I was glad to read that the AG was finally getting concerned. But then, his capacity of office is now on the line.

Yes, I've been very frustrated and I hope you can read why. It's all there in the letters; the outright lying, the omission of and twisting of the facts, ignorance, irresponsibility and incompetency. Yes, by all means "Charge On". The investigation by the Inspector General, Col Rogers, may be too "independent" in that he is military too! Can you believe it? The IG did say that he was going to make a complete investigation of my problems... We'll see. I've heard nothing as yet.

Thanks again. If you want me to come up and state my case, just advise. I,too, am looking forward to the AG's visit to witness the A-7's from 7-8nm away, ha!

Sincerely yours,

A. S. Elliott

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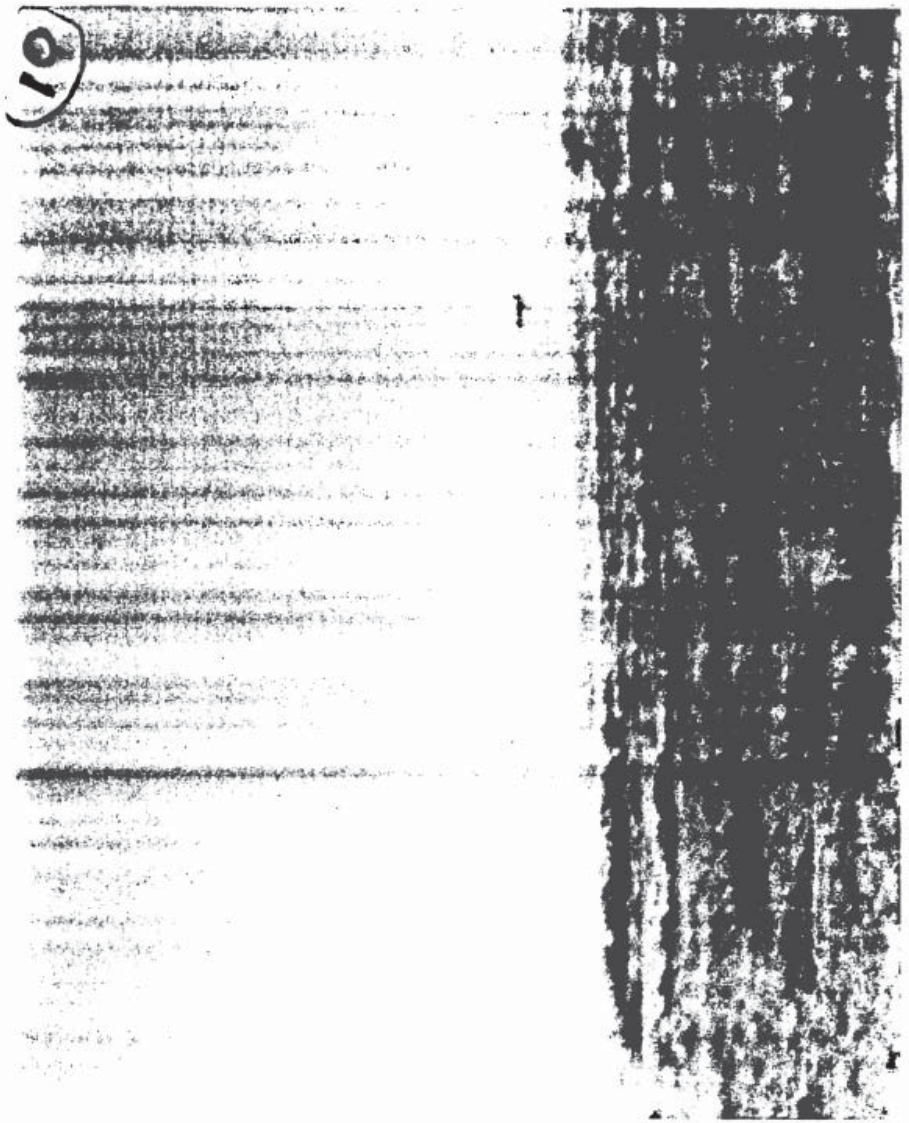


DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON, D.C.

3 SEP 1982

Mr David Spoede
[redacted]

Dear Mr Spoede

Attached is a copy of the environmental assessment for the VR (visual flight rules) military training routes you requested from Maj Bill Gauntt (Atch 1). Unfortunately, page 2 of the original assessment is missing but will be forwarded per your conversation with Maj Gauntt on 27 August. The two VR routes that overfly Mr Elliott's ranch were originally a single route numbered VR 165. Attachment 2 is a copy of the original route submission for XVR 165. Attachment 3 is a copy of the environmental certification, dated 13 Jun 78, by the HQ Tactical Air Command Director of Engineering and Construction. Mr Elliott has already been provided a copy of the 13 July 78 letter that changed the route designation from VR 165 to VR 198. The route was approved and published later that year as VR 198.

In 1980, the route was slightly modified and increased in length per the changes indicated in the letter at attachment 4.

In 1981, the reverse direction route, VR 1107, was submitted and approved. The route is identical to VR 198 except that it is flown in the opposite direction. The route was environmentally certified based on the previous assessment of VR 198 (VR 165).

As you can see from the paperwork and various levels of approval the routes must be processed through, there is an extensive review process completed before a military training route is used. These routes are necessary in order for aircrews to become proficient in accomplishing low altitude penetration techniques.

Please excuse the tardiness of our reply, but I trust this information will assist you in helping Mr Elliott reach an agreeable solution with the New Mexico Air National Guard concerning his complaints.

Sincerely

BRYAN D. STRICKLAND, Col, USAF
Chief, Airspace & ATS Division
Directorate of Operations

4 Atchs
1. Environmental Assessment
2. Original Route Submittal
3. Environmental Certification
4. Route Modification

015

w/ LETTER 3 SEP 82 ← STRICKLAND

DEPARTMENT OF THE AIR FORCE

TACTICAL AIR COMMAND

ENVIRONMENTAL ASSESSMENT
(Revised)

MILITARY TRAINING ROUTES VR-102, VR-165

KIRTLAND AFB, NEW MEXICO
15 May 78

Prepared By:

William H. White, Capt, NMANG
Low Level Management Officer
150TFG/DO
Kirtland AFB, NM 87103
Autovon: 964-9746

Approved by:

David L. Quinlan, Lt Col, NMANG
Commander

WILLIAM E. RAINS, Colonel, USAF
Chairman, Command Environmental
Protection Committee

Prepared in accordance with AFR 19-2 in compliance with the National Environmental Policy Act of 1969.

Attachment #1

Atch #1

XVR-102: El Paso-Las Cruces-Alamagordo Interstate - AQCR 153.
Augustine Plains Intrastate AQCR 156.

All four AQCR's meet Federal Air Pollution Standards except as follows:

AQCR 153: Particulate Matter

AQCR 155: Carbon Monoxide

This information was obtained from 197 EPA-450/2-77 Air Quality Data 1975 Annual Statistics.

(5) Emission factors and fuel flow used are for the A-7D. Pollution for other types of aircraft can be computed using the above formula.

(6) Fuel dumping is not permitted below 5,000' AGL.

(7) It must be remembered that all pollutants will be distributed approximately evenly along the entire route.

b. Noise

(1) Overall day-night noise levels (Ldn) were calculated for aircraft presently operating within Local MTR boundaries and are shown in the following table. The figures were supplied by the Aerospace Research Laboratory, Wright-Patterson AFB, Ohio. No data is available for 100 ft.

ALTITUDE ABOVE GROUND LEVEL IN FEET - AGL

Sorties/Day	200 FT			500FT			1000 FT			2000 FT		
	10	30	50	10	30	50	10	30	50	10	30	50
AIRCRAFT TYPE												
F-4	72	77	79	67	72	74	63	68	70	58	63	65
F-5/T38	57	61	64	52	56	59	47	52	54	42	47	49
F-100	65	70	72	62	67	69	56	61	63	51	56	58
F-111	66	71	73	61	66	68	57	61	64	51	56	58
A-7	59	64	66	54	59	61	49	54	57	44	49	51
A-37	59	63	66	54	58	61	49	54	56	44	49	51

(2) The following information can be used for interpreting Ldn noise values. It was extracted from "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety," March 1974, Environmental Protection Agency, Publication Number 550/9-74-004.

Attachment #1

(a) In outdoor areas where people spend widely varying amounts of time and other places in which quiet is not a basis for use, an Ldn level of 55 causes interference and annoyance.

(b) In outdoor areas where people spend limited amounts of time and in indoor residential areas, an Ldn level of 45 causes interference and annoyance.

(c) These levels are not to be construed as standards, as they do not take into account cost or feasibility. Nor should they be thought of as discrete numbers since they are described in terms of energy equivalents. It is the EPA's judgment that the maintenance of levels of environmental noise at or below those specified above are requisite to protect the public from adverse welfare effects. Undue interference with activity and annoyance will not occur if outdoor levels are maintained at an energy equivalent of 55 db or indoor levels at 45 db. However, it is always assumed throughout that environmental levels will fluctuate, even though the identified energy equivalent is not exceeded. Identification of a level which is 5 db higher than the 55 db identified above would significantly increase the severity of the average community reaction, as well as the expected percentage of complaints and annoyance. Conversely, identification of a level 5 db lower than the 55 db identified above would reduce the indoor levels resulting from outdoor noise well below the normal background indoors. It would decrease speech privacy outdoors to marginal distance. Little change in annoyance would be made since at levels below the identified level, individual attitude and life style, as well as local conditions, are more important factors in controlling the resulting magnitude of the level of the intruding noise. In conclusion, a Ldn level of 55 db is identified as outdoor level in residential areas compatible with the protection of public health and welfare. The level of 55 db is identified as maximum level compatible with adequate speech communication annoyance. This level is clearly a maximum satisfying the large majority of the population. However, specific local situations, attitudes and conditions may make lower levels desirable for some locations. A noise environment not annoying some percentage of the population cannot be identified at the present time by specifying noise level alone.

(3) Low flying aircraft obviously produce potentially annoying noise levels. It must be remembered, however, that MTRs are specifically designed to avoid populated areas. Furthermore, MTR noise levels fall within the acceptable range of 55-65 db Ldn as calculated by the Air Installation Compatible Use Zone (AICUZ) studies for all civil and military land uses.

(4) If complaints do arise as a result of these low level operations, the 150TFG has procedures for either raising the minimum altitude of a particular segment or for altering the ground track.

(5) Supersonic flight is not authorized on these MTRs.

Attachment #1

Colonel David L. Quinlan
Major General Franklin E. Miles
September 24, 1982
Page 2

Mr. Elliott recently informed me that further low-level flights had occurred over his property on September 7, 1982. At approximately 4:00 p.m., four A-7's flew directly over his house in an easterly direction at approximately 100 feet above ground level. Shortly thereafter (approximately one-half hour later), three F-111's flew directly over his house in an easterly direction. Mr. Elliott could not determine how high they were above ground level. The planes were spaced approximately one-half mile apart. Colonel Quinlan, these flights particularly disturb me in view of the fact that you assured me by telephone that there would be no more Air National Guard flights over Mr. Elliott's ranch whatsoever. Not only have flights continued since our telephone conversation, these flights have also been directly over Mr. Elliott's home and at a low altitude, violating the standards set forth in the Environmental Assessment referred to above. This letter constitutes a demand that such flights be stopped. More specifically, we insist that no flights be conducted over any part of Mr. Elliott's ranch at an altitude lower than 1,500 feet above ground level, and that no flights be conducted within two miles of Mr. Elliott's home or within one mile of his camp in the Yeso Wash.

Thank you for your attention to these matters.

Very truly yours,

HINKLE, COX, EATON, COFFIELD & HENSLEY

David L. Spoede

DLS: kp

015

EX #3

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON, D.C.

[redacted]

Mr A.S. "Tex" Elliott
[redacted]

Dear Mr Elliott

Your letter of 18 Dec 86 was referred to this office for response. I have reviewed the last six years' correspondence and negotiations concerning low-level flying close to your residence. I understand and share your concern.

Federal Air Regulation 91.79 and Air Force Regulation 60-16, General Flight Rules, paragraph 5-9d state, "Except for takeoff and landing, pilots do not fly aircraft over non congested areas at an altitude of less than 500 feet above the surface - except over water or sparsely populated areas. Under such circumstances do not operate aircraft closer than 500 feet to any person, vehicle, or structure." As depicted on the enclosed map, Visual Routes (VR) 1107 and 1195, which provide our pilots low-level training at 100 to 1500 feet above the surface, overfly your area, which is categorized as "Sparsely populated." This means pilots must avoid any person, vehicle, or structure in your area by at least 500 feet. In response to your complaints, the Air Force established special operating procedures which direct pilots to stay well clear of your residence. The procedures are listed in the DOD Flight Information Publication as follows:

a. Avoid 34-20.0N 104-23.75W by two nautical miles.

b. Flight below 1500ft above ground level is not authorized in that area bounded by a line from 34-31N 104-28W to 34-31N 104-20W to 34-15N 104-20W to 34-15N 104-28.5W to point of beginning (outlined on map).

I am working with Tactical Air Command representatives to ensure their crews adhere to the restrictions. I assure you that the United States Air Force is attentive to responsible use of airspace and the environment. The public's wishes are a prime consideration when planning our day-to-day operations.

If I can be of further assistance please contact me at 202-697-4399.

Sincerely

Robert B. Nicholson

ROBERT B. NICHOLSON, Col, USAF
Chief, Airspace and ATS Division
Directorate of Operations

015

28 Apr 87 Letter from [illegible] Quinlan, 150TFG/CC, assuring Col Danny Eckles, 27TFW [illegible] of their complete cooperation and support in observing the Elliott avoidance area.

21 Jan 88 Memo For Record, Chief, 27TFW/DOR. Special Agent Martinez of OSI today inform Mr Zevenbergen (27TFW Airspace Manager) that Mr. Elliott, rancher in Pecos Low Area, has moved to Texas (Uvalde) and the three noise areas are null and void. ! WHAT A DEAL!

29 Sep 88 Airspace Memo For Record (27TFW Airspace Manager) Mr. Elliott generated complaints through Sen Jeff Bingaman's office of "AF increased activity over his property as a harassment due to his (Elliott's) frequent complaints." After Mr Elliott's veiled threats to shoot at or not take care to avoid hitting aircraft that flew through "his shooting range", the FBI is reported to have visited him. Complaint[s]

? WHEN DID NOT [illegible]

Attachment 1 (Page 8 of 1

REMEMBER! NOT ALWAYS ON THE RANCH!

stopped for a while. Between Jan and Mar 88, a relatively long period of no complaints, and the information that Mr. Elliott had moved to Texas, we were justified in deleting the individual Elliott avoidance area. The large rectangular avoidance area remained charted on the current Albuquerque Sectional Chart. The new civilian Airspace Manager retrieved the large Mr. Elliott history file from Wing Radar Strike where the previous active duty Airspace Manager had maintained it.

16 Nov 88 Letter of transmittal from 27TFW/DCO to HQ USAF/XOORF (Airspace

* FROM CHRONOLOGY SUBMITTED TO SEN. HUTCHISON DEC 95.
NOTE: THIS IS NOT A COMPLETE AND HONEST REPRESENTATION OF MY INTERFERENCE.

THE ABOVE ENTRIES RESCINDED THE '87 AGREEMENT FROM AIR FORCE PENTAGON WITHOUT ANY COURTESY OR NOTIFICATION TO ME OF ITS REMOVAL.

015

TEX

A2

EL BIGOTE CATTLE CO.

A. S. "TEX" ELLIOTT

[redacted]

5 April, 1994

Representative Joe Skeen
Senator Jeff Bingaman
Senator Pete Domenici
Governor Bruce King
John Schum, FBI

Summation of meeting today with: Maj. Steve Ver Helst, NMANG, SSgt. Gayle Crnong, Public Affairs, Cannon AFB, Dale Harner, Airspace Mgr, Cannon AFB, and Jim Bryant, Assitant Claims Officer, Cannon AFB.

Evidently, my letter of 26 FEB 87, to Robert B. Nicholson, COL, USAF, Chief, Airspace and ATS Division, Directorate of Operations, HQTRS, USAF/XOORF, Washington, DC, 20330-5054, stating my plans to open my shooting range upon my 100% private land, provided me with, on a map at least, some sort of a "no-fly area". There had been a previous agreement with the NMANG, 150TFG, not to fly below 1500'AGL within a rectangular boundary surrounding my ranch property. Neither of these agreements, nor flight restrictions, were honored over time, consistently anyway.

I moved back to Texas in AUG 87, Dale Harner admitted he found out from someone I had moved (I didn't take my house nor my ranch), so, it was no longer necessary to have my ranch flight restrictions! Also, in '89 and/or '90, it was time to re-plan Cannon's airspace, so, through the FAA, with the USAF, it was decided that "they" couldn't give up so much airspace that was previously agreed to. So, it was reduced. Maj Ver Helst did not elaborate on how the NMANG reduced their previous agreement, they just did. He did admit that he should have notified me, the "other party" to the agreement, but "...things just fall through the cracks." He also did not want a letter writing confrontation, so, he didn't notify me of the changes.

Mr. Harner did offer, SSgt. Crnong provided me with a copy of 1 PAGE OF A LIST OF COMPLAINER my ranch location by coordinates, with a minimum altitude separation of 1000'AGL and 1nm. lateral separation. NMANG maintains their 1 nm. separation with no mention of vertical limit, other than FAR's of 500'AGL. Maj. Ver Helst did mention disciplining one pilot for route violation last fall.

The bottom line: They changed the rules, so what? We are to live with it, but, call in when we feel violated. So,... it's time to roll over, present our genitals, and live with it. So much for the American way. What do you think? Is this the way it's done? I did tape the almost 4 hour visit. What do you think? Where do I go from here? What is my recourse?

You're welcome to listen to the two tapes. Please advise.

Sincerely yours,

Tex Elliott

BRANGUS - HEREFORD - CHARLOLAIS - CROSS / STOCKER AND FEEDER CATTLE

EX # 4

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 27th FIGHTER WING (ACC)
CANNON AIR FORCE BASE, NEW MEXICO

15 Dec 94

27 FW/PA
100 S DL Ingram Blvd, Suite 102
Cannon AFB NM 88103-5216

Mr. A. S. Elliott
[redacted]

Dear Mr. Elliott

I received your letter dated 14 December 1994 today.

Upon receiving your call on 6 Dec 94 telling me you will be weaning calves on 8 Dec 94, I notified our Airspace Management office. Your avoidance area was re-briefed to 27th Fighter Wing aircrews, unfortunately we did not also notify the Air National Guard. We regret this error.

The reason behind our having established a toll-free line for aircraft noise complaints is to give citizens the opportunity to deal with one individual and not encounter the frustration of being bounced from office to office to resolve their complaints. We have found that this system is very helpful -- especially if aircraft from other units are involved.

We handle complaints concerning *any* military aircraft operating in any of our training airspace. Other units utilizing our training routes are required to adhere to our restrictions, just as we, in turn, are required to do for them.

I hope this clarifies the questions you addressed to us in your 14 December 1994 letter.

Sincerely

Gayle A. Ornong
GAYLE A. ORNONG, SSgt, USAF
Chief, Community Relations

015

SGT ORNONG

PAGE 2 OF SOME ±75 LOCATION

[2] 11 Jan 94

CONTROL NUMBER	NAME	LOCATION	SOURCE	DATE	MIN ALT	AVOID BY	ROUTES
13	ELLIOT RANCH	N34-20.52 W104-23.20	PROXY COMPLAINTS	6 DEC 88 → AFTER I MOVED!	1000'	1 NM	VR100/125 VR1195/1107 PECOS EAST IR113
14	KIMBLE RANCH	N36-32.50 W103-23.05	NOISE COMPLAINTS	11 JAN 90	1000'	1 NM	IR107
15	DONELSON RANCH	N36-34.66 W103-13.76	NOISE COMPLAINTS	24 JAN 90	1000'	1 NM	IR107
16	DOSE RANCH	N33-45.88 W105-37.64	DELETED	1 SEP 92			VR100/125 IR113
17	WHITE OAKS NM	N33-44.98 W105-44.20	NOISE COMPLAINTS	1 JAN 87	1000'	1 NM	VR100/125 IR113 VR176
18	MILNER RANCH	N33-56.35 W104-06.5	NOISE COMPLAINTS	1 JAN 87	1000'	1 NM	IR113 IR109S PECOS SOUTH VR1107/1195
19	HORNEY, PAUL RANCH	N34-20.78 W104-32.45	PROXY COMPLAINTS	1 JAN 87	1000'	1 NM	IR113 VR100/125 VR1195/1107 PECOS WEST
20	LAKE SUMNER SETLMNT	N34-37.17 W104-23.87	NOISE COMPLAINTS	27 FEB 89	1000'	1 NM	IR113 VR100/125 VR1195/1107
21	GRAN QUIVIRA RUINS	N34-15.58 W106-05.51	NAT'L MONUMENT	27 JAN 83	NO FLY	3 NM	IR113 IR133 VR100/125 VR176
22	DOUBLE V RANCH	N34-07.02 W104-25.59	AIRSTRIP CHARLIE DEAN		1500'	2 NM	IR109S PECOS S
23	SALINAS NAT'L MONUMENT	N34-35.77 W106-17.71	QUARAI UNIT	DELETED	NOT IN ANY MTR		
24	ABO RUINS	N34-27.02 W106-20.48	NAT'L MONUMENT	27 JAN 83	NO FLY	3 NM	VR176
25	DIXON RANCH	N34-36.48 W104-21.96	NOISE COMPLAINTS	7 MAY 90	1000'	1 NM	IR113 PECOS E VR100/125 VR1195/1107
26	SOUTH R5107C RANCH	N34-04.5 W106-27.69	DELETED	1 SEP 92	NOT IN 27 FW MTR		
27	NORTH R5107C RANCH	N34-01.63 W106-28.21	DELETED	1 SEP 92	NOT IN 27 FW MTR		
28	CLAUNCH NM	N34-08.59 W105-59.61	NOISE COMPLAINT	REVALIDT'D 1 SEP 92	1500'	1 NM	IR113 IR133 VR176 VR100/125
29	VIRGINIA CITY RANCH	N36-34.77 W105-14.38 (BRANNIN RESIDENCE)	NOISE COMPLAINTS	17 JAN 91	1000'	1 NM	IR109

TEX

A2

EL BIGOTE CATTLE CO.

A. S. "TEX" ELLIOTT

[redacted]

17 April, 1995

NEVER RECEIVED

CERTIFIED MAIL: Z 034 670 179

Michael M. Pierson, CAPT, USAF
Chief, Public Affairs
27 FW/PA
100 S DL Ingram Blvd., Suite 102
Cannon AFB, New Mexico 88103-5216

Re: Continuing Violations of NSA's and FAA FAR's

Dear Captain Pierson:

Under the FREEDOM OF INFORMATION ACT I am requesting a complete list of my complaints regarding USAF and NMANG aircraft overflights reported to Cannon Air Force Base, New Mexico. This list should begin before or on 25 September, 1980, to present. All reported violations should be included- resolved or not.

Thank you.

cc: SEC of Air Force Widnall

Sincerely yours,

A. S. Elliott

A. S. Elliott

BRANGUS - HEREFORD - CHAROLAIS - CROSS / STOCKER AND FEEDER CATTLE

015

01 June 95

27th Fighter Wing
100 S DL Ingram Blvd., Suite 102
Cannon Air Force Base, NM 88103

Mr. A.S. Elliott

[redacted]

Dear Mr. Elliott

This letter is in response to a noise complaint you made on May 19. There were two separate occasions on this date where you felt military aircraft were flying too low over your property. Our office forwarded your complaint to the Airspace Management division for further investigation. Their findings are listed below:

1.) 0830-0900 There were no F-111s scheduled into the Pecos MOA during this time. The first F-111 to enter this area was 4 miles north of your property at 0915. Perhaps the time wasn't exactly accurate, because we found no F-111s in the area from 0830-0900.

2.) 1055 Four F-15s from Mountain Home AFB, ID were in Pecos MOA from 1045-1130. The F-15s didn't know if they were over Elliott at 1055, but they were using the airspace. We briefed them on all NSAs, and they reported staying above 1000' for the duration of their time in MOA.

If you have any future occurrences to report, please call the Public Affairs office, toll free at 1-800-446-4595, extension 4131.

James R. Wilson

JAMES R. WILSON, 2Lt, USAF
Deputy Chief, Public Affairs

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 27TH FIGHTER WING(ACC)
CANNON AIR FORCE BASE, NEW MEXICO

29 May 96

27 FW/PA
100 S DL Ingram Blvd Suite 102
Cannon AFB NM 88103-6216

Mr. A. S. "Tex" Elliott
[redacted]

Dear Mr Elliott

I am writing to you in response to your low-level noise complaints dated 14 and 21 May.

I understand your concerns over noise generated by military training in your area, however the airspace available to us to conduct training operations is very limited and very valuable.

As for the two noise complaints on 14 and 21 May, both were investigated by the Airspace Management Office. The first complaint was coordinated with the 524th Fighter Squadron who said they may have penetrated your noise sensitive area while flying between 500' and 1,000' AGL. Regarding the second complaint, even though all NSAs applicable to the airspace in use were pre-briefed and the majority of training occurred at 1,500' AGL, there were a few excursions down to 700' AGL. The aircrews involved extend their regrets for this inadvertent penetration of your noise sensitive area.

The aircrews are professionals who train for the protection of America's freedom while at the same time try to respect our New Mexico neighbors.

The 27th Fighter Wing takes complaints of the noise sensitive areas very seriously. If there are incidents in the future and you feel the aircraft breech the NSA, please let us know. We will investigate and provide you with a response as soon as the information becomes available.

Sincerely,

James R. Wilson
JAMES R.WILSON, 2Lt, USAF
Deputy Chief, Public Affairs

015

AY BAILEY HUTCHISON
TEXAS

United States Senate

WASHINGTON, DC 20510–4304

COMMITTEES:
ARMED SERVICES
SMALL BUSINESS
COMMERCE, SCIENCE, AND TRANSPORTATION
SELECT INTELLIGENCE

October 24, 1996

The Honorable Sheila E. Widnall
Secretary of the Air Force
Washington, D.C. 20330

Dear Secretary Widnall:

About a year ago, I brought a constituent's concern to your attention regarding low-level overflights of Air Force aircraft over his property. You and your staff kindly accommodated my request for an inquiry and thoroughly investigated the matter, demonstrating your commitment to minimize the impact of flying activities near the home of Mr. A.S. Elliott, my constituent.

Accordingly, I appreciated your decision last December to expand the existing aircraft avoidance area around the Elliott residence to a two nautical mile radius and 1,500 feet Above Ground Level (AGL). I am also pleased that the commanders of the units who use and manage that airspace are continuing to vigilantly brief aircrews scheduling use of that airspace about the avoidance area around the Elliott home.

This agreement and good faith efforts notwithstanding, Mr. Elliott has informed me of several instances where Air Force aircraft have continued to violate the new airspace restrictions, each time scattering his livestock and disrupting his livelihood. I have enclosed copies of correspondence from the 27th Fighter Wing to Mr. Elliott acknowledging four such incidents of aircraft penetration earlier this year. Subsequent incursions have occurred and have been reported by Mr. Elliott to local Air Force authorities. These appear to be more than just the occasional inadvertent overflight.

While I am grateful for what the Air Force has done to resolve Mr. Elliott's concerns, a follow-up inquiry into these recent overflights by you might be useful in assessing the new agreement's effectiveness and determining whether any necessary adjustments are required. For example, it may be useful to know the daily, weekly, or monthly "leakage ratio," or the number of airspace violations out of the number of sorties flown using that airspace over a given timeframe.

Thank you for your prompt attention to this matter and for your courtesy.

Sincerely,

Kay Bailey Hutchison
Kay Bailey Hutchison

Enclosures

Web=http://www.senate.gov/~hutchison/
Internet=senator@hutchison.senate.gov

TEX

A2

EL BIGOTE CATTLE CO.

A. S. "TEX" ELLIOTT

[redacted]

30 April, 1998

Ronald Oholendt, LtCol, USAF
Deputy Chief, Airspace and Ranges Team
Headquarters Air Combat Command
205 Dodd Blvd., Suite 101
Langeley Air Force Base, Virginia 23665

Re: Continuing USAF BS, CYA, ineptness, and violations NSA

Dear LtCol Oholendt (aka "Oly"):

What's going on here? After 5-6 months attempt working through 27FW PA to ascertain whether 150FG, "The Tacos", are, or, are not complying with the expanded NSA as expressed by letter from 27FW Commander Koerner, 5JAN96. I continue to suffer the wrath of the Tacos as they violate the expanded NSA. Yes, they are easy to identify up-close by their yellow horizontal stripe on the f-16s vertical stabilizer.

I finally received the enclosed letter from the 150th on my own effort and forwarded a copy to 27FW PA since they, apparently, were unable to secure through military channels. Why??? Please note the dates!!! It is now apparent why I am continuously violated and have to repair damages and call in continuing violations. Why does it take 15 months after the notice of expansion to be posted in the FLIP, and then take another 12 months to be posted correctly? Why does it take 27 months??? Is there any wonder why I stay upset?

Please explain.

Encls: 5JAN96, 27FW to ASE
30MAR98,150FG to ASE

Sincerely yours,

Tex Elliott

A. S. Elliott

SUBMITTED BY FAX: 30APR98 to LtCol Oholendt @ (757)764-6009, 3pp

BRANGUS - HEREFORD - CHAROLAIS - CROSS / STOCKER AND FEEDER CATTLE

015

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 27th FIGHTER WING (ACC)
CANNON AIR FORCE BASE, NEW MEXICO

5 January 1996

Mr. A.S. Elliott

[redacted]

Dear Mr. Elliott,

I am writing to you to explain the changes we have made to the avoidance area over your property.

As you know, federal and military aviation regulations require our aircraft to avoid people, vehicles and structures by 500 feet in sparsely populated areas. In response to your earlier complaints we established a Noise Sensitive Area (NSA) which prohibited flight below 1000 feet Above Ground Level (AGL) within a one mile radius of your home.

Although this avoidance area exceeds federal requirements, the 27th Fighter Wing at Cannon Air Force Base and the 150th Fighter Group at Kirtland Air Force Base remain committed to minimizing the impact of flying activities near your home. In this regard, both Cannon and Kirtland are in the process of expanding this NSA up to 1500 feet AGL within a 2 mile radius of your home.

While our aircraft may occasionally fly over your property, they will be at much higher altitudes, significantly reducing noise levels on the ground. I have directed my staff to implement this change as soon as possible. Coordination with our squadrons here at Cannon as well as other units that use our airspace may require up to two weeks, but I believe you will see a significant reductions in aircraft noise immediately.

If you have any questions about our new procedures, please contact my Public Affairs Office at 1-800-446-4595 Ext 4131.

Sincerely

Michael Koerner

MICHAEL J. KOERNER, Colonel, USAF
Commander

Global Power For America

HEADQUARTERS 150TH FIGHTER WING
NEW MEXICO AIR NATIONAL GUARD
KIRTLAND AFB, NEW MEXICO

30 March 1998

MEMORANDUM FOR Mr. A. S. Elliot

FROM: 150FW/AM
2251 Air Guard Rd. SE
Kirtland AFB NM 87117

SUBJECT: 150 FW NSA Compliance

1. This letter is to inform you that the 150th FW is in compliance with the NSA listing that was posted 29 April 1997. This list identifies your property as a NSA, and to be avoided by 1500ft AGL and 2nm.

2. Although we are in compliance with this NSA, I have discovered that FLIP AP/1B shows your property to only be avoided by 1nm. I am in the process of amending FLIP to show the same as the NSA of 29 Apr 1997. The amendment should be posted in the next addition that is due 23 April 1998.

MICHAEL E. HOLZER, Captain, NMANG
150FW Airspace Manager

TOTAL P.03

015

TEX

A2

EL BIGOTE CATTLE CO.
A. S. "TEX" ELLIOTT
[redacted]

30 April, 1998

Ronald Oholendt, LtCol, USAF
Deputy Chief, Airspace and Ranges Team
Headquarters Air Combat Command
205 Dodd Blvd., Suite 101
Langeley Air Force Base, Virginia 23665

Re: Continuing USAF BS, CYA, ineptness, and violations NSA

Dear LtCol Oholendt (aka "Oly"):

What's going on here? After 5-6 months attempt working through 27FW PA to ascertain whether 150FG, "The Tacos", are, or, are not complying with the expanded NSA as expressed by letter from 27FW Commander Koerner, 5JAN96. I continue to suffer the wrath of the Tacos as they violate the expanded NSA. Yes, they are easy to identify up-close by their yellow horizontal stripe on the f-16s vertical stabilizer.

I finally received the enclosed letter from the 150th on my own effort and forwarded a copy to 27FW PA since they, apparently, were unable to secure through military channels. Why??? Please note the dates!!! It is now apparent why I am continuously violated and have to repair damages and call in continuing violations. Why does it take 15 months after the notice of expansion to be posted in the FLIP, and then take another 12 months to be posted correctly? Why does it take 27 months??? Is there any wonder why I stay upset?

Please explain.

Encls: 5JAN96, 27FW to ASE
30MAR98,150FG to ASE

Sincerely yours,

A. S. Elliott

SUBMITTED BY FAX: 30APR98 to LtCol Oholendt @ (757)764-6009, 3pp
BRANGUS - HEREFORD - CHAROLAIS - CROSS / STOCKER AND FEEDER CATTLE

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR COMBAT COMMAND
LANGLEY AIR FORCE BASE, VIRGINIA

RECD 9 JUN 98
PMKD 1 JUN 98

Mr. Tex Elliott

27 May, 1998

[redacted]

Dear Mr. Elliott, Tex,

I must agree with your 30 April 1998 letter, our performance in responding to your inquiries is dismal. The 27th Fighter Wing should have been able to track down your requested information without you having to do the legwork. The 150th Fighter Wing should have been able to correctly update FLIP faster than 27 months. I am also bothered by your reports that you are continuing to be overflown below the avoidance altitude by the unit that has been in compliance with the established avoidance criteria since January 1996.

I am sending a copy of this letter to Col. Phil Breedlove, 27th Operations Group Commander, and Col. Robbie Robinson, 150th Operations Group Commander. I know each of these men personally and I know they are extremely sensitive to public concerns and are totally committed to their good neighbor policy. Our failure to respond in a timely manner isn't consistent with such policies. I am also sending a copy to my counterpart in the Air National Guard Readiness Center, Mr. Randy Headrick. I spoke with Col Breedlove and he reiterated the emphasis he is placing with his aircrews to avoid yours and three other NSAs. He asked that I give you his phone number, (505) 784-2242.

Tex, I greatly appreciate your patience and willingness to try to work within the system. I hope from this point forward, the Air Force will be more responsive. As I have mentioned before in our conversations, if you are not getting a proper response from the wings, call me. Just to let you know, I am being reassigned from my current duties at Langley AFB, Virginia to Hill AFB, Utah by the end of June. However, my replacement, Col. (select) Lynn Wheeless has been my deputy for over a year and is very familiar with Air Force operations in New Mexico. He is equally responsive to public concerns and will work your issues promptly if the need should arise.

Sincerely,

RONALD G. OHOLENDT, Colonel, USAF
Chief Airfield, Airspace, Range Mgt Div

HQ ACC/DOR
205 Dodd Blvd., Ste 101
Langley AFB, VA
23665-2789

Cc: Col Breedlove, 27OG/CC
Col Robinson, 150OG/CC
Mr. Randy Headrick, ANGRC/DOB

Global Power For America

015

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

June 1, 1998

49th Fighter Wing Public Affairs
490 First St., Suite 2800
Holloman AFB NM 88330-8287

RE: GAF TORNADO 09:30, 24 APR 98
E→W OVER WEST CAMP
@ 100 AGL, YESO CREEK

Mr. Tex Elliott

[redacted]

Dear Mr. Elliott

Let me apologize for the confusion. Everyone here interpreted campsite the same way—campfire, tent, sleeping bag, etc. In this case, what wasn't said —a cow camp consisting of two houses, a barn and a corral—turns out to be very important.

In sparsely populated areas, such as your cow camp, there must be a 500-foot straight-line separation between an aircraft and any inhabitable structure. This means if an aircraft is flying at an altitude of 100 feet above ground level, there must be a lateral distance of no less than 500 feet between the aircraft and the structure. If flying directly overhead, the aircraft would have to maintain a minimum altitude of 500 feet above ground level. The routes being flown in that area are authorized low-level military training routes.

If the pilots of those aircraft did not avoid those two homes by the required 500 feet, as defined above, I profoundly apologize. We did not know about this cow camp. Its location does not appear in either 27th Fighter Wing or 150th Fighter Group noise sensitive area lists. Now that we are aware, if you can provide the coordinates, we will inform our pilots of its location and they will avoid it in accordance with the second paragraph of this letter. The coordinates we received from Cannon Air Force Base are for your current ranch house, not the cow camp.

RE: JOHN SCHULER AIR SPACE MGR 27 FW

If you continue to experience problems with low-flying aircraft, please call me at (505) 475-5406 from 7:30 a.m. to 4:30 p.m. Monday through Friday, exclusive of holidays. At all other times, call our Command Post at (505) 475-7575 and ask to be put in contact with the Public Affairs standby person, or, if you wish, you can ask to be put in contact with me.

COL SMITH - HOLLOMAN

Sincerely

ROBERT W. PEPPER, GS-9
Chief, Media Relations

Global Power for America

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

June 24, 1998

49th Fighter Wing Public Affairs
490 First St., Suite 2800
Holloman AFB NM 88330-8287

Mr. Tex Elliott
[redacted]

Dear Mr. Elliott

On the date in question, two German Air Force Tornados were operating on an authorized low-level route, which is cleared for flight as low as 100 feet above ground level and they were in fact flying at that altitude. The aircrews of both aircraft were interviewed and stated that a 500-foot straight-line separation from all structures was observed.

The airspace manager for the 27th Fighter Wing at Cannon Air Force base has provided us coordinates for your west cow camp: **34° 17.4' N 104° 26.0' W**. If you feel those coordinates are inaccurate, please contact me. Our pilots will be provided that information and they will avoid overflight within a 500-foot straight-line distance.

I sincerely hope there are no further problems. Should there be, however, please give me a call at (505) 475-5406.

Sincerely

ROBERT W. PEPPER, GS-9
Chief, Media Relations

Global Power for America

015

TEX

A2

EL BIGOTE CATTLE CO.
A. S. "TEX" ELLIOTT
[redacted]

30 June, 1998

Mr. Robert W. Pepper, GS-9
Chief, Media Relations
49th Fighter Wing Public Affairs
490 First St., Suite 2800
Holloman AFB, NM 88330-8287

TRANSMITTED VIA FAX, 30 JUNE 1998, 505-475-5908

Re: Letter, 24JUN98; Requests and Comments

Dear Mr. Pepper:

Thank you for your two months duration reply to my complaint of the one German Air Force Tornado sortie that violated the FAR Reg of 500' vertical and horizontal separation on 24 APRIL, 1998, at approximately 09:30 hours. This is exactly what I reported to you, except for the fact that the violation is being denied.

Please provide information on the following questions and note comment:

1. What "authorized low-level route" was/were the two Tornados flying on cleared for 100'AGL?

2. I was not provided the WEST CAMP, NEW MEXICO co-ordinates on either of the two visits by 27thFW, i.e., I cannot verify the coordinates provided.

3. Please provide me the GAF Commanders Name and Address or GAF Representative that can be located for legal service.

With two reported violations of my NSA above and around my ranch headquarters and this violation of FARs over my ranch camp and person by the German Air Force, I need to proceed with legal remedy. Thank you for a timely response to the above two questions.

Sincerely yours,

A. S. Elliott

BRANGUS - HEREFORD - CHAROLAIS - CROSS / STOCKER AND FEEDER CATTLE

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

July 6, 1998

49th Fighter Wing
Public Affairs
490 First St., Suite 2800
Holloman AFB NM 88330-8287

A.T. "Tex" Elliott
[redacted]

Dear Mr. Elliott

This is in reference to my letters to you, dated June 1, 1998, and June 24, 1998, and your letter to me dated June 30, 1998.

The route in question is VR-1195. VR-100/125 is also cleared to 100 feet above ground level (AGL). You're also located under the Pecos Low Military Operating Area, which has a floor of 300 feet AGL. Paragraph 5.10 of Air Force Instruction 11-206, dated 1 December 1996, states that, "*Except for takeoff or landing, do not operate aircraft:* (5.10.4) *Over noncongested areas at an altitude of less than 500 ft. above the surface except over open water, in SUA (Special Use Airspace), or in sparsely populated areas. Under such exceptions, pilots must not operate aircraft closer than 500 ft. to any person, vessel, vehicle or structure.*"

The address for legal service is:

49th Fighter Wing
Staff Judge Advocate
490 First St., Suite 1940
Holloman AFB NM 88330-8277

For your records, the coordinates of your west cow camp, as furnished by the 27th Fighter Wing at Cannon Air Force Base are **34° 17.4' North, 104° 26.0' West**.

Sincerely

Robert W. Pepper
ROBERT W. PEPPER, GS-9
Chief, Media Relations

Global Power for America

015

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 27th FIGHTER WING (ACC)
CANNON AIR FORCE BASE, NEW MEXICO

22 OCT 1998
Rec'd 7NOV98
By CERT MAIL
P796 725 078

Colonel David E. Clary
Commander
100 S DL Ingram Blvd Ste 100
Cannon AFB NM 88103-5214

Mr. A.S. Elliott
[redacted]

Dear Mr. Elliott

I am writing to you to clarify the procedures our aircrews must follow when flying in the Military Operating Area (MOA) that exists above your property.

As you certainly know, federal civilian and military regulations require our aircraft to avoid people, vehicles and structures by 500 feet in sparsely populated areas. In response to your earlier concerns, Cannon established a Noise Sensitive Area (NSA) which prohibited flight below 1500 feet Above Ground Level (AGL) within a two mile radius of your home. That NSA was agreed upon by you and my predecessor, Colonel Mike Koerner, as documented in a letter to you from him dated 5 January 1996. That agreement is still in effect. It has never been relaxed nor rescinded.

Cannon has made the avoidance of your NSA a Special Interest Item and all aircrews are briefed to avoid it before they go out to fly their mission. In addition, visiting aircrews are given mandatory briefings by Mr. John Schuller, our airspace manager, before they can fly in airspace managed by Cannon. The avoidance of your NSA is part of those briefings.

I want to assure you, Mr.Elliott, that Cannon will continue to do everything possible to avoid your NSA. If you have any further questions, please contact my Public Affairs Office at 1-800-446-4595, extension 4131.

Sincerely

David E. Clary
DAVID E. CLARY, Colonel, USAF

Attachment:
Noise Sensitive Area Agreement

TEX

EX "5 A2

EL BIGOTE CATTLE CO.

A. S. "TEX" ELLIOTT

[redacted]

10 January, 2000

CERTIFIED MAIL: Z 034 670 186

Lloyd "Chip" Utterback, BRD GEN, USAF
Commander, 27FW
100 DL Ingram Boulevard, Suite 104
Cannon Air Force Base, New Mexico 88103

Re: PAST AND CONTINUING VIOLATIONS FARs/NSAs

Dear Gen Utterback:

First, Chip, I'd like to congratulate you for your recent promotion to Brigadier General as well as your return to Cannon Air Force Base as base/wing commander.

Second, I am requesting your help in securing a written explanation of an incident that occured in July, 1998. I have received a partial oral explanation that indeed your (Cannon AFB) F-16s did penetrate my NSA, and, as I witnessed and reported to Public Affairs and COL Breedlove, violated my FAR in that the two aircraft overflew me at 450'AGL. COL Breedlove's explanation was that yes they were at 450', but, that both aircraft were 1 and 1/4 miles away. I am requesting, again, by this certified mail letter, a written explanation, apology, admission, CYA, whatever.

Sir, if I am to believe or accept COL Breedlove's answer, then we are in a troubling situation. One, that your 25-30 million dollar aircraft (what do they cost?) have very faulty GPS and avionics, and two, that you and/or your personnel did in fact record incorrect coordinates on one or two of your personal visits to my ranch, and three, that your pilots, officers and gentlemen, just cannot admit to violating the law, i.e., CYA! I cannot and will not accept the CYA that the two aircraft, one with an instructor, were 1 and 1/4 miles away. I wouldn't have even called that in as the two nautical mile NSA is violated continuously.

Now, as of 23DEC99, we have another damage claim to settle. And this is after I notified your public affairs office of what I was doing in "my mission" of producing beef cattle. When I returned from Uvalde and Christmas, I received your apology on my answering machine. Why does this have to continue?

Sincerely yours,

A. S. Elliott

xc: CAPT John J. Hopkins, III
LTCOL Joseph Miller
Frank Bond

BRANGUS - HEREFORD - CHAROLAIS - CROSS / STOCKER AND FEEDER CATTLE

015

re: JUL 98 ... REPEATEDLY DENIED
@ 450' AGL, E-9 W

MEETING ON MONDAY 16 SEP 00
AT CANNON AFB, NM

CAPT SUSAN A ROMANO
27 FW PUBLIC AFFAIRS

☆ COL JEFFREY A REMINGTON
27 FW COMMANDER

COL DAN RUNYAN
27 FW VICE COMMANDER

COL JAY LINDELL
27 FW OPERATIONS GROUP COMMANDE

LT COL JOSEPH MILLER
27 FW JUDGE ADVOCATE GENERAL

At SEIS MEETING @ ALPINE, TX

CAPT DON SHAZER
27 FW WING EXECUTIVE OFFICER

MR JOHN SCHULLER
27 FW AIRFIELD OPERATIONS MGR
"AIRSPACE MGR." RETIRED F-111 AF PILOT...
MET HIM PREVIOUSLY IN EARLY 1980's WHILE H. WAS AT CAFB

☆ "THE AVIONICS ON AN F-16 AIRCRAFT CA. BE 10 MILES OFF."
27 FW COMMANDER COL JEFFREY REMINGTON @ CANNON AFB, NM 16 SEP 00, W/ STAFF

3 October, 2002
27 CS/SCBR (FOIA)
Cannon AFB, NM

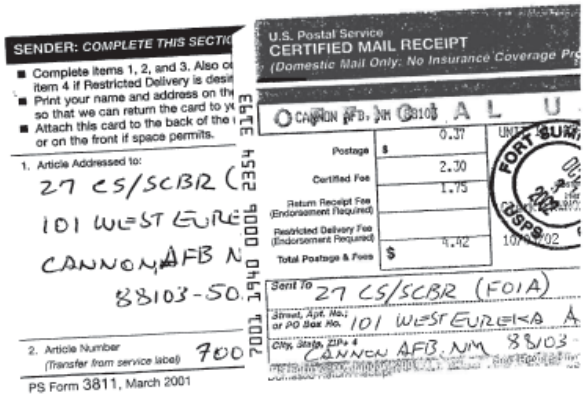
Page 2 of 2

I believe the above named inquiry requests should be void of any research fees as the actions by the United States Air Force continuously violate our Constitutional Rights by takings of private property, reasonable airspace, peace and quiet, and dispersal of trash in their pursuit of "mission".

Thank you.

Sincerely yours,

A. S. Elliott
Gottomitee, Ltd.
Managing General Partner



CAFB-4.doc

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR COMBAT COMMAND
LANGLEY AIR FORCE BASE, VIRGINIA

RETURNED @
HQR 32, 130x 25
UVALDE, TX 78801-9700
21 JAN 03

10 JAN 2003

HQ ACC/SC
180 Benedict Ave, Ste 201
Langley AFB VA 23665-1993

Mr. A. S. Elliott
[redacted]

Dear Mr. Elliott

This is in response to your 3 October 2002 Freedom of Information Act (FOIA) request for documents regarding (1) the final resolution for two Canon AFB F-16 aircraft that violated FARs by passing over your property at 450 feet AGL in the July-August 1998 time frame, (2) scientific evidence or personal observation that substantiates the statements of pages G-21 through G-23 of the Final Defense Training Initiative Environmental Assessment, 28 Sep 02, and (3) any and all documents regarding the investigation of the F-16 crash on your property on 9 Sep 02.

There are "no records" responsive to a final resolution for the alleged flying violation referenced in item 1 because a formal Hazardous Air Traffic Report was never filed. Records responsive to the referenced Congressional Inquiry were destroyed in accordance with AFM 37-139, Table 90-4, Rule 4, which states, "destroy after one year." Although the official files pertaining to the Congressional Inquiry were properly destroyed, draft copies of letters to you and Senator Jeff Bingman were located. However, these letters, as well as a two-page e-mail between the 27 FW/JA and the 27 CES/CC (responsive to item 3), are exempt from disclosure under the Freedom of Information Act, Title 5, United States Code, Section 552(b)(5). These documents are pre-decisional and contain opinions and recommendations of Air Force personnel; disclosure would reveal the deliberative process of the government and would compromise the process by which governmental decisions and policies are formulated. HQ ACC/CEV conducted a thorough search and found "no records" responsive to item 2 of your request.

Since copies of the Aircraft Investigation Board report and the Final Environmental Cleanup report were provided to you by 27 FW/JA, they are not included in this package. Additional documents pertaining to the cleanup of the F-16 crash on your property are releasable and attached.

If you interpret our "no records" response as an adverse action, you may appeal our decision along with our partial denial determination by writing to the Secretary of the Air

Global Power For America

Force within 60 days from the date of this letter. If no appeal is received, or the appeal is postmarked after the conclusion of this 60-day period, the appeal may be considered closed. Include your reasons for reconsideration along with a copy of this letter. Mail to:

Secretary of the Air Force
Thru: HQ ACC/SCXP (FOIA)
180 Benedict Ave, Ste 210
Langley AFB VA 23665-1993

Department of Defense Regulation 5400.7 indicates fees be assessed for providing these documents; however, the fees are waived in this instance.

Sincerely

Roland N. LeSieur

ROLAND N. LESIEUR, Colonel, USAF
Deputy Director
Communications and Information Systems

Attachment:
Releasable Records

FOIA Case No.: 2003-057

Ex #6

CLAIM FOR DAMAGE, INJURY, OR DEATH

INSTRUCTIONS: Please read carefully the instructions on the reverse side and supply information requested on both sides of this form. Use additional sheet(s) if necessary. See reverse side for additional instructions.

FORM APPROVED OMB NO. 1105-0008

1. Submit To Appropriate Federal Agency:
27FW JAD
101 S DL INGRAM BLVD
CANNON AFB, NM 88103-5219

2. Name, Address of claimant and claimant's personal representative, if any. (See instructions on reverse.) (Number, street, city, State and Zip Code)
A S ELLIOTT
[redacted]

3. TYPE OF EMPLOYMENT	4. DATE OF BIRTH	5. MARITAL STATUS	6. DATE AND DAY OF ACCIDENT	7. TIME (A.M. OR P.M.)
☐ MILITARY ☒ CIVILIAN	21JUN46	YES	23DEC99 THURSDAY, +-07:00	+- 07:00AM

8. Basis of Claim (State in detail the known facts and circumstances attending the damage, injury, or death, identifying persons and property involved, the place of occurence and the cause thereof) (Use additional pages if necessary.) I weened ranch calves 21DEC99 and put them in HERD TRAP east of HQTRS within NSA (est DEC88, expanded JAN96). From prior experience and past claims, I called CANNON AFB PUBLIC AFFAIRS to tell them of my plans on my private property the next day, 22DEC99 AM. Sure enough, the very next morning, 23DEC99, about 7:00, here came the various F-16 aircraft from CANNON AFB! Again...just weaned livestock are extremely excitable and low flying aircraft excite them to bolt and run, sometimes over fences if they are adjacent to weaned calves. Consequently about 80+ calves busted about 100' of fence and mixed back with their mothers in the adjacent pasture. We then had to catch horses, gather entire herd (220 cows +80 calves) drive them back to corrals and re-sort calves. Then we fixed fence

9. CHRISTMAS EVE EVE and on PROPERTY DAMAGE CHRISTMAS EVE!

NAME AND ADDRESS OF OWNER, IF OTHER THAN CLAIMANT (Number, street, city, State, and Zip Code)
A S and JAN ELLIOTT, DBA EL BIGOTE CATTLE CO, PO BOX 58, FORT SUMNER, NM 88119-0058

BRIEFLY DESCRIBE THE PROPERTY, NATURE AND EXTENT OF DAMAGE AND THE LOCATION WHERE PROPERTY MAY BE INSPECTED. (See instructions on reverse side.) Damaged fence was between Horse Trap and Herd Trap water lot, about 250 yards east of my house. 100'of fence was knocked down, replaced wire on 30-75'of fence, replaced 7 cedar posts and 7 steel posts, replaced brace and wire gate.

10. Later, found dead calf. PERSONAL INJURY/WRONGFUL DEATH

STATE NATURE AND EXTENT OF EACH INJURY OR CAUSE OF DEATH, WHICH FORMS THE BASIS OF THE CLAIM. IF OTHER THAN CLAIMANT, STATE NAME OF INJURED PERSON OR DECEDENT. Personal property (fence) was damaged by excited livestock. CANNON AFB personnel inspected fence repaired 11:15 TUESDAY, 28FEB00. After many attempts to correctly count for missing or dead livestock, we gathered entire herd to corrals and recounted. I was short 1 steer calf. After riding the entire pasture, we found remains of deceased calf, pix encl.

11. WITNESSES

NAME	ADDRESS (Number, street, city, State, and Zip Code)
Benjamin G Elliott Stephen M Elliott A S Elliott	[redacted]

12. (See instructions on reverse) AMOUNT OF CLAIM (in dollars)

12a. PROPERTY DAMAGE	12b. PERSONAL INJURY	12c. WRONGFUL DEATH	12d. TOTAL (Failure to specify may cause forfeiture of your rights.)
Fence Matls 84.43 Labor 2days 500.00		500#St Cf @$1.00/# $500.00	$1084.43 (encls)

I CERTIFY THAT THE AMOUNT OF CLAIM COVERS ONLY DAMAGES AND INJURIES CAUSED BY THE ACCIDENT ABOVE AND AGREE TO ACCEPT SAID AMOUNT IN FULL SATISFACTION AND FINAL SETTLEMENT OF THIS CLAIM

13a. SIGNATURE OF CLAIMANT (See instructions on reverse side.)	13b. Phone number of signatory	14. DATE OF CLAIM
A. S. Elliott	[redacted]	16OCT00

CIVIL PENALTY FOR PRESENTING FRAUDULENT CLAIM
The claimant shall forfeit and pay to the United States the sum of $2,000. plus double the amount of damages sustained by the United States. (See 31 U.S.C. 3729.)

CRIMINAL PENALTY FOR PRESENTING FRAUDULENT CLAIM OR MAKING FALSE STATEMENTS
Fine of not more than $10,000 or imprisonment for not more than 5 years or both. (See 18 U.S.C. 287, 1001.)

95-109 NSN 7540-00-634-4046 STANDARD FORM 95 (Rev. 7-85)
Previous editions not usable. PRESCRIBED BY DEPT. OF JUSTICE 28 CFR 14.2

COMPILATION OF MATERIAL EXPENSES FOR US AIR FORCE DAMAGE 23DEC99

Fence materials			
7	6½' Steel "T" posts	@ $4.19 ea	$29.33
2	8'x7" cedar posts	@ 8.00	16.00
5	7'x3" cedar posts	@ 3.00	15.00
120'	12ga tie wire	@ 35.50/50#roll	6.00
250'	12½ga barb wire	@ 33.99/qtr mi roll	6.44
3	5' cedar stays	@ 1.25 ea	3.75
3#	Galvanized staples	@ 1.00/#	3.00
		Sub total	79.52
		6.18% tax	4.91
	Materials Total		$84.43
Labor			
1	Boss x 2 days	@$100.00/day	$200.00
2	Hands x 2 days	@ 75.00/day	300.00
	Labor Total		$500.00
Livestock			
1	500# Steer Calf	@$1.00/#	$500.00
	TOTAL DAMAGE CLAIM		$1084.43

Enclosed are: polaroid photos of damages
copies of material quotes
tax property descriptions

*****NOTE We, I and my two sons did not make it home in Uvalde, Texas, until 5:00PM (1700hrs for you militarys) on Christmas Day because of your continued disregard for the folks under your "MISSION". This makes number four (4) claims for damages; number three since I've had "to notify you of my operational plans" to avoid these kinds of damages...

A S Elliott
16 OCT 00

QUIKRETE® of West Texas
Abilene, Amarillo, Midland
P O Box 2992
Midland, TX 79702
(800)873-5432
FAX (915)694-6341

Fort Sumner Lumber Co Inc
12½ ga Barb Wire 33.99
12½ ga Slick Wire 34.99
12 ga Tie Wire 50# roll 35.50
Fence Staples (1½") $1/#
6½ T post w/clips (HD) 4.19 ea

Jan 2000

FS lumber
[signature]

"Quality Concrete and Cement Products"

YOU can do it with QUIKRETE

ROUTH CEDAR YARD
211 West Front • Uvalde, Texas 78801
(830) 278-7558
Fence Posts • Delivery Available

Date: 10 July 2000
Sold To: Jer Elliott
Address:

Yard Post	# Pieces	Price Ea.	Amount
6½ x 2-2½			
6½ x 3			
6½ x 3½			
6½ x 4			
6½ x 5			
6½ x 6			
7 x 4			
7 x 5	35	4.00	140.00
7 x 6~7	20	4.50	90.00
7 x 7			
7 x 8			
8 x 4			
8 x 5			
8 x 6~7	30	8.00	240.00
8 x 7			
8 x 8			
10 x 4			
10 x 5			
10 x 6			
10 x 7			
10 x 8-10			
12 x 5			
12 x 6			

Wire Post	# Pieces	Price Ea.	Amount
6½ x 2-2½			
6½ x 3			
6½ x 3½			
6½ x 4			
6½ x 5			
6½ x 6			
Stays			
5' - #1			
5' - #2			
5' - #3			
8' Stays			
Other			
Freight			

Paid 7-10-00 #1008

TOTAL 470.00

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ASSESSOR'S COPY

DE BACA COUNTY ASSESSOR
P. O. BOX 906
FT. SUMNER, NM 88119

Notice of Valuation or Tentative Notice of Value
VETERAN AND HEAD-OF-FAMILY EXEMPTIONS

I hereby certify that I am a resident of New Mexico as of January 1, of this year, and the "head of a family" as that term is defined in Section 7-37-4 of the Property Tax Code, and I hereby claim the exemption of $2,000 of the taxable value of the property provided by Section 7-37-4 of the Property Tax Code. I swear and affirm that the above information is true and correct and that this exemption is not being claimed in any other county.

Head of Family
(Sign here): X ____________________

I hereby swear and affirm that I am a New Mexico resident as of January 1, of this year, and a "veteran" as that term is defined in Section 7-37-5 of the Property Tax Code, that I have filed with the county assessor a certificate of eligibility for the veteran exemption from the Veterans Service Commission, and that I claim the exemption from the taxable value of the property owned by me.
Veteran or unmarried surviving spouse of a veteran.

(Sign here:) X ____________________

RESIDENTIAL DECLARATION

I HEREBY SWEAR AND AFFIRM THAT THE PROPERTY DESCRIBED HEREON SHOULD RIGHTFULLY BE CLASSIFIED AS RESIDENTIAL.

(Sign here:) X ____________________

(If any of the above statements are completed, the Oath of Affirmation below must be completed.)

OATH OF AFFIRMATION

State of New Mexico, County of ____________________
I do solemnly swear and affirm to the best of my knowledge that the statements on this form completed and signed by me and the preceding list and description are full and correct statements of all property required to be reported pursuant to Section 7-38-8, of the Property Tax Code, in this County on January 1, 19________ and all statements required to be made under the Property Tax Code, and I so swear under pains and penalties of perjury.

X ____________________
Property Owner or his Authorized Agent

Subscribed and sworn to before me this ______ day of
19______ ____________________
Assessor, Assessor's Employee or Notary

Damage in SE4NE4 Sec 2, T1N, R24E

XXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX

THIS IS NOT A TAX BILL - SEE INSTRUCTIONS

PROPERTY DESCRIPTION			FULL VALUE	TAXABLE VALUE
15,938.00 ACRES IN T-01-N R-24-E	NR	LAND	95,628	31,876
1 144 006 400 260 00 UNDIV 71% INT:	NR	IMP	25,377	8,459
E1/2 SEC 1, ALL SEC 2, ALL SEC 3, ALL	RES	IMP	476	159
SEC 4, ALL SEC 5, ALL SEC 8, ALL SEC 9, ALL SEC 10, ALL SEC 11, ALL SEC 12, ALL SEC 13, ALL SEC 14, ALL SEC15, ALL SEC 16, ALL SEC 17, ALL SEC 18, ALL SEC 19, ALL SEC 20, N1/2, SW1/4 SEC 21,				
AND -- IN T-01-N R-24-E 1 144 006 400 260 01 N1/2 SEC 22,				

*** CONTINUED ON NEXT PAGE ***

SCH. DIST.	YEAR			FULL VALUE	TAXABLE VALUE
OUT	99	TAX RATIO IS 33⅓% OF FULL VALUE	TOTALS >	121,481	40,494

NET TAXABLE VALUES WILL BE ALLOCATED TO THE GOVERNMENTAL UNITS LOCATED IN THE ABOVE.

PROPERTY TO BE LISTED AND VALUED AS OF JANUARY 1, OF THE TAX YEAR, EXCEPT CERTAIN LIVESTOCK.

TP# ELL 001

ASSESSOR PHONE # (505) 355-7448

ELLIOTT, A.S. & JAN
[redacted]

of 3 pi...

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DE BACA COUNTY TREASURER PHONE (505) 355-7395 10/12/99 TAX NOTICE
P. O. BOX 389
FORT SUMNER, NM 88119

SCHOOL DISTRICT OUT PAGE 135 LINE 3

...RTY TO BE LISTED AND VALUED AS OF JANUARY 1 OF THE TAX YEAR EXCEPT CERTAIN LIVESTOCK
...AND ADDRESS OF PERSON OTHER THAN OWNER TO WHOM
...X BILL IS TO BE SENT.

Net Taxable Values Will Be Allocated to the Governmental Units Located in SCHOOL DISTRICT

NOTICE: THIS BILL IS THE ONLY NOTICE YOU WILL RECEIVE FOR PAYMENT OF BOTH INSTALLMENTS OF THE TAX. Taxpayer's remedies and remedies available to the taxing authorities for nonpayment of amounts due are found on the reverse side hereof.

Property taxes are payable to the county treasurer in not more than two (2) equal installments.
• The first half payment is due November 10 and is delinquent after December 10 of the taxable year.
• The second half payment is due April 10 and is delinquent after May 10 of the following year.

...E: ELLIOTT TRUST ELL 002
[redacted]

PAGE 1

PROPERTY DESCRIPTION AND/OR CODE NUMBER	ACRES	BLK SEC	TWP	RGE	CODE	VALUATION AMOUNT
OUTSIDE 6445.0 ACRES IN TWN 01N RAN 24E UNDIV 29% INT: E1/2 SEC 1, ALL SEC 2, ALL SEC 3, ALL SEC 4, ALL SEC 5, ALL SEC 8, ALL SEC 9, ALL SEC 10, ALL SEC 11, ALL SEC 12, ALL SEC 13, ALL SEC 14, ALL SEC 15, ALL SEC 16, ALL SEC 17, ALL SEC 18, ALL SEC 19, ALL SEC 20, N1/2, SW1/4 SEC 21, N1/2 SEC 22,	TAX THIS PARCEL =					373.72
	TAXABLE VALUE =					16,380.00
AND IN TWN 01N RAN 24E N1/2, POR S1/2 N FENCE SEC 23, ALL SEC 24, ALL SEC 25, ALL SEC 29, ALL SEC 30,						
AND IN TWN 01N RAN 25E POR SW1/4 SEC 7, W1/2, POR E1/2 SEC 18, W1/2, POR IN E1/2 SEC 19, W1/2, POR E1/2 SEC 30,						

STATE - COUNTY - SCHOOL CITY IF INSIDE CITY	CATTLE HORSES	SHEEP GOATS	HOGS	DAIRY CATTLE	SPECIAL LEVY	CODE	TOTAL CURRENT TAX
.018553 R .018565 NR							
1.49R 372.23NR							373.72

VALUE RECAPITULATION

LAND	IMPROVEMENTS	PERSONAL PROPERTY	MOBILE HOME	LIVESTOCK NO.	LIVESTOCK VALUE	PROPERTY CENTRALLY REPORTED	TOTAL VALUE	EXEMPTIONS	NET TAXABLE VALUE
38,670N	194R 10,275N						194R 48,945N		
12,890N	65R 3,425N						65R 16,315N		65R 16,315N

CURRENT TAXES TOTAL	FIRST HALF	SECOND HALF	DELINQUENT TAXES	TOTAL TAX DUE
De Baca ELL002 ELLIOTT TRUST $373.72	$186.86	$186.86		$373.72

RETURN THIS NOTICE WITH YOUR PAYMENT.
PLEASE ENCLOSE A STAMPED SELF
ADDRESSED ENVELOPE FOR RETURN OF RECEIPTS

...EST CHARGED AT 1% PER MONTH BEGINNING 30 DAYS BEYOND DUE DATE.
PENALTY CHARGED AT 1% PER MONTH TO A MAXIMUM OF 5% BEGINNING 30 DAYS BEYOND DUE DATE.

PROPERTY TAXES ARE PAYABLE TO THE COUNTY TREASURER IN NOT MORE THAN TWO (2) EQUAL INSTALLMENTS.
• THE FIRST HALF PAYMENT IS DUE NOVEMBER 10 OF AND IS DELINQUENT AFTER DECEMBER 10 OF 1999
• THE SECOND HALF PAYMENT IS DUE APRIL 10 OF AND IS DELINQUENT AFTER MAY 10 OF 2000

EX #7

CLAIM FOR DAMAGE, INJURY, OR DEATH

INSTRUCTIONS: Please read carefully the instructions on the reverse side and supply information requested on both sides of this form. Use additional sheet(s) if necessary. See reverse side for additional instructions.

FORM APPROVED OMB NO. 1105-0008 EXPIRES 4-30-88

1. Submit To Appropriate Federal Agency:

27thFW/JAD
101 S DL INGRAM BLVD
CANNON AFB, NM 88103-5219

2. Name, Address of claimant and claimant's personal representative, if any. *(See instructions on reverse.)* *(Number, street, city, State and Zip Code)*

EL BIGOTE CATTLE CO., L.L.C.
[redacted]

3. TYPE OF EMPLOYMENT	4. DATE OF BIRTH	5. MARITAL STATUS	6. DATE AND DAY OF ACCIDENT	7. TIME *(A.M. OR P.M.)*
☐ MILITARY ☒ CIVILIAN	21JUN46	YES	2FEB01, TUESDAY PM	14:18

8. Basis of Claim *(State in detail the known facts and circumstances attending the damage, injury, or death, identifying persons and property involved, the place of occurence and the cause thereof) (Use additional pages if necessary.)* BTW DAMAGE CLAIM

I was moving large hay bales with tractor into my barn at ranch headquarters under established NSA. I was startled by low flying F-16 w/ yellow horizontal strip on vert. stabalizer. As I look up, my tractor hit a parked molasses trailer near my work. A second F-16 passed south of me, the first north less than 1qtr of mile, the second about ½mile away. Both were about 500'AGL and moving west to east, both well below the NSA. I called Cannon AFB PA and it was later disclosed that it was the "Tacos", 150FG, NMANG. Their commander was to call me, but I had to call him about a month later. He just couldn't find the time to acknowledge their latest infraction. Both the fuel tank and intake manifold were broken in the violation. The motor is a 3½hp Briggs.

9. PROPERTY DAMAGE

NAME AND ADDRESS OF OWNER, IF OTHER THAN CLAIMANT *(Number, street, city, State, and Zip Code)*

BRIEFLY DESCRIBE THE PROPERTY, NATURE AND EXTENT OF DAMAGE AND THE LOCATION WHERE PROPERTY MAY BE INSPECTED. *(See instructions on reverse side.)* Liquid feed trailer is located at ranch HQ, DeBaca County, NM, USA 3½ horsepower Briggs & Stratton molasses pump engine. Replaced fuel tank and intake manifold. Downtime was two days and 18 mile(1 way) trip to town.

10. PERSONAL INJURY/WRONGFUL DEATH

STATE NATURE AND EXTENT OF EACH INJURY OR CAUSE OF DEATH, WHICH FORMS THE BASIS OF THE CLAIM. IF OTHER THAN CLAIMANT, STATE NAME OF INJURED PERSON OR DECEDENT.

11. WITNESSES

NAME	ADDRESS *(Number, street, city, State, and Zip Code)*
A. S. ELLIOTT	[redacted]

12. *(See instructions on reverse)* AMOUNT OF CLAIM *(in dollars)*

12a. PROPERTY DAMAGE	12b. PERSONAL INJURY	12c. WRONGFUL DEATH	12d. TOTAL *(Failure to specify may cause forfeiture of your rights.)*
Parts,labor 50.26 Downtime 200.00 & Travel			$ 250.26

I CERTIFY THAT THE AMOUNT OF CLAIM COVERS ONLY DAMAGES AND INJURIES CAUSED BY THE ACCIDENT ABOVE AND AGREE TO ACCEPT SAID AMOUNT IN FULL SATISFACTION AND FINAL SETTLEMENT OF THIS CLAIM

13a. SIGNATURE OF CLAIMANT *(See instructions on reverse side.)*	13b. Phone number of signatory	14. DATE OF CLAIM
A.S. Elliott MANAGING PARTNER El Bigote Cattle Co., LLC	[redacted]	31OCT02

CIVIL PENALTY FOR PRESENTING FRAUDULENT CLAIM

The claimant shall forfeit and pay to the United States the sum of $2,000. plus double the amount of damages sustained by the United States. *(See 31 U.S.C. 3729.)*

CRIMINAL PENALTY FOR PRESENTING FRAUDULENT CLAIM OR MAKING FALSE STATEMENTS

Fine of not more than $10,000 or imprisonment for not more than 5 years or both. *(See 18 U.S.C. 287, 1001.)*

95-107
Previous editions not usable.

NSN 7540-00-634-4046

STANDARD FORM 95 (Rev. 7-85)
PRESCRIBED BY DEPT. OF JUSTICE
28 CFR 14.2

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NAPA

103059

COUNTRY POWER & EQUIP
PO DRAWER 948
FT SUMNER NM 88119

RECEIVED BY X
ALL GOODS RETURNED MUST BE ACCOMPANIED BY THIS INVOICE

ACCT. NO.	SOLD TO	DATE	INVOICE NO.	STORE NO.	CM	SLS
07097	El Bigote Cattle Co [redacted]	2/05/01	103069	07280	1	0

TIME	PURCHASE ORDER NO.	ATTENTION
17:03		TEX

INVOICE TYPE: CHARGE SALE

QUANTITY	PART NUMBER	LINE	DESCRIPTION	PRICE	NET	TOTAL	CODE
1.00	272489	ZBR	GASKET	3.740	2.000	2.00	T1
1.00	273113	ZBR	INTK GSKT		1.890	1.89	T1
1.00	270026	ZBR	DIAPHRAGM		1.210	1.21	T1
2.00	94913	ZBR	CRB SCREW	1.250	1.000	2.00	T1
1.00	491588	ZBR	CARTRIDGE	5.290	4.730	4.73	T1
1.00	CARB	ZBR	USED		8.000	8.00	T1DP

SUB TOTAL	MISC.	TAX	TOTAL
19.83	0.00	6.188	1.23	21.06

ACCT. NO.	SOLD TO	DATE	INVOICE NO.	STORE NO.	CM	SLS
07097	El Bigote Cattle Co PO Box 58 Fort Sumner NM (4) 88119	2/05/01	103070	07280	1	0

TIME	PURCHASE ORDER NO.	ATTENTION
17:03		TEX

INVOICE TYPE: CHARGE SALE

QUANTITY	PART NUMBER	LINE	DESCRIPTION	PRICE	NET	TOTAL	CODE
1.00	FUEL TANK	ZBR	USED		12.500	12.50	T1DP
1.00	LABOR	LAB	REPAIR		15.000	15.00	T1

SUB TOTAL	MISC.	TAX	TOTAL
27.50	0.00	6.188	1.70	29.20

CURRENT	PAST DUE 30 DAYS	PAST DUE 60 DAYS	PAST DUE 90 DAYS
50.26	0.00	0.00	0.00

DATE 02/28/2001
TERMS SERVICE CHG
STORE 900007280

Total Owed 50.26
Total Due --> 50.26

DEPARTMENT OF THE AIR FORCE
AIR FORCE LEGAL SERVICES AGENCY (AFLSA)

30 JUN 2003

AFLSA/JACT
1501 Wilson Boulevard, Room 835
Arlington, VA 22209-2403

Mr. A.S. Elliott
General Partner of Gottomitee, Ltd.
[redacted]

Re: Your Claim for Property Damage, Cannon AFB 03-31/MCA

Dear Mr. Elliot

I have considered your claim for damage to your home in Fort Sumner, NM, allegedly caused by a sonic boom from a military aircraft, on 17 September 2001. Based upon our review of the facts and applicable law, I offer $142.17 to settle this claim.

We were able to confirm that, on the date and time alleged, an F-16 aircraft from Cannon AFB was engaged in supersonic flight activity in the area of Fort Sumner, NM. The F-16 aircraft was engaged in a training mission pursuant to an agreement between the United States and the Republic of Singapore. As authorized, the aircraft achieved supersonic flight at an altitude of 40,000 feet or above, on 17 September 2001.

We find that the damage to the window of your home is consistent with sonic boom damage. After a careful review of the work performed by KC Construction, we conclude that you should be paid the full amount of repair, $136.62. Also, we find that 50% of the cost for the newspaper advertisement should be paid as a fair and reasonable expense for obtaining the services of the carpenter. This amount equals $5.55. However, we must deny the $200 claimed for labor and inconvenience because these costs are unsubstantiated.

If you agree to accept the amount offered in full and final settlement of all claims arising out of this incident, you should sign the original and two copies of the attached settlement agreements in ink. All three signed agreements should then be returned to me at the address

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shown above. The fourth copy of the agreement is for your records. In order to accept this offer for settlement, you must send the signed agreements within 30 days of the mailing of this letter.

Sincerely

E. GLENN PARR
Chief, Aviation & Admiralty Law Branch
Tort Claims and Litigation Division
Air Force Legal Services Agency

15 January 2004

CERTIFIED MAIL/RETURN RECEIPT REQUEST: 7001 1940 0006 2354 3209

Mr. E Glenn Parr
Chief, Aviation & Admiralty Law Branch
Tort Claims and Litigation Division
AFLSA/JACT
1501 Wilson Boulevard, Room 835
Arlington, Virginia 22209-2403

Re: Property Damage Claim CANNON AFB 03-31/MCA

Dear Mr. Parr:

I received your 30JUN03 dated "settlement offer" and again, was appalled at the USAF arrogance with failure to compensate for my time and vehicle expense, and continuing inconvenience caused by your "mission". The divergence from my "mission" of providing excellent beef steaks for the American and foreign compensation to once again have to deal with the military lack of respect for my safety and property.

Sir, (Note the claim) I live eighteen miles from town one way. I had to go to town to advertise for a jack-legged carpenter to repair your (apparently Singapore flyboy) damage that was confirmed by time and location. I then had to meet with said carpenter to discuss, show damage, and then discuss procedure and type of repair. After several days I again had to meet with the man to allow him to enter my house and "police" his actions. This is an inconvenience and detrimental use of my time. My time is valuable and my business needs not be interrupted by continuous Air Force caused damages. This was the seventh claim and with the fatal crash of the F-16 less than a mile from my house 9SEP02, there will be two more claims. All of this has happened within nine years and all within the existing NSA. I bet you didn't read about that in the "official" AIB report of the crash that is rift with errors and omissions and libel!

Why do you think my time and associated expenses are "unsubstantiated"? For the record, for "tolling" purposes, your letter to me was postmarked 2 JAN 2004. I did not receive it until 15 JAN 2004 when I signed the RETURN RECEIPT CARD upon my return to the ranch.

Sincerely yours,

A. S. Elliott, Managing General Partner
Gottomitee, Ltd.
[redacted]

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 27th FIGHTER WING (ACC)
CANNON AIR FORCE BASE, NEW MEXICO

24 February 2003

Captain Darren M. Eicken
Claims Officer
27 FW/JA
101 S DL Ingram Blvd
Cannon AFB NM 88103-5219

Mr. A.S. Elliott
[redacted]

Dear Mr. Elliott

Your claim, Cannon 03-29, has been considered under the provisions of the Military Claims Act (10 U.S.C. 2733) and the National Guard Claims Act, 32 U.S.C. 715, as implemented by the Air Force Instruction 51-501, Chapter 1 and Chapter 3, and has been denied. Your claim was denied because the evidence was insufficient to establish that a low flying aircraft proximately caused the damage to your molasses trailer.

You may appeal this decision. If you choose to do so, your appeal must be in writing and received by this office within 60 days of the date on this letter. You may submit any additional documentation that you wish for the appeal authority to consider. You may also have this claim considered under the Federal Tort Claims Act and have 6 months after the date this letter was mailed in which to file suit in an appropriate United States District Court.

If you have any questions concerning your claim, please contact the claims office at (505) 784-2212 or write to 27 FW/JAD, 101 S DL Ingram Blvd, Cannon Air Force Base, New Mexico, 88103-5219.

Sincerely

DARREN M. EICKEN, Capt, USAF

Recd Cert Mail
7099 3220 0005 2945 8819
3-01-03

14 March 2003

Captain Darren M. Eicken
Claims Officer
27 FW/JA
101 S DL Ingram Blvd.
Cannon AFB, New Mexico 88103-5219

Re: APPEAL, Claim #Cannon 03-29 and Other Claim Not Enumerated

Dear Capt. Eicken:

What more information do you need? No, the "low flying aircraft" did not cause the damage to my molasses trailer pump motor. It was my reaction to the "low flying aircraft" while using my John Deere tractor to ascertain if I was going to be hit and to perform evasive action from, once again, a violation of the NSA and FAA FARs by the 150 FG and 27FW jet aircraft. Up to the date of my damage, I had experienced and filed damage claims to 27FW for four preceding violations and the FAR, part 91…, whatever, violation of two F-16s, JUL98, passing over me at my ranch HQ at 450'AGL. That one has been denied four times it happened with each explanation getting further away.

Lt. Col. Eklund's letter 28JAN03, states that my "personal property claim was forwarded to Air Force Legal Services Agency/JACT, … in Arlington, Virginia…" Is your letter referenced above this same claim or for the sonic boom damage to my window? It showed no numeral designation. Please explain.

27FW/PA Officer Capt. Susan Romano confirmed that it was "The Tacos" and after waiting two weeks for their commander to respond, I called Col. Kim Hunter, 150FG. We had a long discussion, I'm their "friend", you know, and he too, confessed that it was their guys that flew so close causing my evasive maneuver. What more proof do you want, pictures of very low flying aircraft verifying NSA and FAR violations, and Army and unknown origin (the 27FW/PA cannot ascertain from whence they came) helicopters that still don't respect the NSA (DEC88) and expanded NSA (JAN96) now after seven years?

If I don't settle this claim with you I will include it within my anticipated suit against the United States Air Force and the New Mexico Air National Guard for several outstanding matters. Please continue to send all correspondence to this address below.

Sincerely yours,

A. S. Elliott
[redacted]

F-16-18

Ex # 8

CLAIM FOR DAMAGE, INJURY, OR DEATH

INSTRUCTIONS: Please read carefully the instructions on the reverse side and supply information requested on both sides of this form. Use additional sheet(s) if necessary. See reverse side for additional instructions.

FORM APPR
OMB NO. 1105-0008
EXPIRES 4-3

1. Submit To Appropriate Federal Agency:

27thFW/JAD
101 S DL INGRAM BLVD
CANNON AFB, NM 88103-5219

2. Name, Address of claimant and claimant's personal representative, if *(See instructions on reverse.)* *(Number, street, city, State and Zip C*

A S ELLIOTT
[redacted]

3. TYPE OF EMPLOYMENT ☐ MILITARY ☒ CIVILIAN	4. DATE OF BIRTH	5. MARITAL STATUS	6. DATE AND DAY OF ACCIDENT	7. TIME *(A.M. OR P*
	21JUN46	YES	17SEP01 13:17, MONDAY	13:17

8. Basis of Claim *(State in detail the known facts and circumstances attending the damage, injury, or death, identifying persons and property involved, the place of occurence and the cause thereof) (Use additional pages if necessary.)*

7th Damage claim within established NSA. I was sitting at living room window inside house at ranch headquarters when sonic boom sounded. The house shuddered and the window beside exploded inward. I noted the time an called 27thFW/PA to notify the incident. I spoke with Ms. Vaita G. Pena wit JAD; she would send claim forms. I had to drive 18 miles (one way) into town to advertise for carpenter to replace window glass. I placed ad in th newspaper and waited. A carpenter called several weeks later and after a prolonged wait, I repaired my window in FEB02. One-half of newspaper ad was $5.55, carpenter and materials was $136.62, my labor and inconvience to go to town and supervise was $200.00 @ $100.00/day.

9. **PROPERTY DAMAGE**

NAME AND ADDRESS OF OWNER, IF OTHER THAN CLAIMANT *(Number, street, city, State, and Zip Code)*

GOTTOMITEE, LTD., A S ELLIOTT, MANAGING GEN PARTNER, HCR32,BOX25, UVALDE,TX 78801

BRIEFLY DESCRIBE THE PROPERTY, NATURE AND EXTENT OF DAMAGE AND THE LOCATION WHERE PROPERTY MAY BE INSPECTED. *(See instructio on reverse side.)*

East side of house @ ranch hqtrs, DeBaca County, NM, USA Ms Pena said "fix

10. **PERSONAL INJURY/WRONGFUL DEATH**

STATE NATURE AND EXTENT OF EACH INJURY OR CAUSE OF DEATH, WHICH FORMS THE BASIS OF THE CLAIM. IF OTHER THAN CLAIMANT, STAT NAME OF INJURED PERSON OR DECEDENT.

11. **WITNESSES**

NAME	ADDRESS *(Number, street, city, State, and Zip Code)*
A S ELLIOTT	[redacted]

12. *(See instructions on reverse)* **AMOUNT OF CLAIM** *(In dollars)*

12a. PROPERTY DAMAGE	12b. PERSONAL INJURY	12c. WRONGFUL DEATH	12d. TOTAL *(Failure to specify may cause forfeiture of your rights.)*
Repairs 136.62 Newspaper ad 5.55	Labor and in-convience 200.00		$ 342.17

I CERTIFY THAT THE AMOUNT OF CLAIM COVERS ONLY DAMAGES AND INJURIES CAUSED BY THE ACCIDENT ABOVE AND AGREE TO ACCEPT SAID AMOUNT IN FULL SATISFACTION AND FINAL SETTLEMENT OF THIS CLAIM

13a. SIGNATURE OF CLAIMANT *(See instructions on reverse side.)*	13b. Phone number of signatory	14. DATE OF CLAIM
A. S. Elliott MEMBER MGR Gottomitee, Ltd	[redacted]	31OCT02

CIVIL PENALTY FOR PRESENTING FRAUDULENT CLAIM

The claimant shall forfeit and pay to the United States the sum of $2,000. plus double the amount of damages sustained by the United States. *(See 31 U.S.C. 3729.)*

CRIMINAL PENALTY FOR PRESENTING FRAUDULENT CLAIM OR MAKING FALSE STATEMENTS

Fine of not more than $10,000 or imprisonment for not more than 5 years or both. *(See 18 U.S.C. 287, 1001.)*

95-107
Previous editions not usable.

NSN 7540-00-634-4046

STANDARD FORM 95 (Rev. 7-85)
PRESCRIBED BY DEPT. OF JUSTICE
28 CFR 14.2

015

3 ⁴⁴ ⁴/₃

279265

INVOICE

SOLD TO: KC CONST
ADDRESS: [redacted]
CITY, STATE, ZIP: [redacted]

SHIP TO: Tex Elliot
ADDRESS
CITY, STATE, ZIP

CUSTOMER ORDER NO. | SOLD BY | TERMS | F.O.B. | DATE

ORDERED	SHIPPED	DESCRIPTION	PRICE	UNIT	AMOU
1	25 x 45 Glass				19
70 miles Round Trip					21
2 ½ hrs Labor					87
					128
		Paid 2-13-02 #5970	TAX		8
					136

5840

015

De Baca County News
P O Box 448
503 E. Sumner Avenue
Fort Sumner, NM 88119-0448

Invoice

DATE	INVOICE #
10/29/01	4449

BILL TO
ELLIOTT, TEX
[redacted]

P.O. NO. | TERMS | PROJECT

QUANTITY	DESCRIPTION	RATE	AMOUNT
1.5	10-4 CLASSIFIED DISPLAY	3.48	5.22T
1.5	10-11 CLASSIFIED DISPLAY	3.48	5.22T
	SALES TAX	6.1875%	0.65

Page 9

De Baca County News — Thursday, October 4, 2001

Classifieds

WANTED
• Carpenter to do minor house repairs
• Person to plaster drinker tub.
• Washington Workers to gather porcupine eggs.
(505) 355-7487

De Baca County News Classifieds Sell! (505) 355-2462

Thank you for your business.

$11.09

Paid 11-5-01
#5921

EX #9

COPY

FINAL

Defensive Training Initiative Environmental Assessment

Cannon Air Force Base, New Mexico
September 2001

015

P 757 488 704

DRAFT EA

Written Comment Sheet
Defensive Training Initiative Environmental Assessment (EA)
Cannon AFB, New Mexico

LINDA DeVINE
HQ ACC/CEVP
LANGLEY AFB, VA 23665-2769
Thank you for your input

DATE 09 APR 01

PLEASE PRINT A.S. ELLIOTT FOR GOTTOMITEE, LTD. DeBACA Co, NM

I ATTENDED THE CAFB EA PUBLIC SCOPING MEETING IN SANTA ROSA, NM, ON 04 APR 01. I, A.S. ELLIOTT, SUBMIT THE FOLLOWING COMMENTS AND CONCERNS:

1) WE, "IN THE SPARSELY POPULATED, PRIMARILY AGRICULTURAL PRODUCING AREA..." DO NOT NEED ANY MORE POTENTIAL FIRE DANGER FROM ACCIDENTAL OR FAULTY DEFENSIVE FLARES. I HELPED FIGHT A RANGE FIRE ON 17 FEB 00 THAT CONSUMED OVER 45,000 ACRES IN 5 HOURS.

2) WE, "... IN THE 'SAME' SPARSELY POPULATED... AREA..." DO NOT NEED ANY MORE MILITARY TRASH DEPOSITED UPON OUR PROPERTY IN TIME OF PEACE., I.E., THE CAPS FROM FLARE AND CHAFF CONTAINERS, AND THE CHAFF ITSELF. THIS IS KNOWN AS LITTERING AND IS NOT ACCEPTABLE. WE'RE STILL FINDING 50 CAL BRASS FROM WWII ON S. TEXAS RANCH, AND 2.75 ROCKET TAILS.

I'VE EXPERIENCED 20+ YEARS OF AGREEMENTS, BROKEN AGREEMENTS, NSAs, EXPANDED NSAs, AND CONTINUOUS "ACCIDENTS", INDIFFERENCES, AND FAILURE TO IMPLEMENT EXPANDED NSA, DAMDLES, INCONVENIENCES, ETC ALL THE WHILE NOTIFYING USAF, ANG, AND OTHERS.

YES, ACCIDENTS WILL HAPPEN, BUT, CAN BE AVOIDED. TO PERFORM THESE DEFENSIVE AERIAL FUNCTIONS OVER PRIVATE LAND, SUCH AS OURS, IS NOT ACCEPTABLE.

THEREFORE, I, WE, ARE IN OPPOSITION TO THIS NEW PROCEDURE.

***** CONTINUE ON BACK FOR MORE SPACE *****

A.S. Elliott, INDIVIDUALLY, AND FOR GOTTOMITEE, LTD.

Please be advised that by including your name and address, you are agreeing to it being part of the EA public record.

NAME: A.S. ELLIOTT FOR GOTTOMITEE, LTD. LANDOWNER
ADDRESS: [redacted]
CITY: [redacted]
STATE, ZIP CODE: [redacted]

☑ Please check if you would like to receive a copy of the Draft EA

PLEASE HAND THIS FORM IN OR MAIL BEFORE MAY 10, 2001 TO:

HQ ACC/CEVP
129 Andrews Street, Suite 102
Langley AFB, VA 23665-2769
Attn: Ms. Linda DeVine

ENCLOSED NOTE
MAIL BY MAY 10, 2001

TEX

A2

EL BIGOTE CATTLE CO.

A. S. "TEX" ELLIOTT

[redacted]

10 January, 2000

CERTIFIED MAIL: Z 034 670 186

Lloyd "Chip" Utterback, BRD GEN, USAF
Commander, 27FW
100 DL Ingram Boulevard, Suite 104
Cannon Air Force Base, New Mexico 88103

Re: PAST AND CONTINUING VIOLATIONS FARs/NSAs

Dear Gen Utterback:

First, Chip, I'd like to congratulate you for your recent promotion to Brigadier General as well as your return to Cannon Air Force Base as base/wing commander.

Second, I am requesting your help in securing a written explanation of an incident that occured in July, 1998. I have received a partial oral explanation that indeed your (Cannon AFB) F-16s did penetrate my NSA, and, as I witnessed and reported to Public Affairs and COL Breedlove, violated my FAR in that the two aircraft overflew me at 450'AGL. COL Breedlove's explanation was that yes they were at 450', but, that both aircraft were 1 and 1/4 miles away. I am requesting, again, by this certified mail letter, a written explanation, apology, admission, CYA, whatever.

Sir, if I am to believe or accept COL Breedlove's answer, then we are in a troubling situation. One, that your 25-30 million dollar aircraft (what do they cost?) have very faulty GPS and avionics, and two, that you and/or your personnel did in fact record incorrect coordinates on one or two of your personal visits to my ranch, and three, that your pilots, officers and gentlemen, just cannot admit to violating the law, i.e., CYA! I cannot and will not accept the CYA that the two aircraft, one with an instructor, were 1 and 1/4 miles away. I wouldn't have even called that in as the two nautical mile NSA is violated continuously.

Now, as of 23DEC99, we have another damage claim to settle. And this is after I notified your public affairs office of what I was doing in "my mission" of producing beef cattle. When I returned from Uvalde and Christmas, I received your apology on my answering machine. Why does this have to continue?

Sincerely yours,

A. S. Elliott

xc: CAPT John J. Hopkins, III
LTCOL Joseph Miller
Frank Bond

015

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR COMBAT COMMAND
LANGLEY AIR FORCE BASE VIRGINIA

COPY

31 JUL 2001

MEMORANDUM FOR ALL INTERESTED GOVERNMENT AGENCIES, INDIVIDUALS, ORGANIZATIONS, AND PUBLIC AND ACADEMIC REFERENCE LIBRARIES

FROM: HQ ACC/CEVP
129 Andrews Street, Suite 102
Langley AFB VA 23665-2769

SUBJECT: Draft Environmental Assessment (EA) for the Defensive Training Initiative (DTI), Cannon Air Force Base, New Mexico.

1. We are pleased to provide you with the Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) for the proposed Defensive Training Initiative. This EA analyzes impacts from the proposed use of training chaff and flares in the airspace currently used and managed by Cannon AFB (Restricted Areas 5104/5105; Taiban and Pecos Military Operating Areas; Pecos and Sumner Air Traffic Control Assigned Airspace). **In addition, the use of chaff only is analyzed for use in the northern portions of Military Training Routes Visual Routes 100/125.** This action would substantially improve the readiness of Cannon AFB pilots by supporting pilot training in the art of simultaneously dispensing chaff and flares as defensive countermeasures against simulated enemy threats during a combination of defensive maneuvers. The document is provided in compliance with the regulations of the President's Council on Environmental Quality.

2. Libraries are requested to file this document for public access and reference.

If additional information is needed, please contact:

Captain Susan Romano or 1Lt Heather A. Healy
27 FW/PA
100 S. DL Ingram
Cannon AFB NM 88103
Telephone: (505) 784-4131/4134 or 800-446-4594 extension 4131/4134

Correspondence and comments should be sent to:

Ms. Linda DeVine
Headquarters Air Combat Command/CEVP
129 Andrews Street, Suite 102
Langley AFB VA 23665-2769

3. All comments must be received before close of business, August 31, 2001.

ALTON CHAVIS
Chief, Environmental Analysis Branch

Attachment: Global Power For America

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR COMBAT COMMAND
LANGLEY AIR FORCE BASE VIRGINIA

04 OCT 2001

HQ ACC/CEVP
129 Andrews Street, Suite 102
Langley Air Force Base VA 23665-2760

Mr. A. S. Elliott
GOTTOMITEE, Ltd.
[redacted]

Dear Mr. Elliott,

Thank you for submitting comments on the Draft Environmental Assessment (EA) for the Cannon Air Force Base Defensive Training Initiative. We are pleased to provide you with a copy of the Final EA, which includes responses to your comments at Appendix G.

This Environmental Assessment was conducted in compliance with the National Environmental Policy Act of 1969. The analysis found that no significant environmental impacts would result from the release of chaff or flares by military pilots reacting to simulated combat threats that exist in portions of the airspace currently used by Cannon AFB aircraft.

We appreciate your interest in the environmental review process for this proposed action. The points of contact for any further correspondence is Captain Susan Romano or Lieutenant Heather Healy, 27 FW/PA, 100 S. DL Ingram, Cannon AFB NM 88103. They may also be reached by phone at (505) 484-4134.

Sincerely,

ALTON CHAVIS
Chief, Environmental Analysis Branch

Attachment:
FEA and FONSI

Global Power For America

015

000005

A. S. ELLIOTT
GOTTOMITEE, LTD.
[redacted]

29 AUG 2001

Mailed Via ~~FEDERAL EXPRESS~~ UPS

Ms. Linda DeVine
HQ ACC/CEVP
129 Andrews Street, Suite 102
Langley AFB VA 23665-2769

TH-1

Re: Answer to Draft EA for DTI Cannon AFB, Clovis, New Mexico

I will follow your order of presentation.

FINDING OF NO SIGNIFICANT IMPACT

PH 3.0, SUMMARY, Safety: When is there not a high fire risk in Eastern New Mexico? — SA-7
Physical Resources:"No anticipated impacts from chaff... would occur." You just don't know for sure. — PH-1
Biological Resources:All fires are not "natural", many are railroad and highway related. — SA-8
Land Use and Visual Resources: Have you asked the farmers and ranchers upon whose land your trash will fall if their property values will be impacted? Yes, they will! — LU-2

PH 4.0, CONCLUSION: Because you substantiate FONSI with doubt, anticipation and mis-statements of truth or outright lies, an ENVIRONMENTAL IMPACT STATEMENT should be required. — DO-1

PURPOSE AND NEED FOR THE PROPOSED ACTION

PH 1.2.5: Our property is enclosed, triangulated, by three emitter sites deployed under the MOA; many violations. — GE-1

PH 2.2.5, Table 2-3: Table is false as flare usage has occurred outside Melrose Range, confirmed by "source" Mr. Schuler, Cannon AFB Airspace Manager at meeting 16 SEP 2000, note and photo (yes, we have to photograph violations to be "believed") enclosed. — GE-1

PH 2.2.6: Other USAF and ANG agencies do not read charts, (the B1-B ANG unit from Kansas 2-3 months ago) or are inept as the NMANG, "The Tacos", took 27 months to "chart" the expanded NSA by Cannon AFB, JAN 1996. Consequently, violations, aggravation, inconvenience and damage claims occur. — GE-1

G-8

000005

Response to USAF DTI 29 AUG 2001
Page two.

PH 2.7: FAR violations are "explained away" after four different attempts and by the final classic statement by COL Jeffrey Remington, COM, 27FW, at our meeting 16SEP00, "...that USAF F-16 avionics could be ten miles off" in recording the data tape for record of the sorty. Please identify your "BLUE RIBBON PANEL". GE-1 GE-2

TABLE 2-8: Where is the Environmental Justice in our range lands being continuously condemned for the military mission? Can't the city folk enjoy your continued assault on our rights? Note US Senator Bingaman's, letter 4NOV98 regarding the two FAR violations JUL98 over me at home. Where in our Constitution does it say I must accommodate your mission? Since that incident I've had two more violations resulting in damage claims. Where is the sincerity? We still pick up military "mission trash" after 60 years of accommodating our nation when our family ranch was condemned for WWII aerial gunnery practice out of Laredo AFB, Laredo, Texas, and subsequent training by the 149FG, the Texas ANG, and Navy aircraft depositing drop tanks on the ranch. Who cares? We do. EJ-1

PH 3.1.1: Too many incidents from inept or inconsiderate flybys over property resulting in violations of FARs and NSA. Several months ago, within a week or two, Cannon AFB violated my NSA twice, Tacos once, with damage, and Kansas guard unit once because they don't comply.

PH 4.5.3.1: We "hayseeds" down on the farms and ranches depend on the profitability of crop and grass production by minimizing or eliminating "blown dust". For you to achieve FONSI by assuming this is very optimistic. Your trash will remain for several generations. PH-2
Surface Water: Chaff deposited in water "...would most likely produce no measurable effect." Again, an estimate to achieve FONSI. PH-1

PH 4.6.2 Fire Potential: "...manmade fires that regularly sweep through the area." conflicts with PH 4.6.3.1, 5th paragraph, page 4-17, "...The vegetation and species... recover from infrequent fires." Which is it? One or the other? Area native grasses require 3-5+ years to recover under average rainfall which has been sparse for three years now. Range recovery requires removal of grazing livestock for timely recovery and thus reduces our ability to increase our profit, our "mission". BI-6

PH 4.7.2, 4.7.3.2: 1564.75 Plastic end caps would be deposited annually on our lands by your figures. Yes, it will accumulate. LU-2

G-9

000005

Response to USAF DTI 29 AUG 2001
Page three.

PH 4.8.3.1: You just don't know how property values would be compromised. LU-3

In conclusion, this action constitutes condemnation of my private property for sake of USAF mission. Your admitted statements that end cap trash will occur constitutes littering, a detriment to our private property rights still protected by our United States Constitution. LU-5

Our ranch partnership is initiating programs to provide recreational activities to supplement our ranch income. We do not need additional and ever continuing violations, aggravation, and disturbance to our potential guests and paying for profit customers (FYI: www.iwannabeacowboy.com). LU-4

Your assumptions and conflicting uneducated statements support the need for an EIS or withdrawal from implementation. Your FONSI is based on too many assumptions and ignorance of the feelings of the public on the ground dependent on their uninterrupted use without litter and enjoyment of their private lands. I am against the implementation of this Environmental Assessment to facilitate Finding Of No Significant Impact so that you can improve your training over private property. DO-1

Sincerely,

A. S. Elliott ((also D.(sic) S. Elliott))

Gottomitee, Ltd. [redacted] El Bigote Cattle Co.. [redacted]

encls

USAFDTI.doc

G-10

Letter Number	Response Number	Response
0003	TH-1	Thank you for your comments and participation in the Environmental Impact Analysis Process for this Defensive Training Initiative. Public and agency involvement plays a critical role in the National Environmental Policy Act (NEPA) process as it helps to shape the analyses and focus on specific resource areas important to you.
0003	SA-3	The text in section 2.1.1.2 has been changed to reflect this comment.
0003	SA-4	Under the Proposed Action, Cannon AFB would suspend deployment of flares when the fire danger is high or above (EA section 4.2.3.1). At Melrose AFR, operations are limited when the Range Control Officer determines that conditions pose a threat that cannot be contained by existing fire breaks and on-site fire-spotting and fire suppression personnel and equipment.
0004	TH-1	Thank you for your comments and participation in the Environmental Impact Analysis Process for this Defensive Training Initiative. Public and agency involvement plays a critical role in the National Environmental Policy Act (NEPA) process as it helps to shape the analyses and focus on specific resource areas important to you.
0004	LU-1	Defensive training would not change the use of Cannon AFB airspace in terms of numbers of aircraft overflights (EA section 2.2.6). The potential for residual materials associated with chaff and flare use to affect animals, property, or land use is considered unlikely (EA section 4.8.3). The risk of fire from flares is extremely low when compared to other potential sources of fire such as lightning or campfires (EA section 4.2.3.1). As indicated in EA section 4.8, existing quality of life should not significantly change due to the proposed action or alternatives.
0004	SA-5	Flare use would be limited to altitudes above 2,000 feet AGL providing a 1,675-foot buffer to ensure that burning flares would not reach the ground. Flares operate for only 3.5 to 5 seconds and there have been no recorded instances of a slow burning flare or one that caught fire after initial ejection from the aircraft. (EA section 4.2.3.1).
0004	BI-1	See response BI-1 in letter #0001.
0004	SA-6	Chaff composition is similar to desert dust. There are no data that indicate that the chaff, proposed for release would be toxic to humans, animals or plant life (EA section 4.3.3.1).
0004	PN-1	See response PN-1 under letter #0001.
0005	TH-1	Thank you for your comments and participation in the Environmental Impact Analysis Process for this Defensive Training Initiative. Public and agency involvement plays a critical role in the National Environmental Policy Act (NEPA) process as it helps to shape the analyses and focus on specific resource areas important to you.
0005	SA-7	The U.S. Forest Service identifies the fire danger daily according to one of five categories ranging from low to extreme fire hazard (EA section 3.2.2.1). These categories are generated for an area by analyzing vegetation types, temperature, precipitation, fuel moisture, humidity, wind lightening activity and human factors.

AS ELLIOTT QUESTIONS + COMMENTS

Letter Number	Response Number	Response
0005	PH-1	The analysis presented in the EA is representative of the best available scientific data regarding the effects of chaff and flares on soil and water (Air Force 1997a). Due to the very low concentrations in which chaff and flare materials would be deposited on soil and water, no measurable effect is expected (EA section 4.5.3). Additional supporting information is provided in the Blue Ribbon Panel report described in Response GE-2.
0005	SA-8	Fires can be caused by human activity as well as by lightning (EA section 3.2.2.1).
0005	LU-2	The EA acknowledges that the public has expressed concern regarding potential effects to property values due to the presence of chaff and flare residual components. However, it is unlikely that these components would accumulate in sufficient quantities to cause a visual impact (EA section 4.8.3.1). The expected accumulation of end caps from all chaff and flare use is approximately one end cap per every 38.5 acres annually. Expected annual accumulation of chaff ranges from 0.005 ounces per acre in the northern portion of the MTR to a maximum of 0.06 ounces per acre in the remaining airspace.
0005	DO-1	See response DO-1 under letter #0001.
0005	GE-1	Cannon AFB has established methods for public identification of aircraft overflight problems and a policy for dealing with offending pilots (EA section 2.7). The Military Claims Act, 10 U.S.C. 2733, provides a mechanism for the payment of meritorious claims resulting from non-combat activities by the Air Force. The Air Force is committed to promptly investigate any claims for damages to property or livestock caused by Air Force overflights and to make payments as permitted under federal law.
0005	PH-2	The Texas Panhandle-eastern New Mexico area is considered one of the worst areas in the U.S. for windblown dust (EA section 3.4.2.1). Occasionally, the windblown dust is of sufficient quantity that visibility is restricted. Considering all of the area overflown, the annual expected concentration of chaff and flare end caps would average one every 38.5 acres. Because of the quantity of windblown dust in the region, it is likely that a portion of residual plastic end caps eventually would be obscured from view due to the deposition of dust.
0005	BI-6	The fire frequency for the proposed project area is not expected to change as a result of flare use. The flare release altitude of 2000 feet helps ensure that burning flares do not reach the ground. Section 4.2.3.1 analyzes the probability of fire due to flare use.
0005	EJ-1	This EA analyzes environmental justice pursuant to Executive Orders 12898 and 13045. Environmental justice analysis addresses disproportionate impacts to minority and low income communities and children (EA section 3.9.1). There would be no changes to airspace under the proposed action.

Letter Number	Response Number	Response
0005	GE-2	The Blue Ribbon Panel on the environmental effects of chaff consisted of scientists from Cornell University, Pennsylvania State University, Massachusetts Institute of Technology, Harvard University, Duke University, the University of Arizona, Woods Hole Oceanographic Institute, and the Desert Research Institute. This panel operated wholly independently from the military services in terms of data analysis and conclusions reached. The results of their analysis are presented in *Environmental Effects of RF Chaff, A Select Panel Report to the Undersecretary of Defense for Environmental Security* (Spargo 1999).
0005	LU-3	Residential property values generally are affected by a variety of factors such as national, regional, and community economic conditions; national and regional trends in employment, inflation and interest rates; local population changes; and real estate development. There is no evidence to suggest that property values would decrease under military airspace due to the presence of military training activities. Effects of the proposed action and alternatives on property values are addressed in section 4.8.3.1 of the Draft EA
0005	LU-5	The United States Environmental Protection Agency (USEPA) defines litter as "The highly visible portion of solid waste carelessly discarded outside the regular garbage and trash collection and disposal system." Residual items resulting from the use of chaff and flares, due to their small concentrations and vast dispersal, while possibly detectable in some circumstances, are not "highly visible." Additionally, when chaff and flares are ejected from an aircraft, they are being used for their intended purpose, and are not being "carelessly discarded."
0005	LU-4	Section 3.8 acknowledges the varied recreational opportunities that exist under the existing military training airspace. For visitors within designated special use areas, the likelihood of the presence of chaff or flare residual components occurring at a level that would disturb scenic quality or diminish the recreation experience is remote (EA section 4.8.3). The expected accumulation of end caps from all chaff and flare use is approximately one end cap per every 38.5 acres annually. Expected annual accumulation of chaff ranges from 0.005 ounce per acre in the northern portion of the MTR to a maximum of 0.06 ounce per acre in the remaining airspace. In addition, no increases in overflights are proposed over existing airspace in the area.
0006	TH-1	[redacted] Impact Analysis Process for this Defensive Training Initiative. Public and agency involvement plays a critical role in the National Environmental Policy Act (NEPA) process as it helps to shape the analyses and focus on specific resource areas important to you.

015

Ex 2

3 October, 2002

A. S. Elliott
El Bigote Cattle Co., LLC
Gottomitee, Ltd.
[redacted]

CERTIFIED MAIL: 7001 1940 0006 2354 3193, RETURN RECEIPT

27 CS/SCBR (FOIA)
101 West Eureka Avenue
Cannon AFB, New Mexico 88103-5016

Re: FREEDOM OF INFORMATION ACT REQUEST

To Whom It May Concern:

Under the Freedom of Information Act, I am requesting, by this CERTIFIED MAIL, RETURN RECEIPT REQUESTED, letter the following information:

1. The final resolution of two Cannon AFB F-16 aircraft that violated FARs by passing over me and my house at 450'AGL at end of July, or first of August, 1998. This violation was reported immediately by phone to 27FW Public Affairs and to COL Phil Breedlove, Supervisor of Flying, or whatever his title was. This incident also precipitated a Congressional Inquiry request via Sen. Jeff Bingaman, NM, and an ultimate meeting with COL Jeffrey A. Remington, Commander, and Staff, at the commander's office at Cannon AFB, on 16 SEP 00.

2. The scientific evidence or personal observation that substantiates the statements on pages G-21 thru G-23, especially paragraphs: LU-2, PH-2, LU-3, LU-4, and LU-5, of the FINAL DEFENSE TRAINING INITIATIVE ENVIRONMENTAL ASSESSMENT, 28 SEP 01.

3. Any and all documents regarding the investigation of the 27FW, Cannon AFB, F-16 Aircraft, tail number 316, crash upon our property in DeBaca County, New Mexico, USA, at 20:33 hrs local, 9 SEP 02. This should include, but not limited to, similar documents such as previously produced and named "AFI 51-503 USAF AIRCRAFT ACCIDENT INVESTIGATION REPORT, 1 SEPTEMBER 1998, Cannon Air Force Base, NM" and "INVESTIGATION AND CLEANUP INFORMATION F-16 Aircraft Crash Near Ft. Sumner, New Mexico, 1 September 1998.

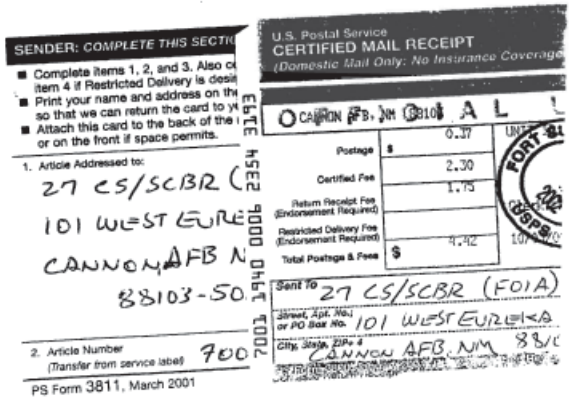
3 October, 2002
27 CS/SCBR (FOIA)
Cannon AFB, NM

I believe the above named inquiry requests should be void of any research fees as the actions by the United States Air Force continuously violate our Constitutional Rights by takings of private property, reasonable airspace, peace and quiet, and dispersal of trash in their pursuit of "mission".

Thank you.

Sincerely yours,

A. S. Elliott
Gottomitee, Ltd.
Managing General Partner



CAFB-4.doc

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR COMBAT COMMAND
LANGLEY AIR FORCE BASE, VIRGINIA

RECEIVED @
HQ 32, BOX 25
UVALDE, TX 78801-9700
21 JAN 03

10 JAN 2003

HQ ACC/SC
180 Benedict Ave, Ste 201
Langley AFB VA 23665-1993

Mr. A. S. Elliott
El Bigote Cattle Co.
[redacted]

Dear Mr. Elliott

This is in response to your 3 October 2002 Freedom of Information Act (FOIA) request for documents regarding (1) the final resolution for two Canon AFB F-16 aircraft that violated FARs by passing over your property at 450 feet AGL in the July-August 1998 time frame, (2) scientific evidence or personal observation that substantiates the statements of pages G-21 through G-23 of the Final Defense Training Initiative Environmental Assessment, 28 Sep 02, and (3) any and all documents regarding the investigation of the F-16 crash on your property on 9 Sep 02.

There are "no records" responsive to a final resolution for the alleged flying violation referenced in item 1 because a formal Hazardous Air Traffic Report was never filed. Records responsive to the referenced Congressional Inquiry were destroyed in accordance with AFM 37-139, Table 90-4, Rule 4, which states, "destroy after one year." Although the official files pertaining to the Congressional Inquiry were properly destroyed, draft copies of letters to you and Senator Jeff Bingman were located. However, these letters, as well as a two-page e-mail between the 27 FW/JA and the 27 CES/CC (responsive to item 3), are exempt from disclosure under the Freedom of Information Act, Title 5, United States Code, Section 552(b)(5). These documents are pre-decisional and contain opinions and recommendations of Air Force personnel; disclosure would reveal the deliberative process of the government and would compromise the process by which governmental decisions and policies are formulated. HQ ACC/CEV conducted a thorough search and found "no records" responsive to item 2 of your request.

Since copies of the Aircraft Investigation Board report and the Final Environmental Cleanup report were provided to you by 27 FW/JA, they are not included in this package. Additional documents pertaining to the cleanup of the F-16 crash on your property are releasable and attached.

If you interpret our "no records" response as an adverse action, you may appeal our decision along with our partial denial determination by writing to the Secretary of the Air

Global Power For America

Force within 60 days from the date of this letter. If no appeal is received, or the appeal is postmarked after the conclusion of this 60-day period, the appeal may be considered closed. Include your reasons for reconsideration along with a copy of this letter. Mail to:

Secretary of the Air Force
Thru: HQ ACC/SCXP (FOIA)
180 Benedict Ave, Ste 210
Langley AFB VA 23665-1993

Department of Defense Regulation 5400.7 indicates fees be assessed for providing these documents; however, the fees are waived in this instance.

Sincerely

Roland N. LeSieur

ROLAND N. LESIEUR, Colonel, USAF
Deputy Director
Communications and Information Systems

Attachment:
Releasable Records

FOIA Case No.: 2003-057

2

A. S. ELLIOTT
GOTTOMITEE, LTD.
[redacted]

27 February 2004

CERTIFIED MAIL: 7001 1940 0006 2354 3223

HQ ACC/CEVP
129 Andrews Street, Suite 102
Langley AFB, Virginia 23665-2769
Attention: Ms. Brenda Cook

Re: Response to Draft Proposal for the NEW MEXICO TRAINING RANGE INITIATIVE ENVIRONMENTAL IMPACT STATEMENT

Dear Ms. Cook:

As I stated in my two participations in your scoping meetings in Portales, NM and Fort Sumner, NM, I am very disappointed in the manner that the United States Air Force has condemned our property for your "Military Mission". You apparently have a video copy of my comments and I can substantiate my statements as to where the USAF lies to cover their abuse, FAR violations, damages, and responses to our various elected federal representatives.

The way the Air Force manages their own decisions is dismal. It took twenty-seven (27) months for the 150 FG, the NM Air National Guard, to upgrade their FLIP chart to reflect the expansion of my NSA by 27FW, 6 January 1996. Last Friday, two (2) German AF Tornadoes grossly violated the NSA by six (6) extended right hand circles over my ranch headquarters. One pass was directly overhead at 500' AGL or less! On Wednesday, 25 FEB 2004, Tech Sergeant Coupaud, NCOIC 49FW Public Affairs, Holloman AFB, called and confirmed that the Germans had indeed violated my NSA. This is not the first time that I've had to call the GAF about their violations. TSgt. Coupaud stated that the expanded NSA had not been published in their AF map and FLIP chart. What? Eight years after the expansion and no upgraded map? I have notified them on several previous violations since the expansion of JAN 96. Again, no concern or complete ineptness by "our boys in blue".

If you did not see the "trash" that I presented to Mr. Robert E. Van Tassel, SAIC, as well as several USAF and NMANG personnel at your Fort Sumner meeting, I have enclosed two photos. This "trash" is not being covered-up by "blowing dust" and is an eyesore and nuisance to pick-up from our private property. Enclosed, too, is a Polaroid photo of a flare canister that I picked-up just this morning. Mr. Van Tassel thought the evidence I presented to him is from flare/chaff deployment not to be deployed over private property but only on the government owned lands and ranges. Again, Ms. Cook, where is the truth in propaganda? That is an "oxymoron" isn't it? The canisters are twice the width that were proposed in your previous EA on the deployment of chaff and flare by 27FW, Cannon AFB. Please explain the apparent discrepancy of what you speak.

In regard to the fatal F-16 crash less than one (1) statute mile from my ranch house on 9 SEP 02, enclosed are the conflicting statements as to cause. One, the USAF press released newspaper story, and two, the "EXECUTIVE SUMMARY" statement from the AIB also released conveniently, or covertly, on Christmas Eve day 24 DEC 2002. Why the conflict in stated cause? I have yet to submit this claim for damages and libel by the AIB investigating officer, MAJ Thom Klopotek that took my son's statement of the closest witness to the crash, as he was in the house, and the finding of pilot parts to confirm no survivor. Why does he have to lie and libel me in his statement?

27 FEB 2004
HQ ACC/CEVP
Langley AFB, VA
Attn: Ms. Brenda Cook

Enclosed is a photo of a USAF B-1B bomber, date on reverse side, that shows the close proximity that your aircraft fly over our ranch operation. This is a little too damn close don't you agree? Yes, we have to carry a camera with us to verify how we are being threatened by USAF operations. Two of my previous damage claims have been by these monsters and right over my house!
To again "voice" my concerns by the condemnation of the USAF of our private ranch property, I have submitted the same questions I have submitted before. When you release the DRAFT EIS I will provide you with numerous substantiating correspondence as to my disgust in dealing with Air Force intervention, damages and violations, and subsequent lies. There was a previous FAR violation and subsequent omission in the chronological response by both the 27FW and 150FG to my member of congress several years ago. I hope that COL Jeffrey Remington has improved on his BS, caca de toro, line that the "F-16 aircraft avionics can be off by ten miles!" Lies, lies, lies…CYA, CYA, CYA…

Sincerely yours,

A.S. Elliott
Managing General Partner
Gottomitee, Ltd.
El Bigote Cattle Co., LLC

2004 USAF EIS

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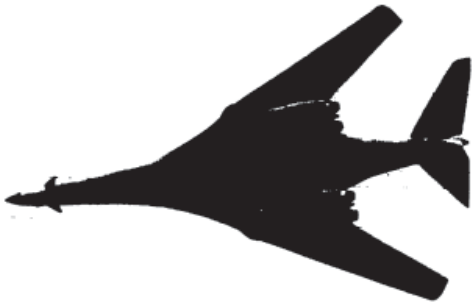
27 FEB 04 09:10
FOUND IN ROAD EAST SIDE OF
HOSPITAL TRUMP NEAR GATE



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DEPARTMENT OF THE AIR FORCE
WASHINGTON DC

OFFICE OF THE GENERAL COUNSEL

SEP 0 4 2003

SAF/GCA
1740 Air Force Pentagon
Washington DC 20330-1740

Mr. A.S. Elliott
El Bigote Cattle Co.
[redacted]

Dear Mr. Elliott

This replies to your 21 January 2003 appeal of the "no records" response of (1) the final resolution for two Cannon AFB F-16 aircraft that violated FARs by passing over your property at 450 feet AGL in the July-August 1998 timeframe; and (2) scientific evidence or personal observation that substantiates the statements of pages G-21 through G-23 of the Final Defense Training Initiative Environmental Assessment, 28 September 2002.

I have been delegated the responsibility to conduct the Office of the Secretary of the Air Force review in your case. I have considered your appeal and have determined that it should be denied.

The 27th Fighter Wing Safety Office and Headquarters Air Combat Command Environmental Analysis and Planning searched their files and both verified upon receipt of your appeal that there are no documents responsive to your request. Accordingly, there are no such records to release to you.

This constitutes the final Air Force action on your appeal. The FOIA, 5 U.S.C. § 552, provides for judicial review of this determination.

Sincerely

Don W. Fox
Deputy General Counsel
(Fiscal, Ethics, & Civilian Personnel)

DeBACA COUNTY NEWS
FORT SUMNER, NM 88119

To Whom It Should Concern:

If you haven't read the draft proposal from the Air Force for more chaff and flare deployment and supersonic flights a mile above local ground area, I recommend that you do so and plan to attend the scoping meeting tonight at 6pm in the Courthouse Annex. This proposed expansion of military operations is a condemnation of our private property rights supposedly protected under the Fifth Amendment, U.S. Constitution. Ramsey Clark said, "A right is not what someone gives you; it's what no one can take from you."

This Air Force plan is essentially an expansion of the Melrose Bombing Range as they plan to drop more trash upon our farms and ranches. The chaff and flare canisters and end caps are not the size proposed in the environmental assessment of 2001. See enclosed photo of trash retrieved. The fact that the canisters fall to the ground was not disclosed in the environmental assessment either.

Supersonic flights at 10,000 feet above mean sea level (MSL) will only be about a mile above our farms and ranches. Past experience has shown that the USAF will not pay for our inconvenience caused by sonic booms. Be aware that we away from town do not have the buffer capacity of trees and other buildings to reduce the sonic boom damage.

Another new tactic of cover and concealment in hiding the truth is the omission of the public's written comments a year ago at the pre-draft scoping meetings. This is the first example of omitting comments from numerous scoping meetings of the past 10-15 years of Environmental Assessments and Environmental Impact Statements. If you submitted a written comment last year you will see no reference to it in the New Mexico Training Range Initiative, January 2005, Draft EIS.

Be aware that numerous government agencies are slowly taking our rights away. Locally it is the water, the protected/endangered wildlife and the Air Force. I recently had to explain to my 8 year-old grandson why he could not pick-up a hawk feather he saw on the ground and put it in his hat. Remember when we could all do that? It is now against the law to even possess a feather because of the EPA. After years of libelous statements and anti-patriotic portrayals of my opposing rights-threatening environmental proposals, I embrace statements like Edward R. Murrow's, "We must not confuse dissent with disloyalty. When the loyal opposition dies, I think the soul of America dies with it." We must speak out with the truth even when it may be unpopular. A quote from the Holocaust Museum in Washington D.C. challenges us: "Thou shalt not be a victim. Thou shalt not be a perpetrator. Above all, thou shalt not be a bystander."

Read the report, come to the meeting and voice your comments, which must be submitted in writing, if you have or will be impacted by these operations or if you are just an American patriot concerned about property rights. Franklin Delano Roosevelt advised, "The only sure bulwark of continuing liberty is a government strong enough to protect the interests of the people, and a people strong enough and well enough informed to maintain its sovereign control over the government." How strong are the citizens of DeBaca County?

A. S. "Tex" Elliott
DeBaca County, New Mexico

EIS-NEWS-2-JAN-05

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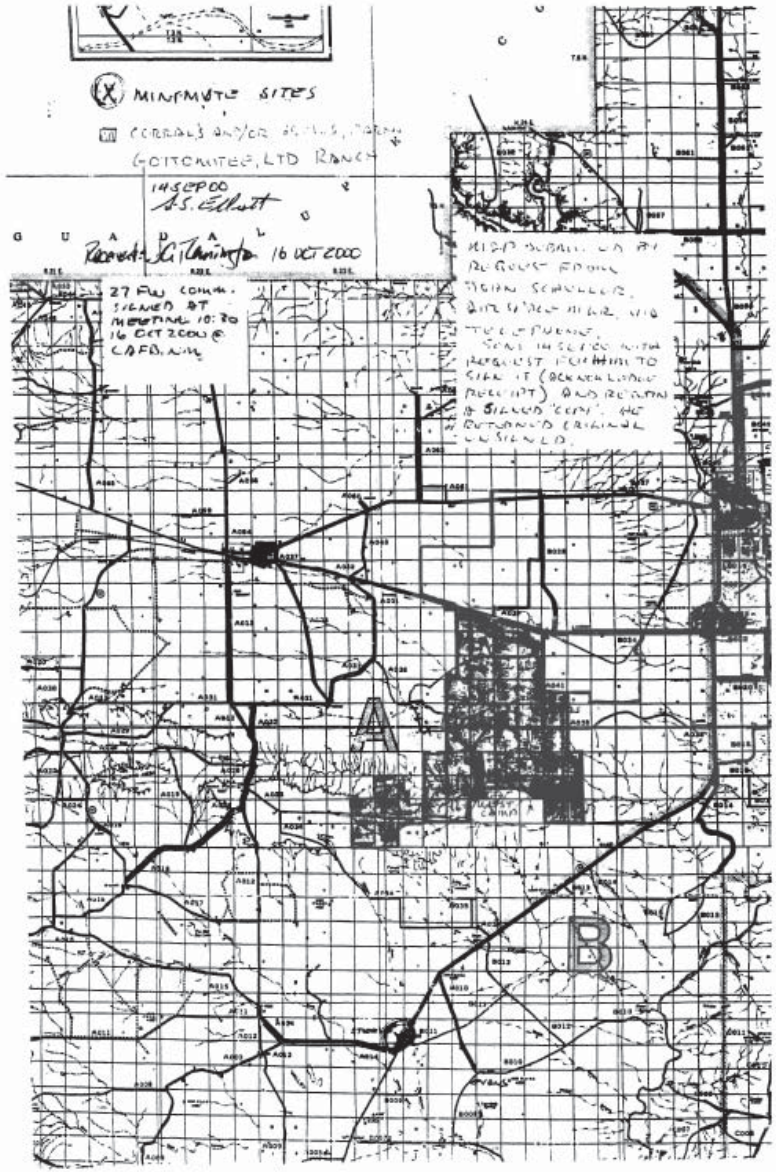

TO WHOM IT SHOULD CONCERN or, What the hell's happening to our Constitution? Once again we are confronted with additional interdiction and inconvenience by the USAF to remedy their "accidents" with the latest proposal to include supersonic flights at lower altitudes over more area, re: NEW MEXICO TRAINING RANGE INITIATIVE. Read the Fifth Amendment in our Bill of Rights, the United States Constitution. Our lands are being confiscated by the military in an untruthful and fraudulent way.

A year ago scoping meetings were held in Portales, Ft. Sumner, Santa Rosa, Vaughn, and Roswell, to presumably receive the public's input, pro or con, as required by NEPA, National Environmental Policy Act. As many of you know, or have acknowledged by now, this is just PR, public relations. The Air Force's action is set and the public has no rights. To confirm this statement, the current DRAFT EIS, just released, does not contain our "public input" as requested at their meetings. In all of the numerous previous responses to scoping meetings and draft responses, our written responses are included. What gives, you ask? Basically, they lie!

This is exactly my point in informing you that you must read their propaganda and comment, and express your personal anxieties or experiences with low flying and noisy jet aircraft. I have heard many of you comment, occasionally with expletives, your personal aggravation, or damages suffered from the USAF, or TACOs, the NM Air National Guard, low flights. I have suffered nine such occasions in less than nine years right over my ranch headquarters or within one mile. You must report them as they occur, or the USAF assumes you're all happy campers.

Remember in 1978 the TACOs created a 100ft above ground level visual flight rules military training route (100'AGL VFR MTR) traversing DeBaca County without any public disclosure. This was confirmed by Lee Tillman, EPCOG. This route, now VR1198/1107, passed directly over my house and corrals, a violation of the Federal Aviation Administration (FAA) Federal Air Rules (FARs) in that all pilots: military, commercial and private, must avoid all persons on the ground and houses by 500' both vertically and horizontally. This FAR was violated far too many times over me, my house, and many of you, as you have expressed to me. The German Air Force is also included in these violations. The absolute absurd explanation was given by Col. Remington, Cannon AFB, several years ago, after previous requests for facts, the jets were at 450'AGL, but "they were a quarter mile away, a mile, then 5 miles, and then the commanders statement "…that the avionics on the F-16 can be 10 miles off." A 16-24 million dollar jet aircraft has such poor electronics? They will not admit the truth. This is just one of many violations.

Each year, I have to call Cannon to "report" that we are weaning our calves in front of our house to avoid future "accidents". Currently they are required to avoid my HQTRS by 2 nautical miles if below 1500'AGL. Two Christmases I have missed being with my family because I was re-gathering cattle, re-sorting, and repairing fence. This is after I informed them. Inconsideration, ineptness, carelessness? Think about it.

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Until you suffer a jet crash upon your property, you have no idea of the interdiction and inconvenience you are subjected to. The AIB, Accident Investigation Board, released conveniently, for the USAF, on Christmas Eve morning, 24 December, 2002, contains a summary page with a statement that differs from the press release same date. The press was given a no mechanical malfunction but unknown cause as to the accident. The AIB summary states that the pilot made a maneuver that he had insufficient altitude to recover from therefore impacting the ground. Why the difference in facts provided or stated? The report contains many errors and omissions and libel toward me. Why must they lie? What is their agenda?

They are conveniently taking our property with fraudulent statements like the blowing dust in eastern New Mexico will cover up their trash! But wait! It's not trash! It's residual material left over from its intended purpose. Think about beer cans, vegetable cans, any food container, any container. Now, can we throw our "trash" onto Cannon AFB, our highways, and our neighbor's land? It's just residual material left over… I don't want their trash, the containers, and lids that fall upon our property after firing, deployment. Do you? Do you want my trash?

The size of the flares and chaff containers proposed in the previous EA, Environmental Assessment, SEP 2001, differs from the containers I have been retrieving from my roads and corrals. There was no mention of metallic canisters falling onto our properties, and I am retrieving end-caps that are twice the size proposed. At the scoping meeting a SAIC, Boise, Idaho, team member thought the extra size caps were not to be deployed over private property but only on military ranges! Again where's the truth?

I had a broken window from a sonic boom several years ago and the Air Force would not consider my time of inconvenience to patch it up, secure carpenter, meet with him, and then let him in to make repairs. I have no buffers around my house to reduce the impact. They will not pay your damage claims.

Folks we must secure our constitutional rights. We must defend the truth. We cannot accept the actions of an intrusive abusive government. I can substantiate everything I have written and spoken with documentation. "*The liberties of a people never were, nor ever will be, secure when the transactions of their rulers may be concealed from them.*" Patrick Henry, from the letterhead of our DeBaca County News. Our elected officials both in Texas and New Mexico are having a hard time responding to me about this abuse, or, they too, are concealing the truth. You must secure the DRAFT EIS from the public library, read it and respond. Remember the spotted owl, the Mexican wolf, and the Pecos/Rio Grande blunt nose shiner…? Get involved!!

A. S. "Tex" Elliott

[redacted]

EIS-NEWS-JAN-05

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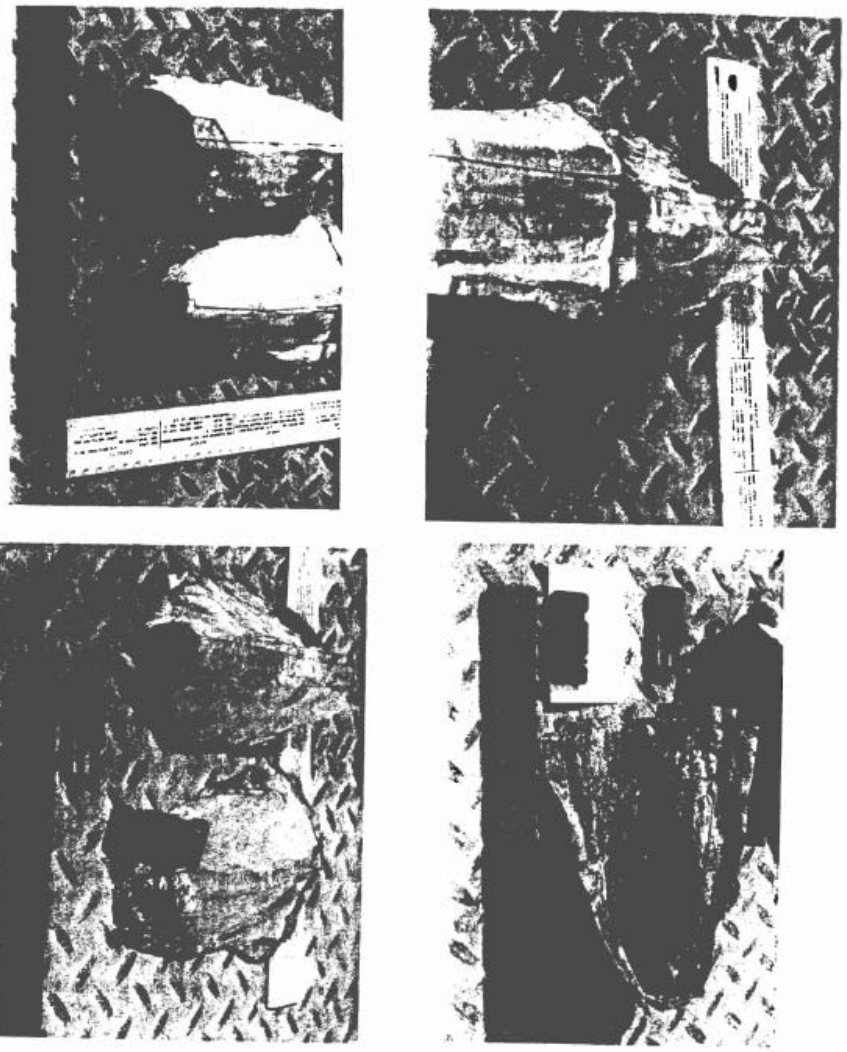

El Bigote Cattle Co., LLC, Gottomitee, Ltd. and A.S. "Tex" and Jan Elliott
NMTRI DEIS COMMENTS

Exhibit T

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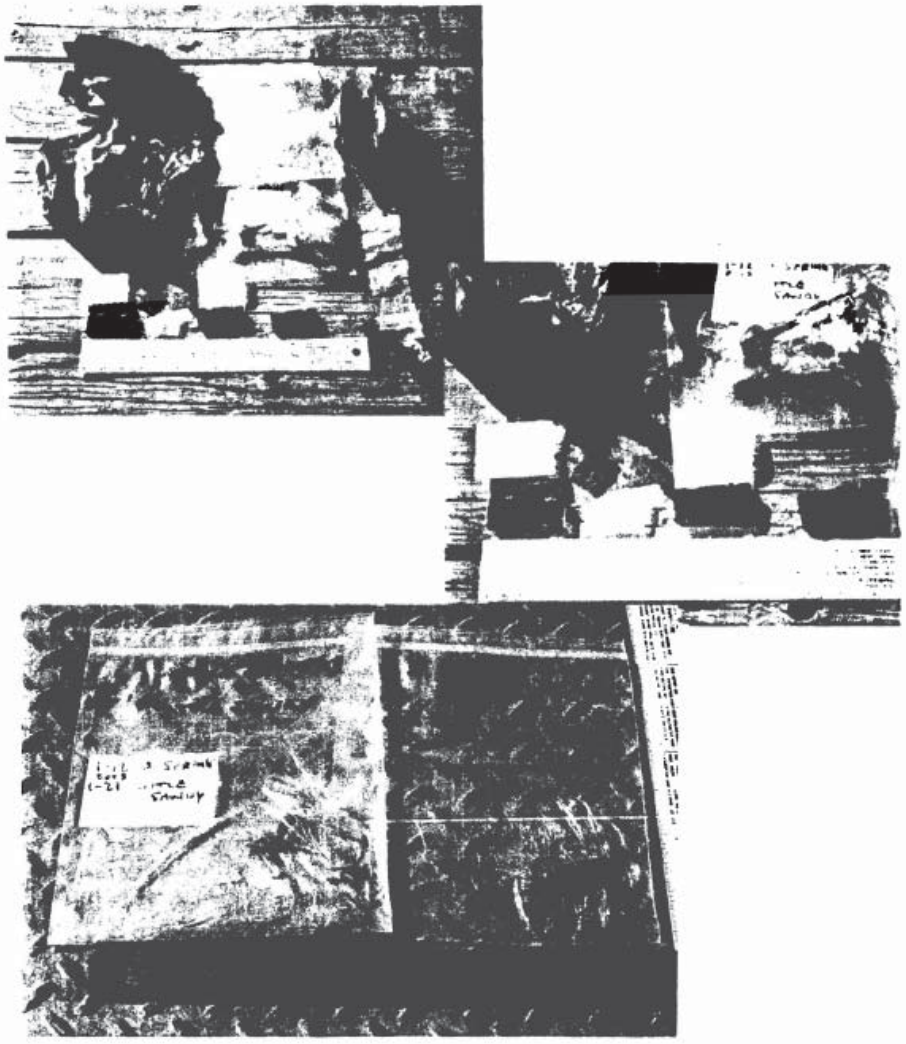

El Bigote Cattle Co., LLC, Gottomitee, Ltd. and A.S. "Tex" and Jan Elliott
NMTRI DEIS COMMENTS

Rec'd

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 27TH FIGHTER WING (ACC)
CANNON AIR FORCE BASE NEW MEXICO

Colonel Jeffrey P. Harrell
Vice Commander
100 S DL Ingram Blvd Suite 100
Cannon AFB NM 88103-5214

27 July 2005

Mr. A. S. Elliott
Managing Partner
El Bigote Cattle Co., L.L.C.
[redacted]

Dear Mr. Elliott

I am writing regarding the components you presented to Air Force officials during the New Mexico Training Range Initiative public hearings held in January 2005. Although it was our intention to have a representative visit you personally to convey our appreciation, we will honor your request to do so in writing.

First and foremost, thank you for bringing this matter to our attention. Our analysis of the components you presented indicated they are residual debris from an MJU-7 flare. This type of flare may be used over Melrose Range. However, it was not specifically analyzed for use in the surrounding airspace as part of the Defense Training Initiative Environmental Assessment. Due to a lack of communication, the significance of using the MJU-7 flare was not properly understood.

After the public hearings, the Air Force took several actions. For training operations in this area, we have ordered that MJU-7 flares may only be used in the airspace over Melrose Range. Also, the Air Combat Command Director of Air and Space Operations sent a letter to all ACC Wing Commanders directing them to ensure personnel properly coordinate which training materials have received the appropriate environmental analysis.

At this time, we are working to clarify the residual debris from flares proposed for use in Cannon's airspace outside of Melrose Range. We intend to include an additional opportunity for public involvement and comment.

Once again, thank you for bringing this matter to our attention.

Sincerely

JEFFREY P. HARRELL, Colonel, USAF

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El Bigote Cattle Co., L.L.C.
[redacted]

HAS NOT RESPONDED 14 FEB 06

15 August 2005

Colonel Jeffrey P. Harrell
Vice Commander
100 S DL Ingram Blvd, Suite 100
Cannon AFB, NM 88103-5214

Re: **AIR FORCE TRASH DEPLOYED UPON PRIVATE PROPERTY**

Dear Col. Harrell:

Thank you for your very late response to my question as to why "trash" retrieved from our ranch property is not what was proposed in your DRAFT and FINAL **DEFENSIVE TRAINING INITIATIVE ENVIRONMENTAL ASSESSMENT**, Cannon Air Force Base, New Mexico, September 2001. I say late because I have asked for over three years and more than two 27FW/PA officers to provide me with a sample of what the USAF was actually using over our ranch. Finally, 1stLt, Jennifer Geeslin, 27FW/PA, admitted that she could not provide one. Please note copy of response to Ms. Brenda Cook, re: Draft Proposal for **NEW MEXICO TRAINING RANGE INITIATIVE ENVIRONMENTAL IMPACT STATEMENT.** Hopefully you can see that my request was more than a year older than you state in your letter to me, 27 July 2005.

Now that you have violated the spirit of the chaff and flare proposal what are we going to do about it? You have violated NEPA as well in deploying trash that is "… being used for their intended purpose, and are not being " ' carelessly discarded' "., re: response to me in the FINAL EA, Defensive Training Initiative. Sir, trash is trash. Would you like for me to discard my residue (trash, e. g., beer cans, chemical containers, Wal-Mart plastic bags, etc.) from its "intended purpose" upon your yard or Cannon Air Force Base? What's the difference?

Chaff trash has also been retrieved from our property in your violation that: "In addition, the use of chaff only is analyzed for use in the northern portions of Military Training Routes Visual Routes 100/125." Re: **MEMORANDUM FOR ALL INTERESTED GOVERN.AGENCIES, INDIVIDUALS, ORGANIZATIONS, AND PUBLIC AND ACADEMIC REFERENCE LIBRARIES, 31 JUL 2001,** from **HQ ACC/CEVP, LANGELY AFB, VA 23665-2769, Draft Environmental Assessment (EA) for the Defensive Training Initiative (DTI) Cannon Air Force Base, New Mexico.** Note the enclosed letter and my response. The denoted route is way further north than where the non-dispersed clumps of chaff were found. Why the violation?

How are we to remedy these violations and compensate me for my time and inconvenience in picking-up your trash deployed upon private property? Littering is a violation of New Mexico law, why should you be exempt? Please courtesy me with a response sooner than three years.

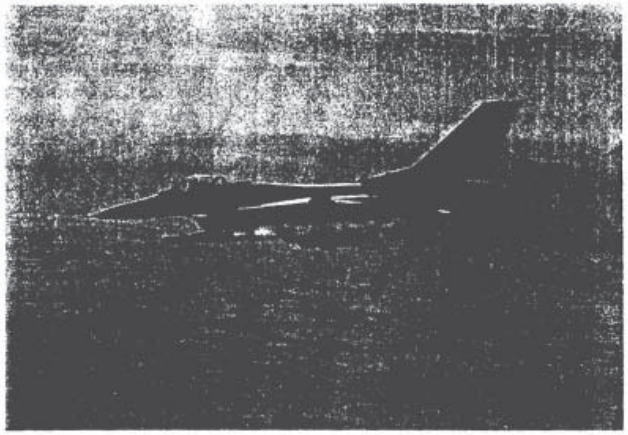
Sincerely yours,

A. S. Elliott
Managing Partner

EX 10

UNITED STATES AIR FORCE
AIRCRAFT ACCIDENT INVESTIGATION BOARD
REPORT

F-16 FIGHTING FALCON, 87-0316



LOCATION: PECOS MOA (52 NM WEST OF CANNON AFB)
DATE OF ACCIDENT: 09 SEPTEMBER 2002
BOARD PRESIDENT: BRIG GEN (SEL) JAMES P. HUNT

Conducted IAW Air Force Instruction 51-503

RELEASED MORNING
24DEC2002

015

OI. XB

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR COMBAT COMMAND
LANGLEY AIR FORCE BASE, VIRGINIA

10 DEC 2002

OFFICE OF THE COMMANDER
205 DODD BOULEVARD SUITE 100
LANGLEY AFB VA 23665-2788

MEMORANDUM FOR ACC/JA

SUBJECT: AFI 51-503, Accident Investigation Board Report, F-16C, S/N 87-0316, 522nd Fighter Squadron, 27th Fighter Wing, Cannon AFB, NM, 9 September 2002

I have reviewed the Accident Investigation Board Report regarding the F-16C that crashed during a training flight near Cannon AFB, NM on 9 September 2002. The report prepared by Brigadier General (Sel) James P. Hunt complies with the requirements of AFI 51-503.

This report is approved.

HAL M. HORNBURG
General, USAF
Commander

Attachment:
Accident Investigation Board Report

Global Power For America

EXECUTIVE SUMMARY

AIRCRAFT ACCIDENT INVESTIGATION
F-16C FIGHTING FALCON, SERIAL NUMBER (S/N) 87-0316
522ND FIGHTER SQUADRON (FS), CANNON AIR FORCE BASE, NEW MEXICO

9 SEPTEMBER 2002

On 9 September 2002, at approximately 2027 Mountain Daylight Time (MDT), the mishap aircraft (MA), an F-16C, S/N 87-0316 crashed in the Pecos Military Operating Area (MOA) approximately 11 miles southwest of Fort Sumner, New Mexico. The mishap pilot (MP) was fatally injured and the mishap aircraft (MA) was destroyed with the loss valued at $20,475,759. The MP and MA were assigned to the 522nd FS, 27th Fighter Wing, Cannon AFB, New Mexico. There was minor damage to private rangeland.

The MP was number three in a 3-ship vs a 4-ship flight of F-16Cs. During the second engagement, the MP was expected descend to a pre-assigned altitude block and then execute a "drag" maneuver (left 180-degree turn). However, approximately 20 seconds after entering the turn, the aircraft impacted the ground wings-level, in approximately 20 degrees of dive and at approximately 550 Knots Calibrated Airspeed (KCAS). There was no attempt by the pilot to eject.

There is clear and convincing evidence that the MP allowed the MA to enter into a tight, descending turn and, in the seconds prior to impact with the ground, began a maximum performance dive recovery. There was insufficient altitude to recover the aircraft. The loss of Flight Data Recorder information provided no evidence to make a clear determination as to why the MP allowed the aircraft to exceed the preplanned parameters. However, the Board President opined that there were several possible causes for the MA's steep dive, the most likely being:

1) The MP planned to be the third aircraft in a three-ship trail presentation to the opposing flight. Because of airspace and timing issues, the MP was actually the first aircraft and required a different threat reaction than the MP expected. The MP found himself relatively close to the opposing flight, outside of his altitude block, and possibly confused as to what was expected of him. His confusion and accompanying distraction may have caused him to temporarily fail to monitor his aircraft's attitude during the maneuver.

2) The MP was attempting a left 180-degree turn while descending from approximately 22,000 feet above Mean Sea Level (MSL) to his assigned altitude block of 15,000 – 19,000 feet MSL. The mishap sortie was flown on a night with no discernable horizon and low moon illumination. Without exterior references, the MP was more susceptible to spatial disorientation and it is likely that the MP suffered from both somatogyral and G-excess illusions that resulted in an unusual aircraft attitude. Given the attitude, altitude, and airspeed of the MA, the MP did not have the time or altitude available to recover the aircraft.

It is likely that the MP, confronted with changes in the briefed maneuvers, became distracted and spatially disoriented as he executed a descending turn. As he fought to regain his situational awareness, he allowed the MA to enter a very steep dive. There is substantial evidence that the MP regained his situational awareness and attempted to recover the MA, but initiated the recovery at an altitude too low to permit safe recovery and impacted the ground.

Under 10 U.S.C. 2254(d) any opinion of the accident investigators as to the cause of, or the factors contributing to, the accident set forth in the accident investigation report may not be considered as evidence in any civil or criminal proceeding arising from an aircraft accident, nor may such information be considered an admission of liability of the United States or by any person referred to in those conclusions or statements.

SUMMARY OF FACTS

1. AUTHORITY, PURPOSE, AND CIRCUMSTANCES

a. Authority.

On 26 September 2002, General Hal M. Hornburg, Commander, Air Combat Command (ACC) appointed Brigadier General (Select) James P. Hunt to conduct an aircraft accident investigation of the 9 September 2002 accident of F-16C Fighting Falcon aircraft, serial number (S/N) 87-0316, near Cannon Air Force Base, New Mexico. (Tab Y-3-5) The investigation was conducted at Cannon Air Force Base, from 1 October 2002 through 18 October 2002. The team composition was shown in the table below. (Tabs Y-3-5)

Name	Position
Brig Gen (Select) James P. Hunt	Board President
Major R. Curtis McNeil	Legal Advisor
Major Roger A. Quinto	Maintenance Advisor
Major Roland P. Wright	Pilot Advisor
GS-13 Thomas E. Rittinger	Aeronautical Engineer
Captain Joseph R. Beard	Medical Advisor
Captain Nereyda L. Sevilla	Aviation Physiologist
2 Lt Kevin D. Larson	Recorder
SMSgt Gerald W. Laney	Egress Systems Advisor
SMSgt (Select) Joseph C. Kirk	Air Traffic Control Advisor
SSgt Kelvin A. Brantley	Administrative Support
A1C Rhonda M. Bush	Administrative Support

b. Purpose.

This aircraft accident investigation was convened under Air Force Instruction (AFI) 51-503, *Aerospace Accident Investigations*. The purpose of this investigation is to provide a publicly releasable report of the facts and circumstances surrounding the accident, to gather and preserve evidence for use in claims, litigation, disciplinary, and adverse administrative actions; and for all other purposes. In addition to setting forth factual information concerning the accident, the board president is also required to state his opinion as to the cause of the accident or the existence of factors, if any, that substantially contributed to the accident. This investigation is separate and apart from the Safety Investigation Board (SIB), convened in accordance with AFI 91-204, *Safety Investigations and Reports*. This report is available for public dissemination under the Freedom of Information Act (5 United States Code (U.S.C.) §552) and the Air Force Supplement to Department of Defense Regulation 5400.7, *Department of Defense Freedom of Information Act Program*.

c. **Circumstances.**

The Accident Investigation Board (AIB) was convened to investigate the Class A mishap involving an F-16C Fighting Falcon, aircraft serial number (S/N) 87-0316, manufactured by Lockheed Martin Aeronautical Systems, formerly General Dynamics Corporation, which crashed in an unpopulated section of a cattle ranch near Cannon Air Force Base, New Mexico, on 9 September 2002 during a night training mission. (Tabs A-3, B-3, N-3-5, O-145-147, P-3, R-3, S-3-5, V-1.2, V-5.2-3)

2. ACCIDENT SUMMARY

The Mishap Aircraft (MA) impacted the ground approximately 52 nautical miles (NM) west of Cannon Air Force Base, New Mexico while supporting a Night Vision Goggle (NVG) syllabus training sortie. (Tab A-3) The Mishap Pilot (MP) was part of a three-ship flight simulating an adversary formation, call sign "FLAME" flight. (Tabs A-3, B-3, N-3-5, V-2.6, V-6.6, V-7.1, V-9.5, V-9.8, V-10.3) FLAME flight was supporting upgrade training for a member of the four-ship blue (friendly) flight, "LORD" flight. (Tabs A-3, B-3, V-2.8, V-7.1, V-10.3) The MP was performing a drag maneuver (180-degree, descending turn) pre-planned for the lead aircraft. He entered a descending left turn that continued for 300 degrees of turn and impacted the ground. (Tabs A-3, V-8.7, V-10.17-18) The MP was killed in the mishap. (Tabs A-3, B-3, V-11.3, GG-9) The MA impacted on a ranch in a remote area of eastern New Mexico and was totally destroyed. (Tabs M-3, S-3-5) The loss is valued at $20,475,759.42. (Tabs M-3, S-3-5) There were no civilian casualties. Civilian property damage included minor damage to the land at the mishap site caused by the impact, aircraft debris, and recovery and rescue vehicles. (Tabs P-3, R-3, S-3-5) Members of the blue air contingent (LORD flight), Cannon AFB fire rescue personnel and local civilian response teams performed search and rescue efforts. (Tabs B-3, V-2.9, V-6.9, V-7.3-4). The 27th Fighter Wing (27 FW) Public Affairs office handled most media requests. Initial media interest was high in the Clovis, NM area. Follow-on interest has been low. (Tab EE)

3. BACKGROUND

The mishap aircraft and pilot were assigned to the 522nd Fighter Squadron, 27th Operations Group, 27th Fighter Wing (ACC). (Tab A-3) Other agencies involved were standard for this type mission and included aircraft maintenance, weather, air traffic control, and airfield operations. The mission was flown supporting the NVG-6 upgrade sortie from the 27th Fighter Wing training syllabus. (Tab BB-4-5) Procedures for this type of sortie are primarily found in AFTTP 3-1 Volume 5 (Secret), *Tactical Employment, F-16*. Other procedures used for this mission are found in the 27th Fighter Wing Syllabus, AFTTP 3-3 Volume 5, *Combat Aircraft Fundamentals, F-16 Tactics, Techniques, and Procedures*, T.O. 1F-16C-1, *Flight Manual, USAF Series F-16C/D Blocks 25, 30 and 32*, T.O. 1F-16C-34-1-1, *Avionics and Nonnuclear Weapons Delivery Flight Manual USAF Series Aircraft, SCU-3+, SCU-4, SCU-4.1, SCU-4.2, F-16C/D Blocks 25, 30 and 32*, AFI 11-2F-16 Volume 1, *F-16 Aircrew Training*, AFI 11-2F-16 Volume 3,

(1) Ground Avoidance Advisory Function (GAAF)

GAAF is an automatic feature that requires no pilot activation or data entry. The GAAF advisory cues are presented both visually and aurally. According to the T.O. 1F-16C-1, *F-16 Flight Manual*, GAAF must have air-to-ground laser, radar (in an air-to-ground mode), or CARA information to determine altitude AGL. No GAAF advisory will be issued if sensor data is unavailable. The MA did not have a laser installed. Because the MP was in an air-to-air engagement, radar air-to-ground mode was unlikely. CARA provides data only when pitch attitude is less than ±40° and roll attitude is less than ±60°. Due to the configuration, radar mode, and probable attitude of the MA, GAAF probably did not have reliable sensor data and a GAAF advisory was unlikely. (Tabs J-33, BB-100-102, BB-109-112)

(2) Combined Altitude Radar Altimeter Automatic Low Altitude Warning System (CARA ALOW)

The CARA ALOW uses CARA inputs to provide advisory cues whenever the aircraft descends below the ALOW setting. According to the CSFDR data, the ALOW was set at 6,000 feet AGL. CARA provides data only when pitch attitude is less than ±40° and roll attitude is less than ±60°. Due to the probable attitude of the MA (greater than -40° in pitch and possibly in a turn of more than 60°), a CARA ALOW advisory was unlikely. It is possible that the MP received an ALOW advisory late in his dive recovery as he rolled wings level and decreased pitch angle but the warning would have been too late to prompt additional pilot actions. (Tabs J-33, BB-102-104, BB-109-112)

(3) Line in the Sky (LIS)

LIS provides an altitude advisory cue based on barometric altitude above MSL. The pilot sets this altitude and receives one "altitude-altitude" voice message if the aircraft descends below the set altitude. Because LIS is not recorded on the CSFDR, the actual LIS setting of the MA is unknown. Analysis of Data Transfer Cartridges (DTC) for the other aircraft in the mishap flight showed LIS set at 10,000 feet MSL. (Tab CC-10) If the MP did not change the LIS value set in the DTC before or during flight, he would have received an "altitude-altitude" warning at 10,000 feet MSL. (Tabs J-33, BB-104, CC-10)

(4) Ground Collision Avoidance System (GCAS)

The GCAS system uses the aircraft Digital Terrain System (DTS) to warn pilots that a pull-up is necessary to avoid a flight path below the entered GCAS set altitude. (Tabs J-33, BB-106) However, for areas of flat terrain, like the terrain below the Pecos MOA, there are not enough distinguishable terrain features to allow the DTS to track, nor does GCAS work well at medium altitude. (Tabs J-33, BB-106, T.O. 1-1F-16C-34-1-1, page 1-186.9)

Pilot interviews indicate that GCAS is usually not used due to the high occurrence of false alarms. (Tabs V-7.3, V-8.9, V-9.7) The MA GCAS was set at 50 feet AGL. (Tab J-35) Due to the mishap's medium altitude flight over featureless terrain, a GCAS advisory was unlikely. (Tabs J-35, BB-106, T.O. 1-1F-16C-34-1-1, page 1-186.9)

(5) Altitude Warning Systems During the Mishap Mission

Due to the attitude of the aircraft during the MP's drag maneuver, the GAAF and CARA ALOW altitude warning systems would not provide initial altitude warnings. (Tabs BB-100-104) Since GCAS does not track properly over level terrain from medium altitudes and was set at 50 feet, GCAS would not have provided an altitude warning. (Tabs BB-106, V-7.3, V-8.9, V-9.7) LIS is probably the only system that could have given an altitude warning. Because LIS settings are not recorded on the CSFDR, the actual LIS setting of the MA is unknown. Analysis of Data Transfer Cartridges (DTC) for the other aircraft in the mishap flight showed LIS set at 10,000 feet MSL. Since all aircraft received the same DTC information, the MA LIS was set before takeoff to 10,000 feet MSL. (Tab CC-10) If the MP did not change the LIS value set in the DTC before or during flight, he would have received an altitude warning at 10,000 feet MSL. (Tabs J-33, BB-104, CC-10)

The MP began his maneuver at approximately 350 knots and impacted at approximately 550 knots. (Tabs J-34-35, DD-3-5, FF-27-29) The aircraft was descending at approximately 1,000 ft/sec. (Tabs DD-3-5, FF-27-29) The elevation of the earth in the mishap area is 4,050 feet MSL. (Tab C-3) The pilot needed 4,500 feet AGL to recover the aircraft in a 90-degree dive and 3,900 feet AGL to recover the aircraft in a 75-degree dive. (Tab BB-98) These numbers assume fully extended speedbrakes; the MA would have required even greater altitude to recover since the speedbrakes were closed. (Tabs J-31, BB-98) According to simulations, the MA was most likely in a 90-degree dive. (Tabs DD-3-5, FF-27-29) In a 90-degree dive the MP would have received LIS altitude warning at 6,000 feet AGL; the MA would have lost another 2,000 feet before the MP began a dive recovery (assuming a two second reaction time). (Tabs CC-10, CC-35-37, CC-40, DD-3-5, FF-27-29) Using these assumptions, the MP probably began his recovery near 4,000 feet AGL. The MA required over 4,500 feet to successfully recover; therefore, there was insufficient altitude to recover the aircraft. (Tabs BB-98, CC-10, DD-3-5, FF-27-29) The aircraft flight controls, attitude at impact, and characteristics of the impact crater support the Board's conclusion that the MP had begun a high-speed dive recovery maneuver prior to impact.

i. Situational Awareness

Situational Awareness (SA) is defined as a continuous accurat relation to the dynamic environment of flight, threats, and mis ultimately execute tasks based on that perception. (Tab BB-95 to acquiring and maintaining SA. It involves focusing one's n order to successfully process information in a manner leading environment. It requires a conscious level of mental functioni

Inside of 20 NM from LORD flight, FLAME 1, perceiving that FLAME 3 had missed his turn, called "action," directing FLAME 3 to start the left 180-degree turn to the west. (Tabs N-5, V-9.10, V-10.16) However, FLAME 3 continued forward and called that he had targeted the LORD flight. (Tabs N-5, V-9.10, V-10.16) FLAME 1, in an attempt to talk him through the briefed lead maneuver, directed FLAME 3 to "...drag left to north and abort." (Tabs N-5, V-9.10, 10.16)

In addition, FLAME 1 directed FLAME 3 to descend to the 15,000-19,000 feet MSL altitude block "at the push." (Tabs N-4, V-10.16) The "push" is the beginning of a simulated combat engagement. FLAME 3 did not descend to the assigned altitude block. (Tabs N-4-5, V-10.16, DD-3-5, FF-27-29) The MP found himself at less than 20 NM from LORD flight, out of his assigned altitude block, and directed to perform a maneuver that he may not have expected. (Tabs N-5, V-10.16, DD-3-5, FF-27-29) As a result, the MP executed a left, descending, 180-degree turn in order to establish the correct position. (Tabs DD-3-5, FF-27-29)

The fact that FLAME 1 had to direct FLAME 3 twice to maneuver and that FLAME 3 was transiting through the wrong altitude block indicates that FLAME 3 may have been confused as to what was expected of him. That confusion may have led to distraction and could have contributed to spatial disorientation during his left descending turn.

k. Proficiency

The MP was qualified in accordance with all guidance pertaining to night flying. (Tabs V-2.4, V-6.4, V-7.2, V-9.4, V-10.4, BB 45-49, BB 51-53, BB-57-63) The MP's exposure to night flying was 2.1 hours in the last 30 days and 3.8 hours in the last 90 days. (Tabs G-3-5) Although the MP was qualified, he had a low recent exposure to night flying. (Tabs G-3-5) Experience has shown that the demands of night flying, especially in the F-16, require recent exposure to the night environment. (Tabs BB-81-82, BB-85) The MP was assigned to this mission specifically to give him that additional night flying exposure prior to his NVG sortie scheduled for the following night. (Tabs V-8.4, V-10.4) The point at which performance degrades is dependent on the individual; however, the night flying environment demands different basic habit patterns, an increased instrument cross check, and greater task management awareness. A lack of proficiency will tend to cause a breakdown of these basic tasks. Once this degradation begins, an individual can become more susceptible to spatial disorientation. (Tabs BB-81-83, BB-85)

12. GOVERNING DIRECTIVES AND PUBLICATIONS

a. Primary Operations Directives and Publications.

The primary publications are attached as described below. A full listing of the documents supporting this investigation is found at the end of this report.

AFI 51-503, *Aerospace Accident Investigations*
AFI 91-204, *Safety Investigations and Reports*

AFI 11-2F-16 Volume 1, *F-16 Aircrew Training*..... Excerpts at Tab BB
AFI 11-2F-16 Volume 3, *F-16 Operations Procedures*..... Excerpts at Tab BB
AFI-11-202, v3, *General Flight Rules*..... Excerpts at Tab BB
AFI-13-203, *Air Traffic Control*..... Excerpts at Tab BB
AFI 11-214, *Aircrew, Weapons Director, And Terminal Attack Controller Procedures For Air Operations*..... Excerpts at Tab BB
AFMAN 11-217 v1, *Instrument Flight Procedures*..... Excerpts at Tab BB
AFTTP 3-1 Volume 5 (Secret), *Tactical Employment, F-16*..... Export Restricted
AFTTP 3-3 Volume 5, *Combat Aircraft Fundamentals, F-16 Tactics, Techniques, and Procedures*..... Export Restricted
T.O. 1F-16C-1, *Flight Manual, USAF Series F-16C/D Blocks 25, 30 and 32*..... Export Restricted
T.O. 1F-16C-34-1-1, *Avionics and Nonnuclear Weapons Delivery Flight Manual USAF Series Aircraft, SCU-3+, SCU-4, SCU-4.1, SCU-4.2, F-16C/D Blocks 25, 30 and 32*..... Export Restricted
FAAO 7110.65, *Air Traffic Control*..... Excerpts at Tab BB
CAFBI 11-250, *Base Flying Procedures*..... Excerpts at Tab BB
27th Fighter Wing Syllabus..... Excerpts at Tab BB

b. Maintenance Directives and Publications.

ACCI 21-101, *Maintenance Management of Aircraft*.....Excerpts at Tab BB
T.O. 00-20-1, *Aerospace Equipment Maintenance General Policies and Procedures*.....Excerpts at Tab BB
T.O. 00-20-5, *Aerospace Vehicle/Equipment Inspection And Documentation*.....Excerpts at Tab BB
CFETP 2A3X3B, *AFSC 2A3X3B, F-16/F-117A Aircraft Maintenance Specialty Career Field Education Training Plan*.....Excerpts at Tab BB

c. Known or Suspected Deviations from Directives or Publications.

There were no known deviations from directives or publications.

13. NEWS MEDIA INVOLVEMENT

27th Fighter Wing Public Affairs distributed an initial news release shortly after the accident. News articles appeared in national and local media immediately after the accident. While initial media interest was high in the Clovis, NM area, follow-on interest has been low. (Tab EE)

JAMES P. HUNT
Brigadier General (Select), USAF
President, Accident Investigation Board

015

F-16 Fighting Falcon (S/N 87-0316) Accident
9 September 2002
STATEMENT OF OPINION

Under 10 U.S.C. 2254(d) any opinion of the accident investigators as to the cause of, or the factors contributing to, the accident set forth in the accident investigation report may not be considered as evidence in any civil or criminal proceeding arising from the accident, nor may such information be considered an admission of liability of the United States or by any person referred to in those conclusions or statements.

1. OPINION SUMMARY

There was not sufficient evidence to form an opinion as to the cause of this accident by a clear and convincing evidentiary standard. Airborne and ground radar data show that the MP entered a left, descending turn. Approximately 20 seconds after entering the turn, the aircraft impacted the ground wings-level, in approximately 20 degrees of dive and at approximately 550 Knots Calibrated Airspeed (KCAS). There was no attempt by the pilot to eject. There was no indication of any aircraft malfunction. The Board was able to determine what happened; however, it is impossible to determine to a clear and convincing standard why the mishap occurred.

There is clear and convincing evidence that the MP allowed the MA to enter into a tight, descending turn and, in the seconds prior to impact with the ground, realized his unusual aircraft attitude and began a maximum performance dive recovery. However, there was insufficient altitude to recover the aircraft.

2. CONTRIBUTING FACTORS

There is substantial evidence that several factors could have contributed to the mishap:

(a) The MP planned to be the third aircraft in a three-ship trail presentation to the opposing flight. Because of airspace and timing issues, the MP was actually the first aircraft in the trail formation. That position required a different threat reaction than the MP expected. At less than 20 NM from LORD flight, the flight lead directed the MP to execute a "drag" maneuver (left 180-degree turn away from LORD flight); the MP originally expected to execute either a left 90-degree turn, then turn back into LORD flight, or a "straight through" simulated attack on LORD flight. This change from the pre-briefed to the actual execution at a relatively short distance from the opposing flight may have confused or distracted the MP from his primary task of maintaining aircraft control. This type of change is not unusual in the rapidly changing environment of an air-to-air engagement.

(b) The MP was attempting a left 180-degree turn while descending from approximately 22,000 feet above Mean Sea Level (MSL) to his assigned altitude block of 15,000 –

19,000 feet MSL. Radar data showed that the MP maintained his starting altitude for the first few seconds of the turn, then abruptly began a descent. The mishap sortie was flown on a night with almost no moon illumination and over sparsely populated terrain with few ground lights. Testimony from other flight members indicates that there was little or no horizon from which to reference aircraft attitude. Without exterior references, the MP was more susceptible to spatial disorientation and had to depend almost completely on cockpit instruments. It is likely that the MP suffered from both somatogyral and G-excess illusions that resulted in an unusual aircraft attitude. It often takes several seconds for a pilot to recognize an unusual aircraft attitude and begin a recovery while relying solely on aircraft instruments. Given the attitude, altitude, and airspeed of the MA, the MP did not have the time or altitude available to recover the aircraft.

(c) The MA had four automatic altitude warning systems. Three of these systems probably would not have provided the MP with a low altitude warning.

i. The Ground Collision Avoidance System (GCAS) uses a digital map inputs to determine aircraft height above ground. GCAS is of minimal use at medium altitudes over featureless terrain since the system relies on terrain feature matching to calculate the aircraft's altitude above the ground.
ii. The Ground Avoidance Advisory Function (GAAF) relies on air-to-ground laser, aircraft radar or Combined Altitude Radar Altimeter (CARA) inputs to measure height above the ground and calculate a safe altitude to pull out of a dive. Air-to-ground laser was not installed, the MA was probably not in a radar ground ranging mode and it is unlikely that CARA was able to provide inputs to GAAF or CARA ALOW because the aircraft's bank and dive angle exceeded the CARA design specifications (± 30 degrees of straight and level flight) for reliable operation.
iii. Radar altitude low (CARA ALOW) uses CARA data to compute altitude warnings. Again, the aircraft bank and dive angle exceeded the CARA design specifications.

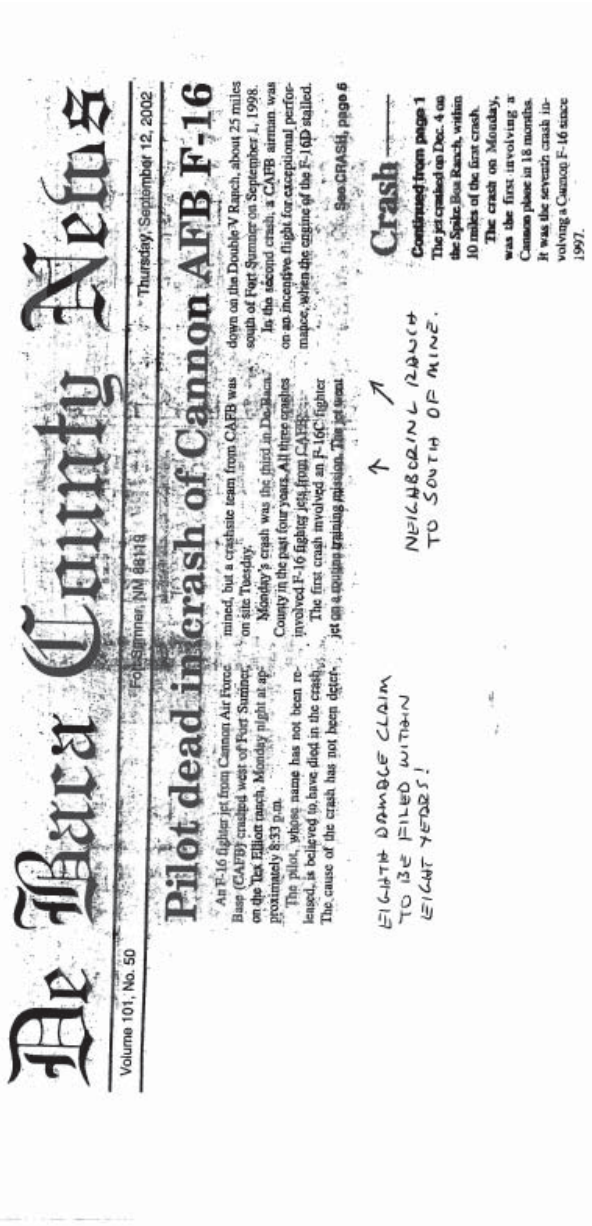
If GCAS, GAAF or CARA ALOW warnings were present, they would have occurred only after GCAS was able to determine height above the ground or aircraft pitch and bank angles reentered CARA limits seconds before impact, too late to effect the MA's dive recovery.

(d) The fourth system, Line-in-the-Sky (LIS), provides aural altitude warning when the aircraft goes below a preset altitude as measured by the barometric altimeter. Based on pilot interviews and the flight's Data Transfer Cartridge mission load, it is likely that the MP had the LIS value set for 10,000 feet above Mean Sea Level (MSL). With the LIS system set at 10,000 feet MSL, the MP would have received an altitude warning approximately 6,000 feet above the ground (terrain elevation was 4,050 feet MSL). Based on flight simulator recreations, it is likely the MA was accelerating in an almost 90-degree, nose-low attitude (almost straight down) when the LIS altitude warning was

activated. Given that aircraft attitude, it takes over 4,500 feet of altitude to recover from the dive. The MP likely started his recovery within 2 seconds of hearing the LIS altitude warning; given that two-second reaction time, he was approximately 4,000 feet above the ground when he began the recovery. Altitude was insufficient to safely recover the aircraft. This analysis is consistent with the MA's 20-degree nose down, wings-level impact attitude.

It is likely that the changed formation and expected aircraft maneuver distracted the MP for several seconds during a descending, left 180-degree turn. The combination of aircrew distraction, few or no outside references, and possible spatial disorientation delayed the MP's recognition of a developing high-speed dive. The MP finally did recognize his unusual attitude, most likely when he heard the LIS altitude warning, and began a maximum performance dive recovery; however, there was insufficient altitude to complete the recovery.

JAMES P. HUNT
Brigadier General (Select), USAF
President, Accident Investigation Board



De Baca County News

Volume 101, No. 50 Fort Sumner, NM 88119 Thursday, September 12, 2002

Pilot dead in crash of Cannon AFB F-16

An F-16 fighter jet from Cannon Air Force Base (CAFB) crashed west of Fort Sumner, on the Tex Elliott ranch, Monday night at approximately 8:33 p.m.

The pilot, whose name has not been released, is believed to have died in the crash. The cause of the crash has not been determined, but a crashsite team from CAFB was on site Tuesday.

Monday's crash was the third in De Baca County in the past four years. All three crashes involved F-16 fighter jets from CAFB.

The first crash involved an F-16C fighter jet on a routine training mission. The jet went down on the Double V Ranch, about 25 miles south of Fort Sumner on September 1, 1998.

In the second crash, a CAFB airman was on an incentive flight for exceptional performance, when the engine of the F-16D stalled.

See CRASH, page 6

Crash

Continued from page 1

The jet crashed on Dec. 4 on the Spike Box Ranch, within 10 miles of the first crash.

The crash on Monday, was the first involving a Cannon plane in 18 months. It was the seventh crash involving a Cannon F-16 since 1997.

EIGHTH DAMAGE CLAIM TO BE FILED WITHIN EIGHT YEARS!

NEIGHBORING RANCH TO SOUTH OF MINE.

Cause of F-16 crash remains unclear

❑ Investigators say it's likely pilot was disoriented while performing maneuvers.

By Claire Bushey
CNJ STAFF WRITER
claire_bushey@link.freedom.com

CLOVIS NEWS JOURNAL, CLOVIS NEW MEXICO

Air Force investigators could not determine the cause of a September F-16 crash that killed a Cannon Air Force Base pilot, a military press release stated.

Investigators released a report Tuesday on the Sept. 9 crash that killed Capt. Benton Zettel, 26, of Englewood, Colo. Zettel died during a night training mission when his single-engine jet fighter went down 60 miles west of the base.

Investigators could not find "a clear and convincing cause of the accident," the press release stated. But they did determine that nothing on the F-16 malfunctioned, said Maj. Roger Lawson, a spokesman for Air Combat Command.

Lawson said investigators look at weather, aircraft instruments, pilot training records and many other evidence sources to discover the cause of a crash.

"They look at everything," he said.

Investigators found it was likely Zettel became disoriented while performing a descending turn, the press release stated.

"As he fought to regain his situational awareness, he allowed the aircraft to enter a very steep dive," the release stated.

Evidence showed that Zettel probably recovered before impact and tried to right the jet, but the recovery began at too low an altitude, the release stated.

Zettel was assigned to the 522nd Fighter Squadron. He had served in the military since 1998 and been stationed at Cannon since October 2000.

F-16 crash cause still unknown

CANNON AFB – Air Force investigators say there is not enough evidence to determine the cause of a fighter airplane crash southwest of Fort Sumner that killed an Air Force pilot in September.

The F-16C crashed Sept. 9 during a night training mission near the headquarters of El Bigote Cattle Company. Debris was spread across a huge area, which included parts of the Geiler Ranch.

Capt. Benton Zettel, 25, was killed in the crash. Zettel and the airplane were assigned to Cannon's 522nd Fighter Squadron.

Investigators could not determine a "clear and convincing cause of the accident," according to the re-

See CRASH, page 5

Crash

Continued from page 1

port released by the Air Combat Command investigation board.

There was no indication of any aircraft malfunction, the report states.

The board found that the pilot likely became disoriented as he performed a descending turn.

It was the third crash of a Cannon F16 in De Baca County in the past three years.

SAME AS THE DE BACA COUNTY NEWS FT. SUMNER, NM

Clovis Livestock Market News
Vol. 10, No. 52
Friday, January 3, 2003

DEPARTMENT OF THE AIR FORCE
AIR FORCE LEGAL SERVICES AGENCY (AFLSA)

COPY

13 APR 2005

AFLSA/JACT
1501 Wilson Boulevard, Room 835
Arlington, VA 22209-2403

Gottomitee, Ltd.
Mr. A. S. Elliott, Managing Partner
[redacted]

Re: Your Claim for Property Damage, Cannon AFB 04-290/MCA

Dear Mr. Elliott

Under the provisions of the Military Claims Act (MCA), Title 10, United States Code, Section 2733, and the Federal Tort Claims Act (FTCA), Title 28, United States Code, Sections 1346(b), 2671-2680, we have considered the claim of Gottomitee, Ltd. (Gottomitee), for libel, slander, and damage to real property arising from the crash of an Air Force F-16 aircraft onto Gottomitee's land on September 9, 2002. Having thoroughly reviewed the facts and applicable law, we concur with the $25,000.00 offer forwarded to you by the Cannon Air Force Base Staff Judge Advocate on December 22, 2004, and renew that offer in full settlement of the claim. This is a firm and final offer.

This offer does not include damages for libel and slander. You presented no evidence that any employee of the Air Force did or said anything that could be considered to have libeled or slandered the claimant, Gottomitee, and even if you had, both the MCA and the FTCA prohibit the United States from paying such claims.

We believe $25,000.00 fairly compensates Gottomitee for any property damage caused by the plane crash. It includes the fair market value of a quarter square mile of land similar to the affected property in New Mexico, plus the fair market value for 300 cubic yards of soil and the cost of repairing Gottomitee's damaged fence.

If Gottomitee agrees to accept the amount offered in full and final settlement of all claims arising out of this incident, its authorized representative should sign the original and two copies of the attached settlement agreement. All three signed agreements should then be returned to me at the address shown above. The fourth copy of the agreement is for your records. Upon receipt of the properly executed agreements, we will process the claim for payment.

Sincerely

E. GLENN PARR
Chief, Aviation & Admiralty Law Branch
Tort Claims and Litigation Division

Attachment: Settlement Agreement (4)

015

GOTTOMITEE, LTD.
[redacted]

4 July 2005

Mr. E. Glenn Parr
Chief, Aviation & Admiralty Law Branch
Tort Claims and Litigation Division
AFLSA/JACT
1501 Wilson Boulevard, Room 835
Arlington, Virginia 22209-2403

Re: **Damage Claim, Cannon AFB 04-290/MCA**

Dear Mr. Parr:

Happy Fourth of July! We should be celebrating our independence from an overbearing government, but once again I have to deal with a C. S. agency that is condemning our private property in the state of New Mexico, USA. Attached is proof that the United States lies and abuses our rights in sake of their mission.

Enclosed are copies of original notes that Maj. Thomas Klopotek took at my son's interview less than two days after the fatal accident and his personal statement to dispute what Maj. Klopotek inserts into the AIB report record. Also included is a copy from the AIB report depicting what the CS chooses to state to libel me. Compare the original notes (that he acknowledges at the bottom of his AIB report) with the "official" page of the AIB. Apparently you cannot connect the same for proof or choose not to accept my claim. There is another libelous/slanderous statement in the AIB that disputes my claim that indeed it was I that notified Command and Control, Cannon AFB, New Mexico, of the crash; they were unaware and had to contact Air Force Range Melrose to confirm. So, Sir, the slander did circulate.

Your **COMPROMISE SETTLEMENT** form copies did not contain your signature, yet you want me to sign all four and keep one "unsigned" for "my" copy and return the three remaining "unsigned" copies to you? Again, where is the sincerity or the professionalism of your offer? An unsigned settlement release? Are you inept?

You want me to sign an **ELECTRONIC FUNDS TRANSFER (EFT) INFORMATION** sheet and defend its use as a determination if I have any unpaid debts to "our" government… The **AUTHORITY**: refers to a TIN number, but the form omits that fact or a place to write it. This is the best our government can afford to cheat the private landowner? And you are an "Attorney for United States of America"?

Sincerely yours,

A. S. Elliott
Managing General Partner
Gottomitee, Ltd.

Encls: 3

xc: Maj. Whitmyer, 27 FW/JAD

F-16-Settlement

Sept 2002

By MAJ TOM KLOPOTEK USAF

Interview with Stephen Elliott 11 Sep 02 / 1200L ; Verbal notes

- 5 min before halftime; airplanes heard flying overhead.
- Estimate time of crash at 2015-2030. Interior of house 'lit up' and then witness looked out; saw sparks and some flame.
- Witness saw what he perceived to be AB plane of another A/C to the east immediately after.
- Spot fires on site as witness drove out to the scene.
- Explosion described as brief thud.
- Saw 'dome' effect of fireball and described seeing sparkles from explosion.
- Witness ran over some recognizably obvious debris enroute to spot fires with his truck. Smelled strong vapors; then backed away (concerned with fire and munitions.)
- Contacted local fire department (Ricardo); Mr. Charlie Vaughn
- DeBaca county Sheriff (Shaun Pruitt) met witness on scene after calling fire department. (Estimated time 2045L)
- Enroute to spot fires, witness described seeing MP intestines and what in the was cowhide but considered was scalp and face. He then examined the remains briefly and replaced them back on the ground.
- Fumes not bothersome as Fire department & witness arrived second time.
- Sheriff asked witness to back his truck out of the immediate scene and witness left the crash site.
- Witness staked his personal shovel near the scalp remains.
- Witness called his father before first driving out to crash sit. His father recall the time as 2130L (Texas time).

End of interview (1223L)

Maj Thomas G. Klopotek

F-16C, 87-0316, 20020909CZQZ514A

I. SIB INTERVIEW: 11 SEPT 02; 1200L

INTERVIEWER: MAJ KLOPOTEK
INTERVIEWEE: STEPHEN ELLIOTT

-5 min before halftime; airplanes heard flying overhead.
-Estimated time of crash at 2015-2030. Interior of house "lit up" and then witness looked out: saw sparks and some flame.
-Witness saw what he perceived to be AB plane of another A/C to the east immediately after.
-Spot fires on site as witness drove out to the scene.
-Explosion described as brief thud.
-Saw "dome" effect of fireball and described seeing sparkles from explosion.

strong vapors; then backed away (concerned with fire and munitions.)
-Contacted local fire department (Ricardo); Mr. Charlie Vaughn
-DeBaca county sheriff (Shaun Pruitt) met witness on scene after calling fire department. (Estimated time 2045L)

-Fumes not bothersome as Fire Department and witness arrived second time.
-Sheriff asked witness to back his truck out of the immediate scene and witness left the crash site.
-Witness staked his personal shovel near the scalp remains.
-Witness called his father before first driving out to crash sit. His father recall the time as 2130L (Texas time)

End of interview 1223L
Maj Thomas G. Klopotek

See Interview notes reverse

Notes by Maj Klopotek

Mr. Elliot was very apprehensive about conducting a recorded interview with his son Steve. He refused to allow his son to sign the privilege statement and did not want me to record the interview. He did, however, make his own recording and made a photocopy of the from side of this page for his personal records.

//END OF STATEMENT//

September 5, 2004

27 FW/JAD
Cannon Air Force Base
Clovis, New Mexico 88103

Re: Cannon Air Force Base F-16 crash on September 9, 2002, AIB- Report

On September 11, 2002, Major Klopotek came out to El Bigote Cattle Co. headquarters to interview me on what I had witnessed the night of the crash. We, being me; Stephen M. Elliott, my father, A.S. "Tex" Elliott, and Major Klopotek exchanged salutations and began the process of this personal, first hand and only witness account of what happened to the F-16 and its pilot.

We all three sat down at our table to begin my testimony and reviewed the legality and the importance of my testimony. From the very beginning Major Klopotek was informative and polite and made sure we all understood what was about to take place.

Major Klopotek had a personal recorder and made me aware that he would be recording this interview and that this recording would be used as a tool in the AIB-Report. My father too, had a personal recorder and stated that he would like to record the interview as well. After this announcement, Major Klopotek said he had no problems with our recording and he stated that if we were recording the interview that he would not. My father stated that Major Klopotek should record the interview, as he was the investigating officer. Again, he refused to use his hand held recorder. We began the interview.

Before leaving my father requested to copy Major Klopotek's notes. Major Kloppotek said fine and my father copied his exact notes on our fax machine.

Sincerely yours,

Stephen M. Elliott
[redacted]

015

DEFENSE FINANCE AND ACCOUNTING SERVICE
P O BOX 182317
COLUMBUS, OHIO 43218 2317

June 2, 2005

ALBERT S. ELLIOTT
[redacted]

Dear Check Recipient:

Through recent analysis, we have identified you as the recipient of a paper check from the Department of Defense. We would like to take this opportunity to make you aware of the benefits of using Electronic Funds Transfer (EFT), for receiving payment from the Defense Finance and Accounting Services (DFAS).

EFT allows you to be more efficient by removing unnecessary steps in the payment process such as opening mail, preparing deposits and having staff make trips to the bank. EFT also allows you to better manage your cash flow by reducing the time it takes for you to receive your payment and eliminates the possibility of a check being lost in the mail by sending the payment directly to your bank. The transition to electronic commerce is a part of the Presidential Management Agenda. President Bush has said that, "Implementation of E-Government is important in making Government more responsive and cost-effective." By moving to electronic payment systems, DFAS and your company are partnering to achieve these goals.

You may begin receiving EFT payments by successfully completing registration in the Central Contractor Registry (CCR). You may do this by going to www.ccr.gov and following the directions under "Start New Registration". If you have any additional questions or need assistance in registering for the CCR, feel free to contact Stephanie Radin at 614-693-1156 or stephanie.radin@dfas.mil in order to facilitate a smooth transition.

If you have received this letter but are already registered in the CCR, thank you. However, please contact us, as we may need to make corrections to your account to prevent you from receiving paper checks in the future.

Sincerely,

Pamela M. Franceschi
Director, Vendor Pay Services

ENVELOPE:
ATTN: DFAS-ADDC/CA
PO BOX 182267
COLUMBUS, OH
43218-2267

www.dfas.mil
Your Financial Partner @ Work

DEPARTMENT OF THE AIR FORCE
AIR FORCE LEGAL SERVICES AGENCY (AFLSA)

12 JUL 2005

AFLSA/JACT
1501 Wilson Boulevard, Room 835
Arlington, VA 22209-2403

Gottomitee, Ltd.
Mr. A. S. Elliott, Managing Partner
[redacted]

Re: Your Claim for Property Damage, Cannon AFB 04-290/MCA

Dear Mr. Elliott

Thank you for your letter dated July 4, 2005, receipt of which is hereby acknowledged. I have executed and attached four duplicate originals of the settlement agreement I previously sent you under cover of my letter dated April 13, 2005. Although our usual procedure has been to wait until a claimant has executed and returned the settlement agreements before signing them ourselves, I have no objection to signing them first. In addition, I have corrected the attached Electronic Funds Transfer (EFT) Information sheet so that it includes a space for the Taxpayer I.D. Number (TIN). I appreciate your calling my attention to that error.

If Gottomitee, Ltd. (Gottomitee) agrees to accept our offer of $25,000 in full and final settlement of all claims arising out of the crash of an Air Force F-16 aircraft onto Gottomitee's land on September 9, 2002, its authorized representative should sign three of the duplicate originals of the settlement agreement, along with the EFT Information sheet, and returned them to me at the address shown above. The fourth copy of the agreement is for your records. Upon receipt of these properly executed documents, we will process the claim for payment.

Sincerely

E. GLENN PARR
Chief, Aviation & Admiralty Law Branch
Tort Claims and Litigation Division

Attachments: Settlement Agreement (4)
EFT Information sheet

015

ELECTRONIC FUNDS TRANSFER (EFT) INFORMATION

A. Name of Bank: _____

B. Street Address of Bank: _____

C. City, State and Zip Code of Bank: _____

D. Name on Account: _____

E. Account Number: _____

F. Type of Account: _____
[*Checking or Savings*]

G. Routing Number: _____
[*The Bank's number, located at the bottom left of a check*]

GOTTOMITEE, LTD., Claimant

By: A.S. Elliott 14 FEB 2006
Date

Its: MANAGING GENERAL PARTNER
Title

74-2943673
Taxpayer ID No. *(Social Security #)*

Privacy Act Statement
This notice applies to this attachment and is provided in accordance with the Privacy Act, 5 U.S.C. § 552a(e)(3). **Authority:** 31 U.S.C. § 3325(d), relating to the taxpayer identification number (TIN), and 31 U.S.C. § 3332(f)(1) relating to financial institution information. **Purpose(s):** To facilitate payment of your claim against a department or agency of the U.S. Government. **Routine Uses:** The TIN and financial institution information you provide will be disclosed to the U.S. Treasury Department and/or to the Defense Finance and Accounting Service to determine whether you have any outstanding debts to the government that should be paid from your award, and to facilitate electronic funds transfer, if applicable. The information may also be disclosed to other Federal agencies in order to process your claim. **Disclosure:** Voluntary, but failure to provide the requested information may result in payment of your claim being delayed or denied.

Attachment 1

**********NOTICE** THIS CLAIM IS FOR CATTLE OPERATION ONLY**********

CLAIM FOR DAMAGE, INJURY, OR DEATH

INSTRUCTIONS: Please read carefully the instructions on the reverse side and supply information requested on both sides of this form. Use additional sheet(s) if necessary. See reverse side for additional instructions.

FORM APPROVE OMB NO. 1105-0008 EXPIRES 4-30-8

1. Submit To Appropriate Federal Agency:

27thFW/JAD
101 S DL INGRAM BLVD
CANNON AFB, NM 88103-5219

2. Name, Address of claimant and claimant's personal representative, if any. *(See instructions on reverse.)* *(Number, street, city, State and Zip Code)*

EL BIGOTE CATTLE CO., L.L.C.
A S ELLIOTT, MANAGING PARTNER
[redacted]

3. TYPE OF EMPLOYMENT	4. DATE OF BIRTH	5. MARITAL STATUS	6. DATE AND DAY OF ACCIDENT	7. TIME *(A.M. OR P.M.)*
☐ MILITARY ☒ CIVILIAN	21JUN46	YES	9SEP02, MONDAY NIGHT	20:33

8. Basis of Claim *(State in detail the known facts and circumstances attending the damage, injury, or death, identifying persons and property involved, the place of occurence and the cause thereof) (Use additional pages if necessary.)*

We had weaned our calves early this year because of drouth on the weekend of 24,25AUG02. The next day, Monday, 26AUG02, I called Cannon AFB Public Affairs office to notify them once again, as I have to do each year to attempt to reduce damages from USAF/NMANG aircraft, at about 11:00 hours. I spoke with the new PA Officer, CAPT SANDROCK, and notified him of our ranch operations and asked them not to overfly just weaned calves that would be, as each year, located east of our HQ well within the infamous NSA. My son, Stephen was at ranch watching Monday Night Football. He had observed many aircraft flying that PM and into night, some using afterburners. At about 20:33, the house shuddered and the explosion lit up the room. He called me @ Uvalde, Texas, and I called Cannon AFB to report their crash, 20:36, Sgt Thompson took the call @ Command and Control and called Melrose Range and later confirmed crash. F-16, #316 was found on ranch.

9. PROPERTY DAMAGE

NAME AND ADDRESS OF OWNER, IF OTHER THAN CLAIMANT *(Number, street, city, State, and Zip Code)*

BRIEFLY DESCRIBE THE PROPERTY, NATURE AND EXTENT OF DAMAGE AND THE LOCATION WHERE PROPERTY MAY BE INSPECTED. *(See instructions on reverse side.)*

Cattle were observed within crash site pasture by various Cannon AFB personnel, Col Showers, Site Commander, LtCol Doran, LtCol Bower. On 10SEP02, Col Showers said yes, we need to remove livestock from crash area

10. PERSONAL INJURY/WRONGFUL DEATH

STATE NATURE AND EXTENT OF EACH INJURY OR CAUSE OF DEATH, WHICH FORMS THE BASIS OF THE CLAIM. IF OTHER THAN CLAIMANT, STATE NAME OF INJURED PERSON OR DECEDENT.

CONTINUATION OF #9 above: I and my two sons had to gather horses, gather the 184 weaning calves and move them into a much larger pasture, all in the rain. This was a month too early to remove them into a larger pasture which is more difficult to find sick weaned calves. This caused death of 1 steer.

11. WITNESSES

NAME	ADDRESS *(Number, street, city, State, and Zip Code)*
A S ELLIOTT CALEB G ELLIOTT STEPHEN M ELLIOTT	[redacted]

12. *(See instructions on reverse)* AMOUNT OF CLAIM *(in dollars)*

12a. PROPERTY DAMAGE	12b. PERSONAL INJURY	12c. WRONGFUL DEATH	12d. TOTAL *(Failure to specify may cause forfeiture of your rights.)*
Loss of weaning trap use 1000.	Labor to move cows and calves 500.	1 Steer @425# @ $1.00/# 425.	$1925.00

I CERTIFY THAT THE AMOUNT OF CLAIM COVERS ONLY DAMAGES AND INJURIES CAUSED BY THE ACCIDENT ABOVE AND AGREE TO ACCEPT SAID AMOUNT IN FULL SATISFACTION AND FINAL SETTLEMENT OF THIS CLAIM ***THIS IS FOR CATTLE OPERATION ONLY*

13a. SIGNATURE OF CLAIMANT *(See instructions on reverse side.)*	13b. Phone number of signatory	14. DATE OF CLAIM
A.S. Elliott MANAGER El Bigote Cattle Co, LLC	[redacted]	31OCT02

CIVIL PENALTY FOR PRESENTING FRAUDULENT CLAIM

The claimant shall forfeit and pay to the United States the sum of $2,000. plus double the amount of damages sustained by the United States. *(See 31 U.S.C. 3729.)*

CRIMINAL PENALTY FOR PRESENTING FRAUDULENT CLAIM OR MAKING FALSE STATEMENTS

Fine of not more than $10,000 or imprisonment for not more than 5 years or both. *(See 18 U.S.C. 287, 1001.)*

95-107
Previous editions not usable.

NSN 7540-00-634-4046

STANDARD FORM 95 (Rev. 7-85)
PRESCRIBED BY DEPT. OF JUSTICE
28 CFR 14.2

015

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 27th FIGHTER WING (ACC)
CANNON AIR FORCE BASE NEW MEXICO

MEMORANDUM FOR A.S. ELLIOTT
[redacted]

FROM: 27 FW/JAD
101 S DL INGRAM BLVD
CANNON AFB NM 88103-5219

SUBJECT: Claim for Property Damage

1. Your claim for damage to your cattle operation on 9 Sep 02 was received in this office on 6 Nov 02. After reviewing the file, the information listed below must be submitted in order to fairly and accurately assess your claim.

a. When did you move the calves? 10SEP02; See chronology enclosed
b. How long did it take to move them? All afternoon; chronology
c. Start time: Did not note time
d. End time: Did not note time
e. Total time for supervisor: Continuous
f. Total time for ranch hands: 6-7 hours
g. Where were the calves penned at the time the aircraft went down? Calves were not "penned". They were in same pasture as crash.
h. How far is this from the accident site? At location; same pasture.
i. Weaning trap size? Approx 960 acres
j. What size of pasture were calves moved to? Approx 4480 acres
k. How did you figure the amount of $1,000.00 for weaning trap use? We were denied use of its intended purpose to check on health of weaned calves
l. Age of the dead steer? Less than one year; just weaned
m. When did you discover the dead steer? 21SEP02
n. Did you report this loss to anyone at Cannon AFB? Not immediately but notified with claim.
o. Who did you talk to? _____
p. Did you take photos of the dead steer? Already decomposing
q. Did you have the steer examined by a veterinarian? No-too dead

r. If yes, what was the cause of death? N/A

s. Is your livestock covered by insurance? No

t. If so, who is your provider? N/A

u. Did you file a claim with your insurance provider? N/A

2. If you have any questions or if we can provide additional information to assist in filing your claim, please call our office at (505) 784-2212.

Kharma S. Clifford

KHARMA S. CLIFFORD, Capt, USAF
Claims Officer

At weaning (Cannon AFB was notified as we have to do each year) we keep calves across fence from cows for 7-10 days to reduce stress from being separated. This is performed annually in the "Weaning Trap" a 960 acre pasture that is relatively flat terrain and is simple to find and attend to sick animals.

Because of the crash and interdiction by Air Force personnel we were asked to move our 184 head of calves for your, USAF, convenience and possibly reduce damages to livestock. Again, an inconvenience to our operations.

To facilitate moving our calves to an adjacent pasture, we first had to move cows, their mothers, to pastures further away so that they would not be adjacent to each other with poorer quality fences to separate them. This took additional time and inconvenience especially in the 3" rain that continued to fall that day.

The pasture, Gama, that the calves were moved to is approximately five times larger than the weaning trap, 4480 vs. 960 acres. The Gama Draw also traverses the pasture making it impossible to see livestock without riding horseback to find and check them for post weaning sickness.

Because of the Air Force presence, damages to property (fence brace, other) NASA balloon trash over entirety of ranch, dealing with nondisclosed TFR inhibiting flying to retrieve NASA trash, we were not able to adequately check our livestock daily. If the USAF interdiction and occupation of our weaning facility, the "Weaning Trap", had not occured and caused us to remove our calves to a more hostile and inconvenient environment, this would not have occured and we would have been able to correct the possible health problem within the required facility.

A S Elliott

A. S. "Tex" Elliott
El Bigote Cattle Co., L.L.C.

Written Comment Sheet

Public Hearing for the Air Force Special Operations Command
Assets Beddown at Cannon Air Force Base, NM
Draft Environmental Impact Statement (EIS)

Thank you for your input!

Please hand this form in or mail before **MAY 14, 2007** to:

Mr. Carl T. Hoffman
HQ AFSOC/A7PP
427 Cody Avenue, Suite 303
Hurlburt Field, Florida 32544-5434

NAME:	Jeff Ashley
ORGANIZATION:	
ADDRESS:	[redacted]
CITY/STATE/ZIP:	[redacted]

Your name and address will be used to compile a mailing list for distributing future information regarding this Environmental Impact Statement (EIS). Names and addresses will not be published in the EIS. However, by including your name and address, it will become part of the EIS public record.

PLEASE PRINT

DATE: 5/11/07

I am one of the lessees to the grazing rights to the east of the impact zone located on the Melrose Bombing Range. I would prefer the No Action Alternative listed 4.1.3.3 (page 4-4) of the environmental impact statement in AFSOC Assests Beddrown at Cannon Air Force Base, New Mexico.

Because my family's home is located in close proximity to the bombing range, one major concern is the noise factor. Two-Target Alternative 4.2.3.1 (page 4-8, 4-10, & 4-47) states the noise level would increase with the majority of the increase after 10:00 pm.

Secondly, the use of Melrose AFR for live fire including HE rounds, and increased use of inert munitions training activities have the potential to increase the frequency of fires 4.3.3.1 (page 4-17). Even the CV-22s can turn their engines to "helicopter" mode on landing and ignite dry grass. There is also the possibility that ordnance could miss a target, either through human error or equipment malfunction putting civilians in harm's way. Predominate west, southwest winds in our area will greatly increase the noise and fire danger to everything located east of the Melrose Bombing Range. SA-4

****** CONTINUE ON BACK FOR MORE SPACE ******

016

On November 30, 2005, a training munition released by a B-1B aircraft at Melrose AFR started a fire that burned 26,000 acres of grazing and farmland and damaged or destroyed privately owned structures, fencing, wells, livestock, animal feed and crops. With the deployment of the new mission using live ammunition and missing a target greatly increases the danger to human life, livestock, and wildlife. Live munitions also have the potential to negatively affect soil and water chemistry. The depth to groundwater would be expected to reduce the potential for chemicals or heavy metals to migrate off the range. SA-4

The Wing Commander from Cannon met with the lessees in March, 2007, to present the two-target and three-target plan. It was mentioned at that time that both plans used a 25mm weapon which takes a larger target area. The military prefer the 105mm which would take in a smaller target area plus we understood that the 25mm would be phased out. Personally, I would prefer a three-target area if the 25mm weapon is used because the two-target area would take out strategic irrigation and domestic water wells to the east of the north target zone. LU-2 PR-1

Not only lessees, but countless other families in the Floyd and Melrose communities will be affected by the above stated concerns. Thank you for allowing us the opportunity to make our feelings known.

Jeff Ashley
5/11/2007

017

Written Comment Sheet
Public Hearing for the Air Force Special Operations Command
Assets Beddown at Cannon Air Force Base, NM
Draft Environmental Impact Statement (EIS)

Thank you for your input!
Please hand this form in or mail before **May 14, 2007** to:
Mr. Carl T. Hoffman
HQ AFSOC/A7PP
427 Cody Avenue, Suite 303
Hurlburt Field, Florida 32544-5434

NAME: Paul Grider
ORGANIZATION: Lessee
ADDRESS: P.O [redacted]
CITY/STATE/ZIP: Mel [redacted]

DATE: May 11, 2007

I have lived within three miles of the Melrose Bombing Range all of my life. The home I now live in is the same my parents lived in when I was born. My parents were moved from their home (it was closer to the range) in 1986 as a result of imminent domain.

My wife and I have raised our four daughters here and now have eight grandchildren that enjoy visiting us at the ranch. Our family has lived with the noise of airplanes always.

I have a very good working relationship with Cannon Air Force Base and the management of the range. I follow the land use requirements set forth in my operation.

As Roosevelt County Commissioner I am also very concerned with the impact the changes at the range could have on the land. It is my understanding that the target box would be plowed land that would not have any vegetation. This country is highly susceptible to erosion and the sand would blow creating problems with visibility. SA-2 SA-4

I have made my living farming and ranching in this area for the past 34 years. The proposed phases would affect my income considerably. I have worked very hard to be a good steward of the land, including conservation and wildlife preservation.

The Two-Target Alternative would affect two areas of grazing land that I now use to a large extent. However, I could continue to maintain the farming operation. I am concerned with the proposed use of the 25 mm guns. I do need to check my cattle and my circle sprinklers on a regular basis. I would not be in the impact area, however, I do know there are chances they may not always be accurate. I have seen evidence of practice bombs that are outside of the impact area. LU-2

The Three Target Alternative would do away with 75% of my operation which would result in a complete life change. After spending my life farming and ranching this would not only be disastrous for me and my family, I also see it as a problem with the conservation of the land. If the land is not grazed it would create fire hazards as well as weed problems. In the recent years the tumbleweed problems have resulted loss of roads and damage to fences. SA-2

I ask that you do not use the 25 mm guns at all. I also ask that you do not consider the Three Target Alternative because of the tremendous impact it would have on the range.

Again, I plan to continue as a lessee and a County Commissioner to have a good working relationship with Cannon Air Force Base.

Thank you for your consideration.

Paul Grider

Written Comment Sheet

Public Hearing for the Air Force Special Operations Command
Assets Beddown at Cannon Air Force Base, NM
Draft Environmental Impact Statement (EIS)

Thank you for your input!

Please hand this form in or mail before **MAY 14, 2007** to:

Mr. Carl T. Hoffman
HQ AFSOC/A7PP
427 Cody Avenue, Suite 303
Hurlburt Field, Florida 32544-5434

NAME:	Dennis + Donna Luce
ORGANIZATION:	Cattle Rancher 4-D Cattle Co.
ADDRESS:	[redacted]
CITY/STATE/ZIP:	[redacted]

Your name and address will be used to compile a mailing list for distributing future information regarding this Environmental Impact Statement (EIS). Names and addresses will not be published in the EIS. However, by including your name and address, it will become part of the EIS public record.

PLEASE PRINT **DATE:** 5-14-07

Dear Commander

Our names are Dennis and Donna Luce of Ft. Sumner NM. We are ranchers who live at Ft. Sumner but have leased property in the Melrose Bombing Range for the last 24 years. We have 4.5 section in 2N 29 East on the Northeast Corner of the Range.

We are more intrested in the use of the 3 site Targets for ~~your~~ purpose of use; where the smalest amount of land decrease to our lease, would be the most benificial to our economic needs. where the use of the 2 site Targets does take more Acreage of grazing from our cattle which will in order we will have to decrease our herd by ~~taking~~ them in public Auction or indivuals. LU-2

We have 4 children which 3 are still under the age of 18, 1 in College. We do need this income to put them all thru college.

Thank you for you consideration.

Sincely Your
Dennis + Donna Luce

****** CONTINUE ON BACK FOR MORE SPACE ******

019

May 14, 2007

Carl T. Hoffman, R. A.
HQ AFSOC/A7PP
427 Cody Avenue, Suite 303
Hurlburt Field, FL 32544-5434

A lot of time and effort has been put into keeping Cannon Air Force Base open and finding a new mission. To all people in the Clovis, Portales area, the new mission will be a financial security for many years to come. Thank you to all the personnel involved in this endeavor.

There are a few concerns that we as lessees of grazing land on the Melrose Range have concerning the plan for the new mission.

The soil in the area for the proposed targets is very sandy. It has been our experience over the last 50 years of living in this area that once the vegetation is disturbed, the wind will erode the soil and in a short while a sand hill situation develops and continues to move across the country. This leads to more and more vegetation destroyed and the land then becomes nonproductive. Through the years when ranchers have tried to reseed and reestablish these areas, the regrowth became a very course grass and weeds, and is still nonproductive.

The Melrose Bombing Range has two types of soil. The north end is primarily of the sandy type mentioned in the above paragraph. When we have a grass fire, be it man made or from natural causes, we have these sand hill like spots develop very quickly. Even plowed fire guards will blow out and cause these really sandy spots that will become sand hills.

The soil on the south end of the Range is a less erosive soil. Roads, fire guards, and fires do not cause nearly as much erosion nor weed problems as the sandy soil.

With these things in mind, we would like for you to consider the plan that will be the less destructive to the land, its vegetation, and its wildlife habitat.

The cooperation of all parties is important to the success of the new mission, and we would ask that you consider the effect of low flying helicopters and planes when they fly directly over a herd of cattle. The cattle become frightened and often run through a fence or pile up in a corner resulting in injury or death. These cattle are the livelihood of the ranchers in this area the same as the success of the mission is to the military personnel.

SA-2

Thank you for taking the time to read this letter and considering our concerns.

D. W. (Pid) Lucas

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PUBLIC HEARING
for the
AIR FORCE SPECIAL OPERATIONS
COMMAND ASSETS BEDDOWN
at
CANNON AIR FORCE BASE, NEW MEXICO
_____/

IN RE: DRAFT ENVIRONMENTAL IMPACT STATEMENT
April 17, 2007
6:00 p.m.
417 Schepps Boulevard
Clovis, New Mexico 88101

HEARING OFFICER BY: COL. LAURENCE SOYBEL

Reported by: SANDRA J. WATSON, RPR, NM CCR #213
CLOVIS COURT REPORTING
121 West 4th Street
Clovis, New Mexico 88101
(505) 769-6116

MS. BOYD: My name is Denise Boyd, and I work for the Public Affairs Office for the Air Force Special Operations Command at Hurlburt Field Florida.

I was out here with our team when we came and did the public scoping meetings back in September.

We are happy to be back out here again to hear your comments and concerns about us bringing the Special Operations Wing here to Cannon Air Force Base.

First off, I would like to introduce some of the key people here in the audience.

Representing Senator Bingaman's office, Diane Ventura.

(Audience Applause.)

MS. BOYD: The mayor of Portales, Orlando Ortega.

(Audience Applause.)

MS. BOYD: And the mayor of Clovis, David Lansford.

(Audience Applause.)

MS. BOYD: Slide, please.

This is how the process is going to work for us tonight.

We are going to do a very quick briefing for you, just to give an idea of what we are proposing to do here at Cannon in the New Mexico state.

We are also going to talk about the environmental process itself.

And finally we will get on to the actual oral testimony that anybody who would like to provide comment at the end of our hearing will be -- will have the opportunity to do so.

I would like to introduce some of the people who you will be hearing this evening.

First off, I would like to introduce, of course, Col. Scott West, who is the Commander of the 27th Fighter Wing here at Cannon right now.

(Audience Applause.)

MS. BOYD: After I'm finished speaking, we are going to hear from Col. J.D. Clem. He's with the Air Force Special Operations Command. He's the a deputy director.

(Audience Applause.)

MS. BOYD: Mr. Carl T. Hoffman, who is the program manager for environmental issues at

AFSOC.

He is the name that you see where we provide the public comments to if you have any that you mail in, this is the man.

(Audience Applause.)

MS. BOYD: Mr. Bob Van Tassel is a contractor with the Science Applications International Corporation.

He'll be speaking for us later this evening as well.

(Audience Applause.)

MS. BOYD: And finally I would like to introduce the Air Force judge who will be overseeing the meeting this evening, Col. Laurence Soybel.

And he has some information to pass on to you.

COL. SOYBEL: Good evening.

(Audience Applause.)

COL. SOYBEL: I hope you all can hear me.

I am Col. Larry Soybel, the presiding officer tonight.

We will hear public comments on the (inaudible).

(Audience indicating unable to hear.)

(Personnel adjusting microphones.)
COL. SOYBEL: Is this better?
(Positive audience response.)
MS. BOYD: I'll start over.
Good evening, I'm Col. Larry Soybel, I am the presiding officer tonight.
We will hear public comments on the Draft EIS for the AFSOC assets Beddown at Cannon.
This hearing is held in accordance with the National Environmental Policy Act and its regulations.
I will begin by explaining my role.
I'm a full-time appellate military judge from Washington, D.C.
I sit on the Air Force Court of Criminal Appeals.
I am not associated with Cannon Air Force Base or AFSOC.
I am not involved in the development of the Draft EIS whatsoever.
I do not rule on the proposed action.
My only role here tonight is to make sure that we have a fair, orderly and impartial hearing so that all who want to speak or submit

written comments have that opportunity.
This hearing will be held in two parts. The first part will be Air Force presentation, and I think we will be about fifteen or twenty minutes.
Col. J.D. Clem will speak on AFSOC and the proposed Beddown.
Mr. Van Tassel will speak giving an overview of the NEPA process, and the potential consequences of the Draft EIS.
The second part of the hearing is for the public comments.
I'll discuss more about that later.
With that, Col. Clem, you can begin.
COL. CLEM: Hi. Some of you may remember me. I was out here last November when we had the public session. I spoke to you and answered questions about Air Force Special Operations coming in and our mission that we propose to bring to Cannon Air Force Base.
Tonight, just like the last time, we have subject matter experts available; they will be around afterwards.
We also have people that are here from the 27th Fighter Wing. If you have got

questions about the transition or what is going to happen with them, so we have both sides represented on the 27th Fighter Wing and Air Force Special Operations.

They asked me to explain a little bit about -- sort of set the stage of why we are here tonight.

And as some of you may know, the Base Realignment and Closure Commission made a decision to take the 27th Fighter Wing and dispurse it, so that the 27th Fighter Wing mission was going away.

That same Base Reassignment -- Realignment and Closure Commission made a decision that Cannon Air Force Base would remain open.

What the base realignment -- or what the BRAC did not do is the BRAC did not assign a new mission to the Cannon Air Force Base.

So the Secretary of Defense made a decision; he has assigned Air Force Special Operations Command to take over the operation of the base on the 1st of October of this year.

Now, once -- with that, though, Air Force Special Operations Command does not have

approval to bring any new mission into the base.

So then what is happening is that we have to complete the Environmental Impact Statement process.

And once that is complete, it will determine what, if any, new mission comes into Cannon Air Force Base.

The purpose of this evening, as you have heard several times in this, is to capture comments for inclusion in the EIS.

You will hear the magic date 14 May mentioned several times.

And we are seeking comments, and that's the main focus of this evening is to get those comments.

What I did want to do is simply sketch out briefly what we intend to bring here if the base -- if the Environmental Impact Statement is approved.

Now, as you make comments and before the final is put out, we will look at those comments, take that information, and adapt our plan as required.

Or if nothing is compatible or that

plan doesn't get signed, we won't come.

Now, in 2006 there were approximately 4,200 people that were assigned to Cannon Air Force Base.

As that mission has been dispersing, the numbers come down a little bit.

Air Force Special Operations Command will -- once this EIS is signed, will bring in over a period of about six years up to about 5,600 personnel with the base.

But initially it won't be at the same level that we are at right now, because we can't do anything until the EIS is done as far as changing the mission of the base.

As you see up there, one of the things that we are going to do with airplanes, is we are bringing in C-130's, which are a lot bigger than what is currently there with the F-16s.

So there will be some construction involved with the move, primarily to facilitate the C-130 activity at the base.

Over that six-year period, we will bring in about 100 airplanes; some of them are yet to be built.

So it's not like there is a whole group of airplanes that are sitting down at Hurlburt Field in Florida that are just going to be able to come out here right away.

If or when the Environmental Impact Statement is signed, the first series of planes that will come are what we call the MC-130-W, which is the varying of our Special Operations C-130s.

The types of things that we will do is we do training at night, so it will be a little bit more night training than you see currently with the F-16 Wing.

We do fly low level with all of our airplanes.

And we have AC-130s that do live fire; we'll be using the Melrose Range.

We also have some ground elements with our special tactics who will also do some live fire training out on that range.

And we do air refueling much like the F-16s do today.

And I think I have covered the whole slide.

With that, I'm going to pass off the

microphone or the floor here to...

MR. VAN TASSEL: Bob.

COL. CLEM: Bob.

MR. VAN TASSEL: Bob Van Tassel.

Is this working?

(Checking microphone.)

Is it on?

MR. VAN TASSEL: Okay. The -- I was asked to use a microphone, because I want to be sure that they capture the words that were said.

I appreciate being able to be here and explain a little bit about what has occurred with regard to this process.

Many of you will have actually participated in the NEPA process on a variety of different projects over the years.

And what we are trying to do, and we always try to do with the NEPA process, it's a federal requirement that you go in and you evaluate the environmental consequences of a particular project or a set of actions.

And in this case we are looking at these actions that Col. Clem just described, talking about what those would be coming to the new base, and as they train in the airspace.

The goal here is to try to have as much of the information presented from your comments and your questions, as well as on the information that we obtain from agencies and so forth to be able to present to the decision makers in the Air Force and other decision makers the best information possible.

So what we are doing is, I'm going to have this sequence of events, and many of you remember we were here as part of this focus, as mentioned.

The key date here that probably is for everyone is the 14 May date.

Because the 14th of May would be the date when we want you to have your comments sent in or hopefully received so that they will be included into the final Environmental Impact Statement.

So a Draft of the Environmental Impact Statement has been published.

This is a copy of the Draft (Displaying same).

There are a few out there.

Everyone who had requested one before this, has gotten a copy or received a copy; and

then others have been distributed locally -- if you look at out there.

In discussions with the people of the project, you will find out that everyone hasn't read it all.

(Audience laughter.)

MR. VAN TASSEL: And it is a case where any time you get a document like that, it does appear to be relatively daunting.

So what we are trying to do -- or going to try to do is present a little bit about what the different proposal components are, and what the project means.

The Draft Environmental Impact Statement is basically seeking to get all of the public comments in.

And our original goal was to -- we were hoping -- some of you were here last time and remember we had these boards all out in the lobby, and used them, and everyone came around and talked about them.

And we thought that we would do the same thing here; that everyone would come down here and talk about them.

What we failed to appreciate is that

when people come into an auditorium, they sit down. They don't come down to the front and start talking about the things.

You are welcome to do that at the conclusion.

But this represents the two different alternative basing scenarios at Cannon.

And these two scenarios, one has an east location, where everything -- all of the aircraft and all of the mission are concentrated on one side.

And the other has an east and west, which takes a lot of the larger aircraft and puts them on the alternate side of the -- the opposite of the runway.

And what that does is, it sets out an alternative approach that we would like your input on.

One of the questions that always comes up with regard to the base and the consequences is, "What does this mean with regard to noise? How does this affect it?"

And this chart here, which is in the Environmental Impact Statement, all of these figures are in the Environmental Impact

Statement, another Draft of the Environmental Impact Statement, it shows that in general in almost all places the amount of noise at the installation that is at Cannon will be reduced.

The C-130 aircraft, the turboprop aircraft, the CV-22 that Col. Clem had up there before; all of those aircraft are turboprop, and they are quieter than the jets.

They also don't fly as much as the jets.

So in general when you plug all of that information into the model, it reduces the contours -- the noise contours around the base.

So that's kind of the results there.

Now, then we also have Nellis Air Force Range, and there's a whole separate chapter that deals with that in the document.

In Nellis Air Force Range there are two primary alternatives, one of which constitutes the two -- two target alternative, and the other is the three target alternative.

And these two alternatives have the ability to perform live fire from the aircraft that Col. Clem was talking about, and includes these C-130 aircraft.

And some of you, if you caught a TV show about two Fridays ago, there was an interesting TV show on the AFSOC.

And I remember the sergeant -- I don't remember his name, but he basically had this TV show, and he did this whole presentation and talked about AFSOC; and you got to see how these aircraft functioned and how they fired.

So there are these two alternatives.

Now, one of the questions that came up with these two alternatives are: "How does that affect ranching?"

The Air Force is still working on that question.

But there is an impact area, and there is area around that, that is used for grazing or for ranching.

At this particular point in time, some of the area which could be used for an impact area would be expanded.

So some of the area would not have as much ranching on it or grazing on it as currently exists.

And that's described in the

Environmental Impact Statement.

Another question that came up with regard to those two alternatives, and these two pictures have all of the -- like little curves on them -- and that is: "How noisy would this firing be out there?

You are going to shooting from the aircraft into a target on the ground, how much noise are you going to get?"

Now, these document the amount of noise and where those noise contours would be for the different two alternatives.

You are again welcome to come down and look at these and talk about these later on -- or for that matter, you all can use them as part of your comments if you would like to.

The third area of -- Cannon, Melrose, the third area is the training in the airspace.

And this picture here depicts the training in the airspace that currently exists, that is scheduled by Cannon.

There is no intent to change the airspace.

The only thought is that there is a need to be able to fly a Predator or an

unmanned aircraft system from Cannon to Melrose range; at least that's how it's described, that thought as a need, something that would like to be done, and as described in the Environmental Impact Statement, too.

And the EIS talks about what the implications might be of putting Predators in that corridor which might be covered by having a chase aircraft.

The difference that occurs out in this area is that the C-130s do fly along these routes.

Now, most of these IR or VR, what are called MTRs and also the MOAs -- now, a lot of the activities with the F-16s have been in the MOAs, where there has been a lot of -- and you are well aware of that, the F-16s training in MOAs.

They usually have not used these corridors -- these are the corridors or MTRs that were used by the F-111s in days gone by.

The AFSOC aircraft would use these, but they are turboprop, not jet.

They don't fly as fast, and they don't appear as suddenly as any of the F-111s.

But that is an area also described in the Environmental Impact Statement.

So what we try to do is, we try to describe the different issues that have come up; we have tried to present them factually to you so you can make your decisions and talk about them, and ask additional questions, and as -- attempt to be done in the whole document.

So we now look at --

Next slide.

We talked about the alternatives.

We talked about the training airspace.

We talked about -- not about the no action alternative; but I do need to mention that the no action alternative would be a case where the Cannon Air Force Base would be placed under -- it has already been placed under AFSOC responsibility, but no action has to be addressed for Environmental Impact Statement.

And no action in this case would mean no AFSOC assets coming to Cannon.

And so that is also addressed in the implication that are presented in the Environmental -- Draft Environmental Impact

Statement.

So we appreciate your being here.

We try to give you a little bit of a briefing of what the consequences are.

We would recommend that -- we have the CDs of this document, and we recommend that you obtain it and review it.

We really ask you to add any comments or points that you would like to have on the document, and present them for the final EIS.

This is all part of the regulated required process.

And we appreciate your being here to be part of it.

COL. SOYBEL: Thank you.

MS. BOYD: Audience, that is the official formal portion of the hearing tonight.

And what comes up next is the public comment hearing.

If there is anyone in here who has yet to have the opportunity to sign up to provide comments for this evening, now is a great time to do that.

We have the forms down here.

If you will raise your hand, we will

be more than happy to bring it to you.

And we will have Col. Soybel take over from here.

We are not going to be taking any breaks any time during this evening.

If anybody needs to step out, use the restroom, or take a phone call, you are more than welcome to do so.

COL. SOYBEL: Thank you.

The purpose of the second part of the hearing is to accept and receive public comments.

We have a court reporter here who will be recording everything that is said.

To make sure that we get it all, when you come to speak, we ask that you speak slowly and clearly.

Again, I make no recommendation or decision on the proposed action.

So when you speak, you may want to direct your comments to those who made the presentation.

All comments, whether written or verbal will be part of the official record and the final EIS.

The Air Force decision makers will take all of your comments.

Please remember that this portion of the hearing is not a debate.

The purpose of this hearing will be to gather information from you and to hear your comments.

There are several ways that you can comment. You can speak now, and it will be recorded.

You can provide comments in writing tonight or through the mail.

Or you can give extended written remarks to the court reporter as part of your presentation tonight.

You can do it however you like.

All speakers should have filled out a registration card. If not, please raise your hand, and we'll get one to you.

You can give your comments to anyone in uniform, or to the folks at the sign-in tables when you walk in.

Remember if you do not comment tonight, you still have until the 14th of May, to submit comments at the dress that is on the

slide.

(Address shown on screen:
MR. CARL T. HOFFMAN
HQ AFSOC/A7PP
427 Cody Avenue, Suite 303
Hurlburt Field, Fl 32544)

COL. SOYBEL: We will have elected officials speak first, and then from the public in the order they signed up.

I'll call your name, but I ask that you please repeat the name when you get up to the mike and spell it, stating your full name. We want to make sure that we have an accurate record.

If you represent somebody else or a group, please let us know that also.

Here are the ground rules:

You have three minutes to speak.

You are not required to use all three.

When there are thirty seconds left, we will hold up a green card as kind of a warning.

Then at the end, we will hold up a red stop sign.

If we have time after everybody who has signed up has got a chance to speak their turn, we will see if anybody wants a second slot to continue their comments.

It's scheduled to end, as a reminder, about 8:00 o'clock.

Anyway, so let me start.

The very first person will be the mayor of Portales, Orlando Ortega.

MR. ORTEGA: Thank you very much for allowing me to speak. **2000**

My name is Orlando Ortega, O-R-L-A-N-D-O O-R-T-E-G-A. **GE-1**

And I am the mayor of Portales.

And I would like to present two documents to you tonight on behalf of the city of Portales.

One is a resolution adopted by the Portales City Council.

This resolution is a resolution supporting the Special Operations Mission at Cannon Air Force Base.

I would like to read the final paragraph of the resolution, with regard to time allowed.

And that states: "Now, therefore, be it resolved by the governing body of the city of Portales, New Mexico, that the mayor and the city council members wholeheartedly support Special Operations Mission and desire to voice that sentiment at the public meetings, and will work diligently to plan for and adjust with the change of the mission for future generations of Air Force personnel at Cannon Air Force Base."

I also have a letter that is addressed to General Mike Wooley, who is the Air Force Special Operations Commander.

And this letter reads:

"Dear General Wooley,

On behalf of the Portales City Council and the Portales community, it is with great honor to express our support for the United States Air Force Special Operations Wing scheduled for Cannon Air Force Base.

For several decades now the communities of Eastern New Mexico have offered a wonderful partnership that supports our US Armed Forces and their families.

Portales wants to continue that tradition of support by offering our

hospitality and community resources to your mission, personnel and families.

If ever there is a need or opportunity to utilize our local resources such as our municipal airport, police and fire departments, or the 6,000 acres of range land the city owns in eastern Roosevelt County for military exercises and/or training, please do not hesitate to ask.

We strive to offer the best quality of life possible that it includes a safe and friendly activity filled environment for all of our citizens.

We offer great public and higher education, a first class hospital, and a community that is affordable and comfortable.

You will find that the citizens of Portales are very patriotic and are very proud to have Cannon Air Force, its personnel and the families as neighbors.

We welcome the Special Operations Mission to Portales.

We look forward to a long and flourishing partnership.

Thank you.

I would like to offer these documents to the record -- be in the record.

COL. SOYBEL: Next is the mayor of Clovis, David Lansford.

MR. LANSFORD: Col. Soybel, it's a pleasure to be before you this evening. **2001**

I'm here representing the city of Clovis. My name is David Lansford. **GE-1**

D-A-V-I-D L-A-N-S-F-O-R-D.

I am the mayor of Clovis.

I want to first of all thank you for the opportunity to speak early on. I know I could sit here for a long time and mull it all over, but what a privilege.

If I can I would like to just speak on behalf of this letter that is prepared for you, sir.

It's addressed: "Dear Col. Soybel, Clovis and Eastern New Mexico have a long history of support and dedication to the defense of our nation, the United States Air Force, Cannon Air Force Base, and the men and women who serve at Cannon.

When Cannon was designated for closure, the city of Clovis and its citizens

unified and organized a concentrated effort to present to the BRAC, Base Realignment and Closure Commission, evidence of the value of Cannon Air Force Base to our country's national defense, and the desire to sustain a base. With the announcement enclave status, and then the mission change to Special Operations, the citizens of Clovis continued their passionate support of the proposed changes at Cannon.

This commitment and support has not wavered and will not be deterred. The citizens and leaders of Clovis -- of the Clovis community understand that there will be changes, that different aircrafts will operate at different altitudes and noise levels, that flight schedules will be different, that ground operations will be changed, that utilization of the Melrose Bomb Range will be altered, and that there will be other impacts from the mission change.

They look forward to these changes and the opportunity to adapt to the Special Operations Mission at Cannon Air Force Base.

As mayor of this community, I assure the Department of Defense and the Air Force,

that this city and community wholeheartedly support the Special Operations Mission, and will work as diligently as we did during the BRAC process to adjust to the impact of the change of mission and to support of the future generations of Air Force personnel at Cannon Air Force Base.

Cannon has long been a part of this community, and the citizens of Clovis anxiously anticipate a continued relationship far into the future.

I respectfully request that this letter be included in the transcripts of proceedings.

Thank you, sir.

COL. SOYBEL: Thank you, sir.

We'll make sure that gets in.

Next person is Mr. Dennis Lopez, Roosevelt County Commissioner.

MR. LOPEZ: Thank you. Welcome everyone. **2002**

COL. SOYBEL: Spell your name on the record.

MR. LOPEZ: Yes. My name is Dennis Lopez, **GE-1**
Roosevelt County Commissioner.

D-E-N-N-I-S L-O-P-E-Z.

And I would like to first start by saying that I would like to echo what the mayor of Portales has stated earlier, and that we will be following up with a resolution as well.

And I would like to welcome the personnel, the Air Force Special Ops Command to New Mexico.

Even though Roosevelt County has not acted in the same capacity as the city of Portales and Curry County in the past, we are proud to say that we have hosted many men and women of Cannon Air Force Base in the past fifty years.

We have many military families that have resided in our county and have always been active participants in our community activities.

With that also, the Melrose Range is located in Roosevelt County, and we are extremely pleased that this outstanding Air Force range will continue to be an important part of the Air Force Base.

On behalf of the Board of County Commissions in Roosevelt County, we are anxious to do what we can to support the ongoing

mission transition at Cannon, whether it involves responding to new infra structure requirements at the base or the Melrose Range or addressing quality of life issues that are important to your -- to the community.

And please let me let the record reflect that we can be reached at any time at area code 505 356-5307; that is our county administrator's office.

And if you will just please let us know what we can do to assist at this important time for New Mexico's history.

And I would also like this document to go into the record.

COL. SOYBEL: Thank you.

MR. LOPEZ: Thank you very much.

COL. SOYBEL: The next person who is Kent Carruthers.

Let me remind you, if you will state your name and spell it for the record.

MR. CARRUTHERS: Thank you. My name is Kent Carruthers. **2003 GE-1**

K-E-N-T C-A-R-R-U-T-H-E-R-S.

I am the president of Citizens Bank in Clovis.

I also serve on the Clovis Municipal Development Corporation.

And I am also a member of the Long-term Management and Growth Organization.

I just wanted to come in support of the AFSOC coming to Clovis, and not in support of the no option or the not...

Thank you, sir.

COL. SOYBEL: The next person signed up is Lonnie Leslie.

MR. LESLIE: Thank you. My name is Lonnie Leslie. **2004 GE-1**

L-O-N-N-I-E L-E-S-L-I-E.

I am the chairman of the Local Growth Management Organization. Our group has been tasked with researching and planning for this upcoming change.

We will be working with the Department of Defense, local and state governments, the Air Force serving the public.

We are made up of a group of individuals who have skills in various areas: Real estate, healthcare, economic development, banking, public schools, higher education, infrastructure, engineering, emergency

services, military affairs, civic and county governments.

We are there to work with our communities and help the Air Force in any way we can.

We are glad you are here.

We are exciting about -- excited about helping to facilitate this change.

Thank you, sir.

COL. SOYBEL: Thank you.

Ronnie Birdsong.

MR. BIRDSONG: Hello. I'm Ronnie Birdsong. **2005**

R-O-N-N-I-E B-I-R-D-S-O-N-G. **GE-1**

I'm from Eastern New Mexico University, and I'm vice president of Eastern University Relations and Enrollment Services.

And I am here representing our President Dr. Stephen Gamble, who is in Roswell for a -- at our Roswell campus foundation meeting.

But he wanted me to express to you that we are looking very forward to having AFSOC being a part of our community, and we look forward to working with you.

It's always wonderful to have the military in our community and in our university campus.

Thank you.

COL. SOYBEL: That exhausts our list of speakers.

We have -- we have said that we will be here until 8:00 o'clock tonight.

I will stay here until 8:00 o'clock tonight in case somebody can't make it... (inaudible) as scheduled; but I want to make sure we have a record that is complete. So I will make sure -- I will be sitting here until 8:00 o'clock tonight so that anybody that might come in late.

Unless there are no other speakers, I will be sitting here...

(Audience laughter.)

COL. SOYBEL: As you wish.

And if somebody does come, we'll let them speak, and then at 8:00 o'clock we will close up.

MS. BOYD: Was there anyone else that wanted to provide comment that did not get a chance to sign up earlier?

(Person coming forward.)

COL. SOYBEL: Do you have a registration card?

Why don't you speak, and enter your name, then register.

MR. PYLE: I'm Lance Pyle. **2006 GE-1**

L-A-N-C-E P-Y-L-E.

I'm the mayor of Melrose.

And we would just like to go on record the Village of Melrose does support Special Ops Mission, and will be forwarding a letter in the next couple of weeks showing our support.

COL. SOYBEL: Thank you.

Is there anyone else?

(No response.)

MS. BOYD: What we will do is, we will rearrange our boards back up here again, and we will have them available for anyone that would like to come up and take a look at the boards, get further information.

(Audience Applause.)

(The meeting was adjourned at 8:00 o'clock.)

REPORTER'S CERTIFICATE

March 17, 2007

I, the undersigned Certified Shorthand Reporter in and for the State of New Mexico, certify that the facts stated in the foregoing pages to the best of my ability are true and correct.

I further certify that I am neither attorney or counsel for, related to, nor employed by any parties to the action in which this testimony is taken and, further, that I am not a relative or employee of any counsel employed by the parties hereto or financially interested in the action.

SANDRA J. WATSON, RPR-CCR
NEW MEXICO CCR NO. 213
License Expires 12/31/07

PUBLIC HEARING
for the
AIR FORCE SPECIAL OPERATIONS
COMMAND ASSETS BEDDOWN
at
CANNON AIR FORCE BASE, NEW MEXICO

_____/

IN RE: DRAFT ENVIRONMENTAL IMPACT STATEMENT
April 18, 2007
6:00 p.m.
137 East Baker Avenue
Fort Sumner, New Mexico 88119

HEARING OFFICER BY: COL. LAURENCE SOYBEL

Reported by: SANDRA J. WATSON, RPR, NM CCR #213
CLOVIS COURT REPORTING
121 West 4th Street
Clovis, New Mexico 88101
(505) 769-6116

to stop at that point.

If you are not finished, after everybody else has had a chance to speak, you can come up and we'll give you another three-minute slot. We didn't have that many people signed up, so if -- there will be an opportunity to be able to do that.

We are scheduled to end at 8:00 o'clock, and I will -- I'll keep this open -- session open until that time; even if you didn't get done, the speaker before that, I'll keep it open in case somebody comes late; we'll give them the opportunity.

Okay. So I'll start now.

And our first speaker is Juan Chavez, mayor of Village of Fort Sumner. **2007 GE-1**

Sir.

MR. CHAVEZ: Thank you. My name is Juan Chavez.

J-U-A-N C-H-A-V-E-Z.

I am the mayor of the Village of Fort Sumner.

"Lieutenant General Michael W. Wooley, Commander Air Force Special Operations Command.

General Wooley:

The Village of Fort Sumner, mayor and council is eagerly anticipating the mission transition of Cannon Air Force Base.

We are a proud community with a nationally recognized history, and we are anxious to do what we can to support the 16th Special Operations Wing as it commences operations in Eastern New Mexico.

First, we have several facilities which could be utilized in various capacities for your training.

The Fort Sumner Municipal Airport was originally a World War II training base for the Army Air Force, and we recommend that your staff consider it for future training operations.

Lake Sumner, which is just up the road a few miles, could potentially be used for training as well as recreational activities by Cannon personnel.

Your personnel have a standing invitation to participate in any of our many Village activities.

We are anxious to participate with

the Air Force and to be considered as an essential member of the extended Cannon community.

The Village of Fort Sumner is ready to assist the 16th Special Operations Wing in any manner possible, including assistance in reviewing possibilities for training or supporting recreational means.

Please let me know if I can provide additional information. I can be reached at (505)355-2311.

And it's "Sincerely, Juan Chavez, Mayor Village of Fort Sumner."

COL. SOYBEL: Thank you, sir.

The next speaker is Orlando Ortega, Sr., mayor of the city of Portales.

Sir.

MR. ORTEGA: Col. Soybel, Your Honor, I want to thank you for allowing me to speak today. **2008 GE-1**

And, actually, it's Orlando Jr.

COL. SOYBEL: Oh, I'm sorry.

MR. ORTEGA: The senior is my father.

COL. SOYBEL: I'm sorry.

MR. ORTEGA: Can I ask you to spell your

name, sir?

MR. ORTEGA: O-R-L-A-N-D-O O-R-T-E-G-A.

COL. SOYBEL: Thank you.

MR. ORTEGA: Sir, I am here on behalf of the community of Portales and Roosevelt County. And due to the time allowed, I would like to present to you some documentations.

One is a resolution. A resolution that was adopted by the city council -- Portales City Council supporting the Special Operation Mission at Cannon Air Force Base.

I would like to read the last paragraph if I can.

And it reads: NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE CITY OF PORTALES, NEW MEXICO, that the mayor and city council members wholeheartedly support the Special Operations Mission and desire to voice that support at the public meetings; and will work diligently to plan for and adjust with the change of mission for future generations of Cannon Air Force personnel at Cannon Air Force Base.

I also have a letter that is addressed to Lieutenant General Mike Wooley,

Special Operations Command.

And that letter reads:

Dear General Wooley,

On behalf of the Portales City Council and the Portales community, it is with great honor to express our support to the United State Air Force Special Operations Wing scheduled for Cannon Air Force Base.

For several decades now, the communities of Eastern New Mexico have offered a wonderful partnership that supports our US Armed Forces and their families.

Portales wants to continue that tradition of support by offering our hospitality and community resources to your mission, personnel and families.

If ever there is a need or opportunity to utilize our local resources, such as our municipal airport, police and fire departments, or the 6,000 acres of range land the city owns in eastern Roosevelt County for military exercises and/or training, please do not hesitate to ask.

We strive to offer the best quality of life possible that includes a safe of

friendly activity filled environment for all of our citizens. We offer great public and higher education, a first class hospital, and a community that is affordable and comfortable. You will find that the citizens of Portales are very patriotic, and are proud to have Cannon Air Force Base, Melrose Range, and its personnel and families as neighbors. We welcome the Special Operations Mission to Portales. We look forward to a long and flourishing partnership.

Sincerely,

Orlando Ortega, Jr., Mayor of Portales.

Thank you.

COL. SOYBEL: Thank you.

Next speaker is DeBaca County commissioner.

MR. CARTER: Your Honor, thank you for this opportunity. **2009 GE-1**

My name is Powhatan Carter.

P-O-W-H-A-T-A-N C-A-R-T-E-R.

I want to thank all the distinguished military personnel that is here and the civilian support, and for the opportunities

that have been presented to the group from DeBaca County.

I would like to read a letter.

This is to General Michael Wooley.

Welcome to Eastern New Mexico.

Welcome to the Clovis-Portales area; and in particular welcome to DeBaca County.

Over the past thirty years, Clovis has gotten larger and the communities in DeBaca County have gotten smaller.

(Mr. Carter was requested to read more slowly by the Court Reporter.)

MR. CARTER: Over the past thirty years, Clovis has gotten larger and the communities in DeBaca County have gotten smaller.

It has evolved into a situation where DeBaca County is in many ways a suburb of the micro-plex of Clovis and Portales.

Therefore, we claim the right to say that the community of Cannon Air Force is a part of our community also.

We welcome you to our community.

We are honored that you would come here tonight to explain to us Cannon's future role in the defense of our country.

DeBaca County also takes serious the defense of our country.

We do not have too much of a material nature to offer you, but we do have 2,350 square mile of almost uncluttered airspace.

A lightly used former Army Air Field in Fort Sumner, that Mayor Chavez mentioned, that you might find useful in a number of training exercises.

A nice sized lake, as he mentioned owned by the BLM/BOR, and the Carlsbad Irrigation District is operated by New Mexico State Parks that could be useful in training for situations that involve water.

Miles and miles of rugged terrain around the higher mesas and down the rugged creek bottoms; that is assuming arrangements could be made with the private owners.

And we have almost 60 miles of the Pecos River running north and south across the county.

In addition to training areas, maybe some of the these assets could be used for dual purposes, such as hunting, fishing, hiking, mountain biking, boating, camping, and perhaps

other recreational activities for the people stationed at Cannon.

We are your neighbors.

We want to be your partner.

We want to be involved with you as much as practical for us to be.

Thanks for coming tonight, and again welcome to DeBaca County.

Thank you.

COL. SOYBEL: Try this again (microphone difficulty.) Okay.

I would -- do you mind -- the speaker anybody who read a letter, they are free to submit the letter as well, to make sure that the court reporter does receive all the words that were spoken. You can do that any time tonight.

The next speaker is Everett L. Frost.

MR. FROST: My name is Everett Frost. **2010 GE-1**

E-V-E-R-E-T-T F-R-O-S-T.

I'm the vice chairman of the Local Growth Management Organization, and the retired president of the Eastern New Mexico University.

Col. Soybel we welcome you and the

EIS team and the Air Force personnel that are assisting.

The Local Growth Management Organization is made up of twelve citizens of the cities of Clovis and Portales, and the counties of Curry and Roosevelt.

We are volunteers appointed by the combined city and county commissions to evaluate impact of the change of mission at Cannon, and to develop a Regional Growth Management Plan with recommend adaptations.

Each member of our committee has a copy of your EIS.

And two weeks ago, we began briefings contemplating the effects, first of a minor decline and then of a probable increase in population on the communities and the counties.

We are focused in particular on several impact areas, including healthcare, education, infrastructure, community services, quality of life, public safety, and others.

We find that as drafted, the EIS contains a wealth of data invaluable to our process that will allow us to contrast with the current conditions and to protect -- to project

the future alternatives.

Col. West and Col. Clem and their personnel have offered significant support and our assisting our committee and the communities to understand the alternatives change of mission.

Thank you for the EIS process.

And I have also a letter from the chairman of the LGMO, Mr. Lonnie Leslie, who is here to add to the record.

COL. SOYBEL: Thank you.

The next speaker is Allen Sparks.

MR. SPARKS: Thank you, Colonel. **2011**

I am with the Fort Sumner Community **GE-1**
Development Corporation.

My name is Allen Sparks.

A-L-L-E-N S-P-A-R-K-S.

I'm also representing the Fort Sumner and DeBaca County Chamber of Commerce in this letter.

It says: We, the Fort Sumner and DeBaca County and Chamber of Commerce and the Fort Sumner Community Development Corporation are honored to be allowed to welcome you to our community.

We are -- we welcome visitors every day. It is part of what we do.

But rarely are we so honored as to be able to welcome a distinguished military command to our area.

And it is even more of an honor to know that you've chosen to move here, to live among us.

Twice before the military has called Fort Sumner home. The first time was in 18- -- the 1860s, when General George Carlton established Fort Sumner in the Reservation to incarcerate the Apache and Navajos so that they would quit impeding the settlers traveling west through the western part of New Mexico.

The Fort was officially closed down by General William T. Sherman in 1868.

The second time was during World War II. An Army air field was built here. Its mission was to train glider pilots and tow plane pilots.

Their mission was to glide across the English Channel and behind German lines delivering 13 soldiers at a time.

The air field also had a German

prisoner of war camp here.

Fort Sumner is probably at its largest size during that time.

We understand that your operations will primarily be at Cannon, but we hope that you will avail yourselves of the assets we have to offer to the point that at least a part of your operations will be in our area all the time.

We have a vision that Fort Sumner could become a playground for the people stationed at Cannon.

We know that Clovis and Portales are limited in things to do for people who like outdoor activities. But the Fort Sumner area has things to do such as:

Lake Sumner offers fishing, swimming, boating, a mountain bike trail, hiking, camping, and water skiing.

The Bosque Redondo Lake in the valley currently offers camping and fishing, but it has the potential to offer camper dump stations, beach volleyball, and -- beach volleyball in the sand that we have down there, horseshoes, a riding stable, and maybe even a

golf course.

These are just examples, and since this area is currently not fully developed, it might be possible for Cannon personnel to assist in its planning and development.

There is a very good dirt bike track just north of town on the way to the air base. It hasn't been used in a while, but it has had some very successful races there in the past.

Hunting is big in DeBaca County. We have dove; sometimes pretty good quail, deer and antelope.

There is an antique six-lane bowling easily that is open in very good shape.

There is a unique nine-hole sand green --

"Stop" already?

MS. GEESLIN: Sorry.

MR. SPARKS: Can't be three minutes.

MS. GEESLIN: Time flies when you are having fun.

MR. SPARKS: Thank you.

COL. SOYBEL: Sir, I will let you finish in one minute -- or three minutes.

MR. SPARKS: So later?

THE COURT: Yes, sir.

MR. SPARKS: Okay.

COL. SOYBEL: Hanson Scott, next speaker.

MR. SCOTT: Thank you, Judge. **2012 GE-1**

My name is Hanson Scott.

I'm director of the Office of Military Base and Planning Support for the state of New Mexico.

I report to the governor and the New Mexico Military Base Planning Commission, which is chaired by our Lieutenant Governor.

My purpose is to acknowledge support for the Cannon transition by the state of New Mexico.

The state has been proud to host the men and women of the 27th Fighter Wing for over fifty years, and we were all sad to recognize that the Air Force is faced with difficult decisions in terms of force structure and resources, and that the 27th Fighter Wing will have to be inactivated and the F-16s retired or moved to other locations.

However, Cannon Air Force Base is a national asset, and the Air Force proposal to establish the 16th Special Operations Wing at

Cannon effective October the 1st is strongly supported by the governor and his administration as well as the New Mexico legislature.

Most recently, for example, the legislature passed a gross receipts tax reduction for military construction at Cannon Air Force Base. This bill was carried by Senator Stuart Ingle; he's in the back behind you to the right.

On a more personal note, I am a former commander of the First Special Operations Wing at Hurlburt Field, Florida.

My special operations experience was a tour in southeast Asia flying the AC-130 gunship earlier.

I was later vice commander of the 23th Air Force, the predecessor headquarters to the Air Force Special Operations Command.

I was also the first Air Force commander of Special Operations Command Pacific, SOCPAC.

And the commander when SOCPAC was designated as a Subordinate Unified Command.

I am very familiar with the training

and operational demands of the Air Force Special Operations units, as well as the Special Operation units of other services.

I commanded and directed Air Force Special Operations forces as well as the Special Operations forces of other services in many demanding exercises, evaluations, and contingencies.

Though Hulburt Field has a proud history of supporting the First Special Operations Wing, continuation and operational training on the gulf coast and within the southeast United States is far from optimum; and it is difficult to construct mission training scenarios which provide for an optimally ready force.

The 16th Special Operations Wing at Cannon will have a tremendously improved training environment, with a wide of variety of training routes, ranges, and military operating areas and the relative close proximity of over 30 percent of the Army's force structure, as well as the Special Operation forces of other services located in the western United States.

Still further I am a native of New

Mexico. My home town is Reserve, in Catron County, and I know that New Mexicans across our state will be proud hosts to our Air Force Special Operations Forces and families at Cannon.

Establishing the 16th Special Operations Wing at Cannon Air Force Base is the right decision for the Air Force, for the United States Special Operations Command, and for New Mexico.

COL. SOYBEL: Thank you.

I have no other register cards.

I'm going to invite Mr. Sparks to come on down.

I want to hear about the dove hunting.

MR. SPARKS: Dove hunting is normally very good. **2013 GE-1**

Basically, as I understood from a meeting last week here in the city council office, was that these men like outdoor activities; so we have listed a number of things that could be done.

It's been suggested that in the past we've had these, skeet shoots, a facility for

rifle shooting competition range, and perhaps even a long bow shooting competition range.

There are frequent team roping events here; occasional ranch rodeos, and regular rodeos.

Trail rides and endurance events are also for the horsemen.

A day of actual work on an actual working ranch is kind of a thing that some people actually like to do, if they have never been there. They help gather, brand, castrate, go doctor calves is a possibility.

(Audience laughter.)

If you never seen that and experienced that, that might be something you want to do.

This would be done in the old fashion way, by roping, dragging and throwing the calves; like you see in the John Wayne movies.

If this concept could be further developed, it could become something of an industry for a community desperately needing an economic boost, and it could become a valuable recreational outlet for Cannon personnel.

It would be beneficial for both of

us.

Anyway, we welcome you to our home.

And thanks for coming.

And this letter is signed by five people from the Chamber of Commerce, the staff and board; and fourteen people from the Community Development Corporation staff and their board.

Thank you.

COL. SOYBEL: Thank you.

At this point I have no one else who has signed up to speak.

Let me ask one more time if there is anybody who would like to speak at this time?

Okay. We have somebody.

You have a card?

Donna Luce.

MS. LUCE: Hello, sir. **2014**

Good evening, my name is Donna Luce.

D-O-N-N-A L-U-C-E.

I am a rancher that -- we live on the east side of Fort Sumner over here. We are welcoming you to our community.

I do have a question, I was late to come in.

Of the new planes that are to fly over the Fort Sumner area, did you call it the Pecos MOA -- or whatever --

COL. SOYBEL: Military Operations Area.

MS. LUCE: How close to the ground do they usually come or... **DO-2**

COL. SOYBEL: Ma'am, this part of the public hearing is to gather your comments.

There are -- we have subject matter experts here, and at the end you are free to ask any question of them one on one.

And I'm sure they will be glad to answer any question that you have.

MS. LUCE: All right. That will work for me.

We are proud to have you here as part of the agricultural area ourselves, and we do appreciate having the Air Force here to protect us and all of the -- anything that does come and arise.

And I will ask other questions then later on. Thank you.

COL. SOYBEL: Thank you.

Once again let me ask if there is anyone else who wishes to speak.

Sir?

Have you filled out a registration card, sir?

MR. INGLE: No, I haven't.

COL. SOYBEL: Well, I'll ask you to fill one out when you get finished speaking, if you don't mind.

MR. INGLE: I'm Stuart Ingle. I am the senator for this area for redistricting in 2000, and certainly in the Clovis and Portales area since 1984. **2015 GE-1**

COL. SOYBEL: Sir, may I ask you to spell your name for the record?

MR. INGLE: Yes. My name is Stuart S-T-U-A-R-T; last name I-N-G-L-E.

I'm very pleased that, you know, we have this opportunity to have expansion of Cannon, and certainly the BRAC process was something that none of us wanted to go through.

But I think we have come through in a way that I don't think any of us ever imagined how good it would be, and I think it is going to be great for our economy. It's great for what we have here in New Mexico.

And New Mexico is a unique state as

far as what it offers the military.

And certainly this area is probably one of the best areas in the United States for locating any kind of a military activity as far as being well received to a great -- to a great extent by the public that are here, and live on the land, live out in the rural areas and certainly live in our cities.

We thank you for the opportunity to be here. We thank you for coming here and having public hearings.

COL. SOYBEL: Thank you.

Is there anyone else that wishes to speak?

(No response.)

Okay. We are scheduled to stay here -- we are scheduled to stay here until 8:00 o'clock.

And we'll go into an informal session now, so you will be free to walk around.

But if somebody comes in late and they wish to speak, I'm going to re-adjourn and we are going to give them a chance to speak.

But I want to make sure that in case somebody is late, and they're counting on the

REPORTER'S CERTIFICATE

March 18, 2007

I, the undersigned Certified Shorthand Reporter in and for the State of New Mexico, certify that the facts stated in the foregoing pages to the best of my ability are true and correct.

I further certify that I am neither attorney or counsel for, related to, nor employed by any parties to the action in which this testimony is taken and, further, that I am not a relative or employee of any counsel employed by the parties hereto or financially interested in the action.

SANDRA J. WATSON, RPR-CCR
NEW MEXICO CCR NO. 213
License Expires 12/31/07

04-19-07
PUBLIC HEARING
for the
AIR FORCE SPECIAL OPERATIONS
COMMAND ASSETS BEDDOWN
at
CANNON AIR FORCE BASE, NEW MEXICO

IN RE: DRAFT ENVIRONMENTAL IMPACT STATEMENT
April 19, 2007
8:00 p.m.
323 South Fifth Street
Clayton, New Mexico 88415

HEARING OFFICER BY: COL. LAURENCE SOYBEL
Reported by: Clay LeMaster, NM CCR #40
Certified Court Reporter
P.O. Box 1516
Amarillo, Texas 79105
(806) 995-4330

A P P E A R A N C E S

COL. J.D. CLEM - AFSOC
MR. CARL T. HOFFMAN - AFSOC Environmental Program Manager
COL. VALENTINO BAGNANI III
MR. BOB VANTASSEL - Contractor, Science Applications International Corporation, (SAIC)
MS. DENISE BOYD - AFSOC Public Affairs (PA)
MS. JENNIFER GEESLIN - SAIC Public Affairs (PA)

somebody does come in late, we want to be here for them and if they come in at a quarter of 8:00, I'll reconvene the public hearing and they'll have their opportunity to speak. Otherwise, 8:00 o'clock will be the last call and we'll close at that point.

With that, I'll call the first speaker. We have Mr. Garth Boyce, the mayor of Clayton. Sir.

MR. BOYCE: Thank you very much. I got an opportunity to visit with Randy Harris and the business group that came here last month and with the help of General Retired Scott helped us with a letter to General Wooley. I would like to read that letter. He has a copy of that. But I would like to read it for the record if I may, sir. **2016 GE-1**

MS. BOYD: Sir, if you could, just spell your name for us.

MR. BOYCE: I'm sorry. My name is Garth Boyce, I'm Mayor of Clayton, New Mexico, G-a-r-t-h, B-o-y-c-e. And I am representing the town of Clayton. This is addressed on April the 9th to Lieutenant General Michael W. Wooley, Commander, Air Force Special Operations Command. 100 Bartley Street, Command Suite, Hurlburt Field, Florida. Dear General Wooley: We are writing today to support establishment of the 16th Special Operations Wing at Cannon Air

Force Base near Clovis, New Mexico. We have closely followed the transition planning for Cannon for the past several months. On behalf of the Town of Clayton, I would like to offer access to our existing regional resources, including our airport, nearby lake and land areas for current and future training and other mission support activities.

I would like to personally invite you and your staff to our community to tour or wonderful town and facilities as well as provide us with recommendations that will help us to be more responsive to your needs. We would enjoy meeting you and introducing you to the patriotic members of our community. The Town of Clayton has always been supportive of the U.S. military and its troops and airmen. We hope to develop a greater degree of contact and interface with those moving to Cannon and meet those assigned to the air base. Please consider this letter as the first step in opening dialogue with you and those coming to serve our country at Cannon.

Please know that my door is always open to you or any of those under your command. I can be reached at 505-374-8331 or via my email address. I signed that.

In addition to that, I would state just a

small part of what Clayton can do to help those men and women overseas, it is just a small drop in the ocean, sir, and I think we would be very appreciative to welcome those. One of the other things, I will use Robert Beck's comment. We see people over the sky there, and we would like to see faces. So we would like to see you come down and talk to us and receive a lot of our hospitality.

COLONEL SOYBEL: Do you want to submit that letter?

MR. BOYCE: Yes, I would.

COLONEL SOYBEL: Next speaker, Mr. Van Robertson, Union County Commissioner.

MR. ROBERTSON: My name is Van Robertson, V-a-n, R-o-b-e-r-t-s-o-n. I'm a Union County commissioner. But I am also a self-employed rancher that has land in all the areas that you have proposed here. I'm not representing the county. I'm more or less just here on my own self defense. Anyway, I am a cattle rancher. First of all, I would like to say thank you for what you guys do, and you need a place to train, and I realize that. As a rancher, cattle owner, I am just concerned about low flying aircraft, mostly at night, if you are going to have helicopters and things of that sort. We're unlike a lot of the

2017

BI-2

ranchers here. Most of the ranchers here have native cattle which are a lot gentler. We get South Texas steers out of the deserts south of San Antonio and they are gathered with a helicopter off the oat fields in that country and brought up here and we gather them up here in the fall with helicopters. So therefore, when they hear that rotor, they're moving. We get a lot of cattle, especially at night, cattle will sleep in a corner or they tend to bunch up and sleep in a corner. They hear this noise, they just stampede. Most of the time they will. They will take out fences and break legs, break their necks, and so it is a financial burden to whoever's cattle they are, plus they get mixed up with your neighbors' cattle and cowboys are pretty high priced. It is not a cheap labor, to hire cowboys. A lot of people may think. Anyway, that's my concern that we can stay away from cattle and things like that at night and just know that there is cattle down on the ground. There may not be any people. There are not many people that live out there. Union County, it is the number two county in the state of New Mexico for cattle. Most cattle ranchers want to keep their cattle on their own ranch and keep things going. Thank you. Again, thank you for what you do.

BI-2

COLONEL SOYBEL: Next speaker is Mr. Robert Beck.

MR. BECK: Thank you, sir. Good evening. My name is Robert Beck, R-o-b-e-r-t B-e-c-k. I've lived in Union County all my life. I was born here in 1959, and except for periods of military service and college education, I've always lived here. Since this process started, I have reviewed the Draft Environmental Impact documents. I have attended the meetings and I'm here to comment in favor of the mission. I know that there is some impact, but the impact is minimal as compared to the importance of the mission. The sacrifice that we're being asked to make is minimal as compared to the importance of the training mission, the importance of the global war on terror and being able to respond to it and react properly to that. I was misquoted a little earlier. I didn't say faces. I said what we wanted to see up here is boots on the ground. From that you probably know the branch of military that I served in. My daughter will be commissioned as an officer in the United States Army on May 19th and she is receiving good training and it is important to me that she receives a lot better training than I would have received and we anticipate she will be going overseas

2018
GE-1

shortly as the members of the Air Force and any other branches that will be training here will be going overseas. My comment is in support of the mission, recognizing that there is an impact here, but the impact is minimal as compared to the importance of the mission. Thank you.

COLONEL SOYBEL: The next speaker and last one that I have so far is J.W. Heringa, if I'm saying that correctly.

MR. HERINGA: I'm J.W. Heringa. J.W., H-e-r-i-n-g-a. We appreciate what you guys are doing and I've been there and I know what you are doing. I'm speaking for the private pilots in this area. I was wondering how much impact the unmanned aircraft are going to have on this area. We fly quite a bit around here and unmanned aircraft are really dangerous for us, especially at night. There is not that much traffic around here at night, but an unmanned aircraft is really a menace to us. I was concerned about that. I'm a retired rancher, so I appreciate you guys flying high and not flying low.

COLONEL SOYBEL: Thank you, sir. I have no more cards. Let me ask one more time if there is anyone else that may have entered that wants to speak? If not, what we'll do is go into an informal session.

2019

DO-3

You are free to walk around and continue talking to some of our experts here. At about 8:00 o'clock, I'm going to stay here until 8:00, and you don't have to, but I will make a last call and then we'll close up at that time. We are in informal session right now. Thank you.

COLONEL CLEM: The unmanned airplanes, the unmanned airplanes we'll fly out of Cannon will be doing take-offs and landing at Cannon when we get them eventually. We anticipate trying to work back and forth to Melrose range. We're working with The FAA now trying to establish a corridor. If we can't do that, there will be a chase plane associated with it. So you will not see any unmanned airplanes day or night up in this area. I understand absolutely the concern, and the engineers are working hard to try to figure out the unmanned airplane and the clearance.

COLONEL SOYBEL: We have one more speaker. D. Ray Blakeley.

MR. BLAKELEY: I'm D. Ray Blakeley. I answer to that. B-l-a-k-e-l-e-y. I was reading, not all of it, mind you, the hefty tome over there on the environmental impact setting. I noticed an omission in the cultural or recreational aspects of the Mt. Dora MOA. Clayton Lake State Park should be

2020

LU-1

mentioned. That's it. Thank you.

(THE MEETING WAS ADJOURNED AT 8:00 O'CLOCK)

REPORTER'S CERTIFICATE

May 04, 2007

I, the undersigned Certified Shorthand Reporter in and for the State of New Mexico, certify that the facts stated in the foregoing pages to the best of my ability are true and correct.

I further certify that I am neither attorney or counsel for, related to, nor employed by any parties to the action in which this testimony is taken and, further, that I am not a relative or employee of any counsel employed by the parties hereto or financially interested in the action.

CLAY A. LeMASTER, CCR
NEW MEXICO CCR NO. 40
LICENSE EXPIRES 12/31/07

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State of New Mexico
House of Representatives
Santa Fé

BRIAN K. MOORE
R - Curry, Harding, Quay, Roosevelt,
San Miguel & Union Counties
District 67

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Clayton, NM 88415

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COMMITTEES:
Appropriations and Finance
Transportation

INTERIM COMMITTEES:
Legislative Finance
New Mexico Finance Authority Oversight
Water & Natural Resources

April 23, 2007

GE-1

Mr. Carl T. Hoffman
HQ AFSOC / A7PP
427 Cody Avenue, Suite 303
Hurlburt Field, FL 32544-5434

Dear Mr. Hoffman:

I would like to go on record supporting the new mission at Cannon AFB, New Mexico. I am very excited about the Special Operations Wing that has been proposed. In my visits with constituents, everyone has been supportive of our troops and their missions around the world. We understand how important training is to our young men and women who serve in the military.

If there is anything I can do to help during the transition, please don't hesitate to call me anytime.

Sincerely,

Brian Moore

Town of Clayton

1 Chestnut
Clayton, NM 88415
Phone: 505-374-8331 Fax: 505-374-8497

04-09-2007

GE-1

Lieutenant General Michael W. Wooley
Commander, Air Force Special Operations Command
100 Bartley Street, Command Suite
Hurlburt Field, Florida 32544-5273

Dear General Wooley:

We are writing today to support establishment of the 16th Special Operations Wing at Cannon AFB, near Clovis, New Mexico. We have closely followed the transition planning for Cannon for the past several months. On behalf of the Town of Clayton, I would like to offer access to our existing regional resources, including our airport, nearby lake and land areas for current and future training and other mission support activities.

I would like to personally invite you and your staff to our community to tour our wonderful town and facilities, as well as to provide us with recommendations that will help us to be more responsive to your needs. We would enjoy meeting you and introducing you to the patriotic members of our community. The Town of Clayton has always been supportive of the U.S. military and its troops and airmen. We hope to develop a greater degree of contact and interface with those moving to Cannon and meet those assigned to the air base. Please consider this letter as the first step in opening dialogue with you and those coming to serve our country at Cannon.

Please know that my door is always open to you or any of those under your command. I can be reached at (505) 374-8331 or via email at gboyce@plateautel.net/

Sincerely,

Garth Boyce

Garth Boyce
Mayor
Town of Clayton

BOARD OF COUNTY COMMISSIONERS

DENNIS LOPEZ
District 1

DAVID C. SANDERS, SR.
District 2

BILL CATHEY
District 3

GENE CREIGHTON
District 4

PAUL GRIDER
District 5

ROOSEVELT COUNTY

OFFICE OF FINANCE & ADMINSTRATION
109 West 1st Room B-6
Portales, NM 88130

CHARLENE HARDIN
County Manager
(505) 356-5307

TAMMY A. LEE
Human Resource Manager
(505) 356-4990

PAT WILLIS
Administrative Assistant
(505) 356-4990

April 17, 2007

GE-1

Lieutenant General Michael W. Wooley
Commander, Air Force Special Operations Command
100 Bartley Street, Command Suite
Hurlburt Field, Florida 32544-5273

Dear General Wooley:

We welcome personnel of the Air Force Special Operations Command to New Mexico! Roosevelt County has been proud to host the men and women of Cannon AFB for over 50 years. We have many military families that reside in our County, and they have always been active participants in our community activities. Of course, Melrose Range is located in Roosevelt County, and we are extremely pleased that this outstanding Air Force Range will continue to be an important part of Cannon AFB.

The County Commissioners are anxious to do what we can to support the ongoing mission transition at Cannon, whether it involve responding to new infrastructure requirements at the Base and Melrose Range, or addressing quality-of-life issues that are important to your community.

I can be reached at (505) 760-1411. Please let me know what we can do to assist at this important time in New Mexico's history.

Sincerely,

Dennis Lopez, Vice Chairman
Roosevelt County Commission

City Manager
JOE C. THOMAS

City Attorney
DAVID F. RICHARDS

Post Office Box 760
Clovis, New Mexico
88101-0760
Phone (505) 769-7828

CLOVIS CITY COMMISSION

Mayor
DAVID M. LANSFORD

Mayor Pro-Tem
RANDAL S. CROWDER

Commissioners
RON EDWARDS
ISIDRO GARCIA
JUAN F. GARZA
ROBERT SANDOVAL
FRED VAN SOELEN
LEN VOHS
LUNELL WINTON

April 17, 2007

GE-1

Colonel Larry Soybel
Hearing Officer
Environmental Impact Statement
Cannon Air Force Base

Dear Colonel Soybel:

Clovis and eastern New Mexico have a long history of support and dedication to the defense of our nation, the United States Air Force, Cannon Air Force Base, and the men and women who serve at Cannon. When Cannon was designated for closure, the City of Clovis and its citizens unified and organized a concentrated effort to present to the Base Realignment and Closure Commission evidence of the value of Cannon Air Force Base to our country's national defense and the desire to sustain the base. With the announcement of enclave status, and then the mission change to Special Operations, the citizens of Clovis continued their passionate support of the proposed changes at Cannon.

This commitment and support has not wavered, and will not be deterred. The citizens and leaders of the Clovis community understand that there will be changes, that different aircrafts will operate at different altitudes and noise levels, that flight schedules will be different, that ground operations will be changed, that utilization of the Melrose Bomb Range will be altered, and that there will be other impacts from the mission change. They look forward to these changes and the opportunity to adapt to the Special Operations mission at Cannon Air Force Base.

As Mayor of this community, I assure the Department of Defense and the Air Force that this City and community wholeheartedly support the Special Operations mission and will work as diligently as we did during the BRAC process to adjust to the impact of the change of mission and to support the future generations of Air Force personnel at Cannon Air Force Base. Cannon has long been a part of this community, and the citizens of Clovis anxiously anticipate a continued relationship far into the future.

I respectfully request that this letter be included in the transcript of proceedings.

Very truly yours,

David M. Lansford
Mayor, City of Clovis

City of Portales

100 West First Street
Portales, NM 88130

Phone 505-356-6662
Fax 505-356-3158

April 15, 2007

Lt. General Michael W. Wooley
Air Force Special Operations Command
100 Bartley Street, Commander Suite
Hurlburt Field, Florida 32544

GE-1

Dear Lt. General Wooley;

On behalf of the Portales City Council and the Portales community, it is with great honor to express our support to the United States Air Force Special Operations Wing scheduled for Cannon Air Force Base. For several decades now, the communities of eastern New Mexico have offered a wonderful partnership that supports our U.S. Armed Forces and their families.

Portales wants to continue that tradition of support by offering our hospitality and community resources to your mission, personnel and families. If ever there is a need or opportunity to utilize our local resources such as municipal airport, police and fire departments, or the 6000 acres of range land the city owns in eastern Roosevelt County for military exercises and/or training, please do not hesitate to ask.

We strive to offer the best quality of life possible that includes a safe and friendly activity filled environment for all our citizens. We offer great public and higher education, a first class hospital, and a community that is affordable and comfortable. You will find that the citizens of Portales are very patriotic and are proud to have Cannon Air Force Base, its personnel and families as neighbors. We welcome the Special Operations mission to Portales. We look forward to a long and flourishing partnership.

Sincerely,

Orlando Ortega, Jr.
Mayor

3004

CITY OF PORTALES

RESOLUTION NO. 06- 07-58

A RESOLUTION SUPPORTING
THE SPECIAL OPERATIONS MISSION AT
CANNON AIR FORCE BASE

WHEREAS, Cannon Air Force was placed in an enclave status by the Base Realignment and Closure Commission (BRAC) on May 13, 2005: and

WHEREAS; on June 20, 2006, the Secretary of the Air Force announced that a Special Operations mission has been designated for Cannon Air Force Base; and

WHEREAS, this new mission of Special Operations has been announced and will result in an expansion of personnel which may require additional facilities and training opportunities; and

WHEREAS, the Community of Portales has a history of support and dedication to the defense of our nation and will continue their commitment and support with the new Special Operations mission; and

WHEREAS, we understand that there will be changes with the new mission including different aircrafts' operating at different altitudes and noise levels, that flight schedules will be different, that ground operations will be changed, that utilization of the Melrose Bomb Range will be altered and that there will be other impacts yet to be determined from the new mission; and

WHEREAS, public meetings will be scheduled in Clovis, Ft. Sumner and Clayton in April to present the Environmental Impact Statement which analyzes the potential environmental impact of the proposal to locate AFSOC assets at Cannon AFB and Melrose Air Force Range and to train these assets in special use airspace and Military Training Routes to be coordinated by the 27th Fighter Wing scheduled by AFSOC personnel at Cannon AFB.

NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE CITY OF PORTALES, NEW MEXICO that the Mayor and City Council members wholeheartedly support the Special Operations mission and desire to voice that support at the public meetings and will work diligently to plan for and adjust with the change of mission for future generations of Air Force personnel at Cannon Air Force Base.

PASSED, ADOPTED AND APPROVED this 16th day of April 2007

ORLANDO ORTEGA, JR. MAYOR

ATTEST:

JOAN MARTINEZ TERRY, CITY CLERK

VILLAGE OF FORT SUMNER

Mayor: Juan A. Chavez

Councilors: Bobby Williamson
Selestino Lovato
Windell Bridges
Esther Segura

P.O. BOX 180
FORT SUMNER, NEW MEXICO
88119
Phone: 505-355-2401
Fax: 505-355-7941
fscityhallrs@plateautel.net

April 10, 2007

GE-1

Lieutenant General Michael W. Wooley
Commander, Air Force Special Operations Command
100 Bartley Street, Command Suite
Hurlburt Field, Florida 32544-5273

Dear General Wooley:

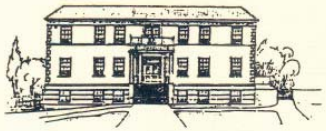
The Village of Fort Sumner is eagerly anticipating the mission transition at Cannon AFB. We are a proud community with a nationally recognized history, and we are anxious to do what we can to support the 16th Special Operations Wing as it commences operations in eastern New Mexico.

First, we have several facilities which could be utilized in various capacities for your training. The Ft. Sumner Municipal Airport was originally a WWII training base for the Army Air Force, and we recommend that your staff consider it for future training operations. Lake Sumner, which is just up the road a few miles, could potentially be used for training as well as recreational activities by Cannon personnel. Your personnel have a standing invitation to participate in any of our many Village activities. We are anxious to participate with the Air Force, and to be considered as an essential member of the extended Cannon community.

The Village of Fort Sumner is ready to assist the 16th Special Operations Wing in any manner possible, including assistance in reviewing possibilities for training or supporting recreational needs. Please let me know if I can provide additional information. I can be reached at (505) 355-2311.

Sincerely,

Juan A. Chavez, Mayor
Village of Fort Sumner



County of De Baca
Office of County Commissioners
P.O. Box 347 · Ft. Sumner, NM 88119
(505) 355-3601 · Fax (505) 355-2441

April 17, 2007

General Michael W. Wooley
Commander Air Force Special Operations Command
100 Bartley Street Command Suite
Hurlbert Field, Florida 32544-5273

GE-1

Dear General Wooley:

Welcome to Eastern New Mexico! Welcome to the Clovis/Portales area! And, in particular, welcome to De Baca County!

Over the past 30 years, Clovis has gotten larger and the communities in De Baca County have gotten smaller. It has evolved into a situation where De Baca County is in many ways a suburb of the microplex of Clovis and Portales. Therefore, we claim the right to say that the community of Cannon Air Force is a part of our community also. We welcome you to our community.

We are honored that you would come here tonight to explain to us Cannon's future role in the defense of our Country.

De Baca County also takes serious the defense of our Country. We do not have too much of a material nature to offer you, but we do have

- 2,350 square mile of almost un-cluttered air space
- A lightly used, former Army Air Field in Fort Sumner that you might find useful in any number of training exercises
- A nice sized lake owned by the BLM/BOR and Carlsbad Irrigation District and operated by NM State Parks that could useful in training for situations that involve water
- Miles and miles of rugged terrain, around the higher mesas and down the rugged creek bottoms—that is assuming arrangements could be made with the private owners
- And, we have almost 60 miles of the Pecos River running north to south across the county

In addition to training areas, maybe some of these assets can be used for dual purposes such as hunting, fishing, hiking, mountain biking, boating, camping and perhaps other recreational activities for the people stationed at Cannon.

P.O. Box 347 Fort Sumner, New Mexico 88119 Phone 505-355-3601 Fax 505-355-2441

3006

We are your neighbors. We want to be your partner. We want to be involved with you as much as it is practical for us to be.

Thanks for coming tonight. And, again, Welcome to De Baca County!

Sincerely,
The De Baca County Commissioners

Powhaten Carter III	Joe Steele	Tommy Roybal
Commission Chairman	Commission Member	Commission Member

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
P.O. Box 26567 (MC-9)
Albuquerque, New Mexico 87125-6567

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:

File 9043.1
ER 07/298

May 7, 2007

Carl Hoffman
United States Air Force
AFSOC Assets Beddown EIS Project Manager
427 Cody Avenue, Suite 303
Hurlburt Field, FL 32544-5434

GE-1

Subject: Draft Environmental Impact Statement (DEIS) for Cannon Air Force Base and Melrose Air Force Range Proposal to Beddown or Locate Air Force Special Operations Command (AFSOC), Implementation of Base Realignment and Closure (BRAC), New Mexico

Dear Mr. Hoffman:

The U.S. Department of the Interior has reviewed the subject DEIS. In this regard, we have NO COMMENT.

Thank you for the opportunity to review this document.

Sincerely,

Stephen R. Spencer
Regional Environmental Officer

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

MAY 11 2007

Mr. Carl Hoffman
AFSOC Assets Beddown
EIS Manager
427 Cody Avenue
Suite 303
Hurlburt Field, Fl 32544-5434

GE-1

Dear Mr. Hoffman:

In accordance with our responsibilities under Section 309 of the Clean Air Act, the National Environmental Policy Act (NEPA), and the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA, the U.S. Environmental Protection Agency (EPA) Region 6 office in Dallas, Texas, has completed its review of the Draft Environmental Impact Statement (DEIS) for the Air Force Special Operations Command (AFSOC) Assets Beddown at Cannon Air Force Base, New Mexico.

EPA rates the DEIS as "**LO,**" i.e., EPA has "**Lack of Objections "** to the proposed action as described in the DEIS. Our classification will be published in the Federal Register according to our responsibility under Section 309 of the Clean Air Act to inform the public of our views on proposed Federal actions. If you have any questions, please contact me at 214-665-7451 or by e-mail at jansky.michael@epa.gov.

EPA appreciates the opportunity to review the DEIS. Please send our office two copies of the FEIS when it is sent to the Office of Federal Activities, EPA (Mail Code 2252A), Ariel Rios Building, 1200 Pennsylvania Ave, N.W., Washington, D.C. 20460.

Sincerely yours,

Michael P. Jansky
Regional EIS Coordinator

6ENXP:MJANSKY:mj:051007:DEIS:CANNON AFB, NEW MEXICO

3008

[Federal Register: May 25, 2007 (Volume 72, Number 101)]
[Notices]
[Page 29313-29314]

ENVIRONMENTAL PROTECTION AGENCY
[ER-FRL-6687-3]

Environmental Impact Statements and Regulations; Availability of EPA Comments

Availability of EPA comments prepared pursuant to the Environmental Review Process (ERP), under section 309 of the Clean Air Act and section 102(2)(c) of the National Environmental Policy Act as amended. Requests for copies of EPA comments can be directed to the Office of Federal Activities at 202-564-7167. An explanation of the ratings assigned to draft environmental impact statements (EISs) was published in FR dated April 6, 2007 (72 FR 17156).

Draft EISs

EIS No. 20070114, ERP No. D-USA-G15001-NM, Cannon Air Force Base (AFB), Proposal to Beddown, or Locate Air Force Special Operations Command (AFSOC), Implementation, Base Realignment and Closure (BRAC), NM.

Summary: EPA had no objections to the proposed action. Rating LO.

Note: LO (Lack of Objections) The review has not identified any potential environmental impacts requiring substantive changes to the preferred alternative. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposed action

Page 1

3009

05/09/2007 11:06 5057633656 CURRY COUNTY ADMIN PAGE 02/02

VILLAGE OF MELROSE
P.O. BOX 235
MELROSE, NM 88124
(505) 253-4274 – Phone
(505) 253-4260 – Fax

Lance A. Pyle
Mayor

May 7, 2007

GE-1

Lt. General Michael W. Wooley
Air Force Special Operations Command
100 Bartley Street, Commander Suite
Hurlburt Field, FL 32544

RE: Letter of Support

Dear Lt. General Wooley:

The Village of Melrose strongly supports the United States Air Force Special Operations Wing for Cannon Air Force Base.

The Village of Melrose is aware that there will be changes with the new mission; including utilization of the Melrose Bombing Range, which will be altered and several other changes with the new mission.

On behalf of my community, we look forward to the new mission. We will be here to offer any assistance that we are able to offer during the transition. The Village of Melrose has a great public school, which has been rated top in the State of New Mexico, affordable housing and utilities all in a small family atmosphere.

I respectfully request that this letter be included in the transcript of the proceedings, which was held on April 17, 2007 at Clovis Community College.

Sincerely,

Lance A. Pyle
Mayor, Village of Melrose

CC: File

Responses

AFSOC Draft EIS Comment Response Table

AM = Airspace Management
BI = Biological Resources
DO = Description of Proposed Action and Alternatives
GE = General
LU = Land Use
NO = Noise
NP = National Environmental Policy Act Process
PN = Purpose and Need
PR = Physical Resources
SA = Safety

Letter # / Commenter #	*Response Code*	*Response*
002	AM-1	Section 3.1.2 of the Draft EIS and of the Final EIS identifies the airspace that has been established to support airport/airfield operations at Cannon Air Force Base (AFB). This airspace extends in an approximate radius of 20 nautical miles (nm) (Class E) from Cannon AFB and has been used by all aircraft arriving and departing the Cannon airfield.
008	BI-1	Appendix A in the Draft EIS and the Final EIS presented the composition and size of chaff. The potential effects of the ingestion of chaff filaments by cattle, sheep, or wildlife are discussed in the Draft EIS and the Final EIS in Section 5.6.3.1. Chaff filaments are about 1 inch in length and about the thickness of human hair and are composed of silica, aluminum, and stearic acid. The filaments disperse widely on release. A study cited in Section 5.6.3.1 (Barrett and MacKay 1972) found no negative effects (pre- and post-mortem) on calves. Calves would only consume chaff if it was mixed in with molasses.
002, 010, 2017	BI-2	Section 5.1.2.1 and Table 5.1-1 of the Draft EIS and the Final EIS identifies that the floor of the Mt. Dora East/West Low Military Operations Area (MOA) is 1,500 feet above ground level (AGL). It is also noted in Section 2.1.1 that of the 108 aircraft planned to be located at Cannon AFB that there are two UH-1 Huey Helicopters. In addition, CV-22s operate in helicopter mode for landing zone (LZ)/drop zone (DZ) and water training and some of the transient aircraft noted in Table 2.1-2 could be helicopters. Section 5.6.3.1 of the Draft EIS and the Final EIS discusses the effects of aircraft noise on animals. The Draft EIS and the Final EIS reviewed numerous documents that report on studies of the effects of low-altitude aircraft noise on livestock and wildlife. Habituation of the animals to aircraft noise was documented. However, in Section 4.5.3.1, the Draft EIS and the Final EIS does explain that animals can be startled by a particularly close or loud noise event.
002	DO-1	Sections 2.1, 2.2, and 2.3 of the Draft EIS and the Final EIS identify the proposed use and mission of Cannon AFB, Melrose Air Force Range (AFR), and the airspace scheduled by Cannon AFB.
2014	DO-2	Section 5.1.2.1 and Table 5.1-1 of the Draft EIS and the Final EIS identifies that the floor of the Pecos MOA is 500 feet AGL.
2019	DO-3	Sections 2.1.1 and 2.2.2 of the Draft EIS and the Final EIS identify the use of Predator aircraft. Predator aircraft would launch from Cannon AFB and transit to Melrose AFR and train within the associated Restricted Areas (R-5104 and R-5105) in compliance with the Federal Aviation Administration (FAA) Certificate of Waiver or Authorization (COA) as identified in Section 4.1.3.1 of the Draft EIS and the Final EIS.
015	DO-4	Section 2.3.2, Table 2.3-3, and Section 5.5.3.1, Table 5.5-2 of the Draft EIS and the Final EIS identifies the current and proposed use of flares by airspace. Appendix B identifies the Characteristics of Flares anticipated to be used by AFSOC aircraft.

Letter # / Commenter #	*Response Code*	*Response*
001, 004, 006, 007, 011, 012, 013, 014, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2015, 2016, 2018, 3000, 3001, 3002, 3003, 3004, 3005, 3006, 3007, 3008, 3009	GE-1	The Air Force would like to express appreciation for your comments and participation in the National Environmental Policy Act (NEPA) process. Public and agency involvement is an important part of the NEPA process, and all letters and their associated comments whether bracketed or not are taken into consideration by the Air Force in its decision making process.
003, 2020	LU-1	Clayton Lake State Park has been added to the Final EIS in Section 5.8 Land Use and Recreation Table 5.8-2.
010, 016, 017, 018	LU-2	AC-130 gunships that are proposed to use Melrose AFR training will replace the legacy 25 millimeter (mm) gun with a 30 mm gun. This action will reduce the size of the safety weapons footprint (Exclusive-Use) presented in the Draft EIS in Figures 2.2-2 and 2.2-3. The Final EIS has been edited to reflect this change. The safety weapons footprint is established to reduce the potential for ordnance to land in areas occupied by humans or livestock. The smaller safety weapons footprint will reduce the amount of new Exclusive-Use area required (see Final EIS, Table 2.2-5). The affected leases will need to be modified to reflect the change from Restricted Use to Exclusive-Use.
015	LU-3	In Section 5.8.3.1 of the Draft EIS and the Final EIS, the annual projections for deposition of the residual materials from chaff and flare deployment in the Pecos MOA are identified.
015	LU-4	In Sections 2.3.2 and 5.8.3.1 of the Draft EIS and the Final EIS, the amount of chaff and flare end caps, aluminum-coated Mylar, and other residual materials are identified. Appendix A identifies the composition of chaff, the components of a chaff cartridge, and the debris associated with the ejection of chaff from the cartridge. Only RR-188 chaff and M-206 or equivalent flares have been assessed for use in the airspace adjacent to and outside the Restricted Airspace associated with Melrose AFR (Pecos MOAs, Taiban MOA, and Pecos and Sumner Air Traffic Control Assigned Airspace [ATCAAs])
015	NO-1	The Sound Exposure Level (SEL) is presented in Section 3.2. As noted in Section 5.5.2, time-averaged sound level metrics presented throughout the Draft EIS and the Final EIS are useful for two reasons. 1) They describe the noise environment resulting from a complex set of noise events with a single number. This allows for "apples-to-apples" comparisons of locations which experience differing intensities and frequencies of noise. 2) Time-averaged noise metrics have been found to correlate well to certain noise impacts. Day-Night Average Sound Level (DNL), a time-average noise metric which includes a penalty for late-night noise events, correlates well to the percentage of a population that is highly annoyed. The relationship between DNL and human annoyance is described in Appendix F of the EIS.

Letter # / Commenter #	*Response Code*	*Response*
015	NP-1	Public comments, either written or verbal, provided during the scoping process are considered in focusing the environmental analysis. These comments were summarized in Section 2.5, Table 2.5-2 of the Draft EIS and the Draft EIS section and table are included in Appendix C of the Final EIS. There is no requirement to present scoping comments, verbatim, in the Draft EIS or the Final EIS.
015	NP-2	When chaff is ejected from an aircraft, it is being used for its intended defensive training purpose. As described in Section 4.8.3.1 of the Draft EIS and the Final EIS, "although the likelihood of encountering any chaff or flare residual components outside of Melrose AFR is low, if such were found, it could result in annoyance to the observer." The use of chaff and flares and other munitions by AFSOC is subject to the Military Munitions Rule. AFSOC will adopt the mitigations that currently exist for airspace managed by Cannon AFB (see Section 2.8.2).
009, 016	PR-1	Additional information regarding the number, type, and location of wells has been included in Section 4.5.2.2 of the Final EIS. No wells are identified within the safety zones surrounding either of the two-target or three-target areas.
005	SA-1	Landing zones for C-130 aircraft would be limited to prepared surfaces that could support the aircraft. Landing zones for vertical landing aircraft would need to be maintained to reduce the potential for fire and the loss of soil. Section 4.3.3.1 of the Draft EIS has been revised in the Final EIS to reflect this information.
005, 017, 019	SA-2	Soil information found in the Draft EIS in Section 4.5.2.1 has been supplemented with additional information on the characteristics of the soils on Melrose AFR.
002, 015	SA-3	In Sections 5.3.2 and 5.3.3.1 of the Draft EIS and the Final EIS, the potential for wake vortices to affect windmills was addressed.
015, 016, 017	SA-4	In Section 4.3.2.1 of the Draft EIS and the Final EIS, the Air Force acknowledged the November 2005 fire on Melrose AFR and has changed range and fire management operations to reduce the potential for such fires. AFSOC will continue to utilize fire management best management practices (BMPs), including grazing, to the extent mission training allows.

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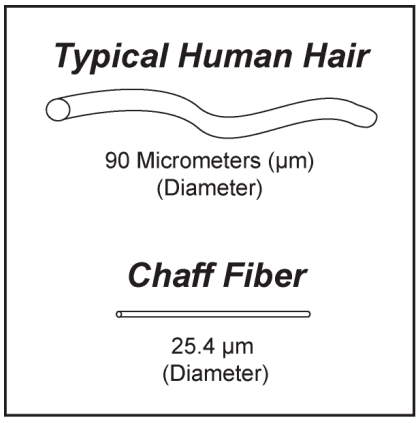
APPENDIX A
CHARACTERISTICS OF CHAFF

APPENDIX A CHARACTERISTICS OF CHAFF

Training chaff is currently authorized in the existing restricted airspace (R-5104 and R-5105), Pecos and Taiban MOAs, and VR-100/125. When released from an aircraft, chaff initially forms a sphere, then disperses in the air. The chaff effectively reflects radar signals in various bands (depending on the length of the chaff fibers) and forms a very large image or electronic "cloud" of reflected signals on a radar screen. The aircraft is obscured from radar detection by the cloud, which allows the aircraft to safely maneuver or to leave an area. Since chaff can obstruct radar, its use is coordinated with the Federal Aviation Administration (FAA). Training chaff has D and E band dipoles removed to avoid interference with FAA radar.

Chaff Composition

The chaff used during training consists of extremely small strands (or dipoles) of an aluminum-coated crystalline silica core. The chaff components (silica, aluminum, and stearic acid) are generally prevalent in the environment. Silica (silicon dioxide) belongs to the most common mineral group, silicate minerals. Silica is inert in the environment and does not present an environmental concern with respect to soil chemistry. Aluminum is the third most abundant element in the earth's crust, forming some of the most common minerals, such as feldspars, micas, and clays. Natural soil concentrations of aluminum ranging from 10,000 to 300,000 parts per million have been documented (Lindsay 1979). These levels vary depending on numerous environmental factors, including climate, parent rock materials from which the soils were formed, vegetation, and soil moisture alkalinity/acidity. The solubility of aluminum is greater in acidic and highly alkaline soils than in neutral pH conditions. Aluminum eventually oxidizes to Al_2O_3 (aluminum oxide) over time, depending on its size and form and the environmental conditions. Stearic acid is an animal fat that degrades when exposed to light and air.



The chaff fibers have an anti-clumping agent (Neofat – 90 percent stearic acid and 10 percent palmitic acid) to assist with rapid dispersal of the fibers during deployment (Air Force 1997). Chaff is made as small and light as possible so that it will remain in the air long enough to confuse enemy radar. The chaff fibers are approximately the thickness of a human hair (i.e., generally 25.4 microns in diameter), and range in length from 0.3 to over 1 inch. The weight of chaff material in the RR-188 cartridge is 95 grams (Air Force 1997).

A single bundle of chaff consists of the filaments in an 8-inch long rectangular tube or cartridge, a plastic piston, a cushioned spacer and a 1-inch by 1-inch plastic end cap that falls to the ground when chaff is dispensed. The spacer is a spongy material (felt) designed to absorb the force of release. Figure 1 illustrates the components of a chaff cartridge. Table 1 lists the components of the silica core and the aluminum coating. Table 2 presents the characteristics of RR-188 chaff.

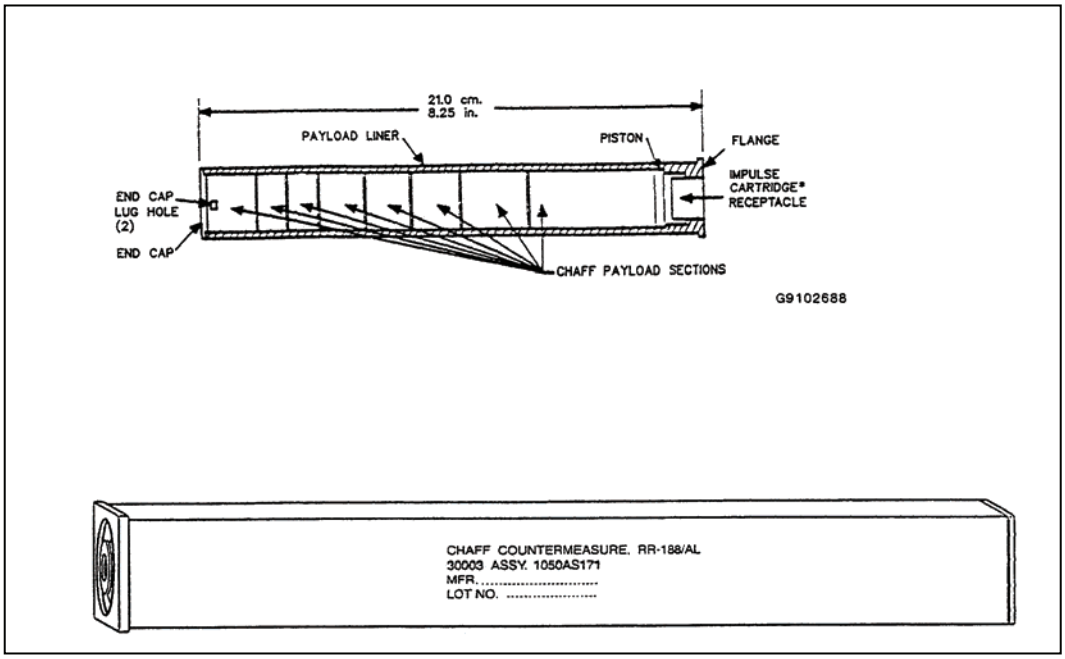


FIGURE 1. RR-188/AL CHAFF CARTRIDGE (SOURCE: AIR FORCE 1999)

TABLE 1. COMPONENTS OF RR-188 CHAFF

Element	*Chemical Symbol*	*Percent (by weight)*
Silica Core		
Silicon dioxide	SiO_2	52-56
Alumina	Al_2O_3	12-16
Calcium Oxide and Magnesium Oxide	CaO and MgO	16-25
Boron Oxide	B_2O_3	8-13
Sodium Oxide and Potassium Oxide	Na_2O and K_2O	1-4
Iron Oxide	Fe_2O_3	1 or less
Aluminum Coating (Typically Alloy 1145)		
Aluminum	Al	99.45 minimum
Silicon and Iron	Si and Fe	0.55 maximum
Copper	Cu	0.05 maximum
Manganese	Mn	0.05 maximum
Magnesium	Mg	0.05 maximum
Zinc	Zn	0.05 maximum
Vanadium	V	0.05 maximum
Titanium	Ti	0.03 maximum
Others		0.03 maximum

Source: Air Force 1997

Table 2. Characteristics of RR-188 Chaff

Attribute	*RR-188*
Aircraft	A-10, F-15, F-16
Composition	Aluminum coated glass
Ejection Mode	Pyrotechnic
Configuration	Rectangular tube cartridge
Size	8 x 1 x 1 inches (8 cubic inches)
Number of Dipoles	5.46 million
Dipole Size (cross-section)	1 mil (diameter)
Impulse Cartridge	BBU-35/B
Other Comments	Cartridge stays in aircraft; less interference with FAA radar (no D and E bands)

Source: Air Force 1997

CHAFF EJECTION

Chaff is ejected from aircraft pyrotechnically using a BBU-35/B impulse cartridge. Pyrotechnic ejection uses hot gases generated by an explosive impulse charge. The gases push the small piston down the chaff-filled tube. A plastic end cap is ejected, followed by the chaff fibers and the piston. The plastic tube (or payload liner) remains within the aircraft. Debris from the ejection consists of two, 1-inch square pieces of plastic 1/8-inch thick (i.e., the piston and the end cap) and a felt spacer. Table 3 lists the characteristics of BBU-35/B impulse cartridges used to pyrotechnically eject chaff. The impulse cartridge is consumed to deploy the chaff.

TABLE 3. BBU-35/B IMPULSE CHARGES USED TO EJECT CHAFF

Component	*BBU-35/B*
Overall Size Overall Volume Total Explosive Volume	0.625 inches x 0.530 inches 0.163 inches^3 0.034 inches^3
Bridgewire	Trophet A 0.0025 inches x 0.15 inches
Initiation Charge	0.008 cubic inches 130 mg 7,650 psi boron 20% potassium perchlorate 80% *
Booster Charge	0.008 cubic inches 105 mg 7030 psi boron 18% potassium nitrate 82%
Main Charge	0.017 cubic inches 250 mg loose fill RDX ** pellets 38.2% potassium perchlorate 30.5% boron 3.9% potassium nitrate 15.3% super floss 4.6% Viton A 7.6%

Source: Air Force 1997

Upon release from an aircraft, chaff forms an electronic cloud approximately 30 meters in diameter in less than one second under normal conditions. Quality standards for chaff cartridges require that they demonstrate ejection of 98 percent of the chaff in undamaged condition, with a reliability of 95 percent at a 95 percent confidence level. They must also be able to withstand a variety of environmental conditions that might be encountered during storage, shipment, and operation.

Table 4 lists performance requirements for chaff.

Table 4. Performance Requirements for Chaff

Condition	*Performance Requirement*	
High Temperature	Up to +165 degrees Fahrenheit (°F)	
Low Temperature	Down to –65 °F	
Temperature Shock	Shock from –70 °F to +165 °F	
Temperature Altitude	Combined temperature altitude conditions up to 70,000 feet	
Humidity	Up to 95 percent relative humidity	
Sand and Dust	Sand and dust encountered in desert regions subject to high sand dust conditions and blowing sand and dust particles	
Accelerations/Axis	G-Level	Time (minute)
Transverse-Left (X)	9.0	1
Transverse-Right (-X)	3.0	1
Transverse (Z)	4.5	1
Transverse (-Z)	13.5	1
Lateral-Aft (-Y)	6.0	1
Lateral-Forward (Y)	6.0	1
Shock (Transmit)	Shock encountered during aircraft flight	
Vibration	Vibration encountered during aircraft flight	
Free Fall Drop	Shock encountered during unpackaged item drop	
Vibration (Repetitive)	Vibration encountered during rough handling of packaged item	
Three Foot Drop	Shock encountered during rough handling of packaged item	

Note: Cartridge must be capable of total ejection of chaff from the cartridge liner under these conditions.
Source: Air Force 1997

Policies and Regulations on Chaff Use

Current Air Force policy on use of chaff and flares was established by the Airspace Subgroup of Headquarter (HQ) Air Force Flight Standards Agency (AFFSA) in 1993 (Memorandum from John R. Williams, 28 June 1993). It requires units to obtain frequency clearance from the Air Force Frequency Management Center and the FAA prior to using chaff to ensure that training with chaff is conducted on a non-interference basis. This ensures electromagnetic compatibility between the FAA, the Federal Communications Commission (FCC), and Department of Defense (DoD) agencies. The Air Force does not place any restrictions on the use of chaff provided those conditions are met (Air Force 1997).

AFI 13-201, U.S. Air Force Airspace Management, September 2001. This guidance establishes practices to decrease disturbance from flight operations that might cause adverse public reaction.

It emphasizes the Air Force's responsibility to ensure that the public is protected to the maximum extent practicable from hazards and effects associated with flight operations.

AFI 11-214 (22 December 2005) specifies that chaff is to be armed only in an approved airspace. Aircrews may employ flares over government-owned and controlled property and over-water Warning Areas with no minimum altitude restrictions when there is no fire hazard (unless a higher altitude is specified in range orders). If a fire hazard exists, minimum altitudes will be maintained in accordance with the applicable directive or range order. A minimum flare employment altitude of 2,000 feet AGL over non-government owned or controlled property is prescribed unless specified otherwise in governing regulations.

Air Operations Rules and Procedures, 22 December 2005. This instruction prescribes the rules and procedures for employing flares in training areas over government-owned or controlled property and over other than government-owned or controlled property."

CJCSM 3212.02B, Performing Electronic Attack In the U.S. and Canada for Tests, Training, and Exercises, 15 October 2003, as well as published range orders, applies to employment of chaff in the U.S. and Canada.

References

Air Force. 1997. *Environmental Effects of Self-Protection Chaff and Flares*. Prepared for Headquarters Air Combat Command, Langley Air Force Base, Virginia.

_____. 1999. *Description of the Proposed Action and Alternatives (DOPAA) for the Expansion of the Use of Self-Protection Chaff and Flares at the Utah Test and Training Range, Hill Air Force Base, Utah*. Prepared for Headquarters Air Force Reserve Command Environmental Division, Robins AFB, Georgia.

_____. 2000. Additional Information and Analysis of Proposed Use of Defensive Chaff in the Airspace Known as the Carrabelle and Compass Lake Work Areas (Military Operations Areas). Prepared for the U.S. Air Force Air Education and Training Command (AETC). Tyndall Air Force Base, Florida.

APPENDIX B
CHARACTERISTICS OF FLARES

APPENDIX B CHARACTERISTICS OF FLARES

M-206 self-protection flares are currently used in the Pecos and Taiban MOAs above 2,000 feet above ground level (AGL) and the restricted areas. Other types of flares can be used along with other munitions at Melrose AFR. Self-protection flares are magnesium pellets that when ignited, burn for a short period of time (i.e., 3.5 to 5 seconds) at 2,000 degrees Fahrenheit (°F). The burn temperature is hotter than the exhaust of an aircraft, and therefore, attracts and decoys heat-seeking weapons and sensors targeted on the aircraft. This appendix describes flare composition, ejection, and associated regulations.

Flare Composition

Self-protection flares are primarily mixtures of magnesium and Teflon (polytetrafluoroethylene) molded into rectangular shapes (Air Force 1997). Longitudinal grooves provide space for materials that aid in ignition such as the following:

- First fire materials: potassium perchlorate, boron powder, magnesium powder, barium chromate, Viton A, or Fluorel binder.
- Immediate fire materials: magnesium powder, Teflon, Viton A, or Fluorel
- Dip coat: Magnesium powder, Teflon, Viton A or Fluorel

M-206 flares are wrapped with an aluminum-filament-reinforced tape and inserted into an aluminum (0.03 inches thick) case that is closed with a felt spacer and a small plastic end cap (Air Force 1997). The top of the case has a pyrotechnic impulse cartridge that is activated electrically to produce hot gases that push a piston, the flare material, and the end cap out of the aircraft into the airstream. The M-206 flare is 8 inches long and 1 square inch in cross-section. Table 1 provides a description of M-206 flare components. Typical flare composition and debris are summarized in Table 2. Figure 1 is an illustration of an M-206 flare.

Table 1. Description of M-206 Flares

Attribute	*M-206*
Aircraft	A-10, AC-130, C-17, F-16
Mode	Parasitic
Configuration	Rectangle
Size	1 x 1 x 8 inches (8 cubic inches)
Impulse Cartridge	M-796
Safety and Initiation Device	None
Weight (nominal)	6.8 oz
Comments	Simulator version (T-1) uses potassium chlorate, powdered sugar, and yellow dye smoke charge

Source: Air Force 1997

TABLE 2. TYPICAL COMPOSITION OF M-206 SELF-PROTECTION FLARES[1]

Part	*Components*
Combustible	
Flare Pellet	Polytetrafluoroethylene (Teflon) (-$[C_2F_4]_n$ – n=20,000 units) Magnesium (Mg) Fluoroelastomer (Viton, Fluorel, Hytemp)
First Fire Mixture	Boron (B) Magnesium (Mg) Potassium perchlorate ($KClO_4$) Barium chromate ($BaCrO_4$) Fluoroelastomer
Immediate Fire/ Dip Coat	Polytetrafluoroethylene (Teflon) (-$[C_2F_4]_n$ – n=20,000 units) Magnesium (Mg) Fluoroelastomer
Assemblage (Residual Components)	
Aluminum Wrap	Mylar or filament tape bonded to aluminum tape
End Cap	Plastic (nylon)
Felt Spacers	Felt pads (0.25 inches by cross section of flare)
Piston	Plastic (nylon, tefzel, zytel)

Source: Air Force 1997

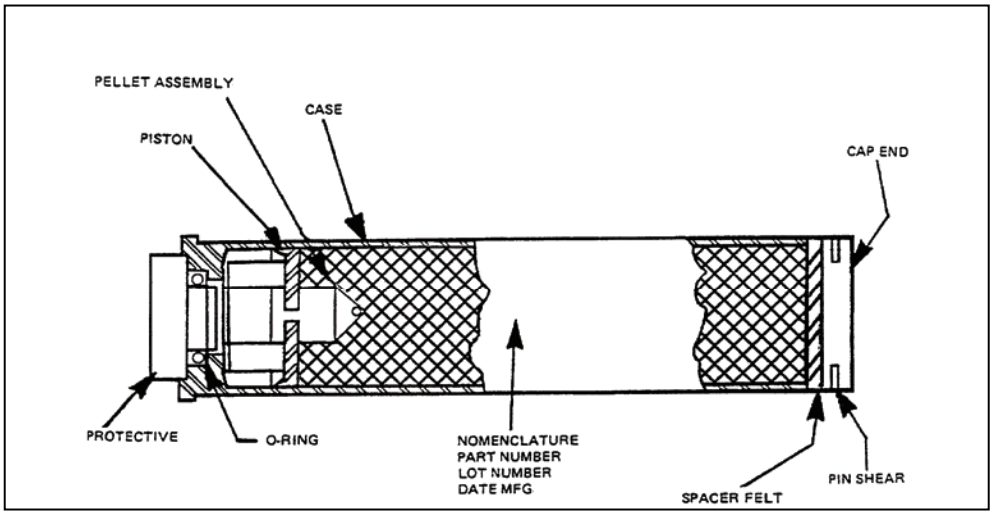


FIGURE 1. M-206 FLARE (*SOURCE: AIR FORCE 1997*)

Flare Ejection

M-206 is a parasitic-type flare that uses an M-796 impulse cartridge (Air Force 1997). It is ignited in the aluminum case before it leaves the aircraft. Holes in the piston permit igniter gases to contact the first fire mixture on top of the flare pellet. The parasitic type flare is less likely to produce duds. Flares are tested to ensure they meet performance requirements in terms of ejection, ignition, and effective radiant intensity. If a sample produces a number of failures that exceeds the upper control quality assurance acceptance level (approximately 99 percent must be judged reliable for ejection, ignition, and intensity), the entire flare lot is returned to the manufacturer. Flare failure would occur if the flare failed to eject, did not burn properly, or failed to ignite upon ejection. For training use within the airspace, a dud flare would be one that successfully ejected but failed to ignite. That probability of a dud is projected to be .01 percent. Table 3 describes the components of M-796 impulse charges.

Table 3. Components of M-796 Impulse Charges

Component	*M-796*
Overall Size Overall Volume Total Explosive Volume	0.449 x 0.530 inches 0.104 cubic inches 0.033 cubic inches
Bridgewire	Trophet A 0.0025 inches (diameter)
Closure Disk	scribed disc, washer
Initiation Charge	
Volume	0.011 cubic inches
Weight	100 mg
Compaction	5,500 psi
Composition	20% boron 80% calcium chromate
Booster Charge	
Volume	0.011 cubic inches
Weight	70 mg
Compaction	5,500 psi
Composition	18% boron 82% potassium nitrate
Main Charge	
Volume	0.011 cubic inches
Weight	185 mg
Compaction	Loose fill
Composition	Hercules HPC-1 (~40% nitrocellulose)

Source: Air Force 1997

The flare burn-out rate is shown in Table 4. Defensive flares typically burn out in 3.5 to 5 seconds. However, specific defensive flare burn-out rates are classified. Table 4 is based on ideal conditions that assume zero aerodynamic drag and a constant acceleration rate of 32.2 feet per second per second.

$D = (V_o * T) + (0.5 * (A * T^2))\backslash$

Where:

D = Distance
Vo = Initial Velocity = 0
T = Time (in Seconds)
A = Acceleration

Table 4. Flare Burn-out Rates

Time (in Sec)	*Acceleration*	*Distance (in feet)*
0.5	32.2	4.025
1.0	32.2	16.1
1.5	32.2	36.225
2.0	32.2	64.4
2.5	32.2	100.625
3.0	32.2	144.9
3.5	32.2	197.225
4.0	32.2	257.6
4.5	32.2	326.025
5.0	32.2	402.5
5.5	32.2	487.025
6.0	32.2	579.6
6.5	32.2	680.225
7.0	32.2	788.9
7.5	32.2	905.625
8.0	32.2	1030.4
8.5	32.2	1163.225
9.0	32.2	1304.1
9.5	32.2	1453.025
10.0	32.2	1610

Note: Initial velocity is assumed to be zero.

M-206 Flare Residual Materials

Residual flare materials are those that are not completely consumed during ignition and fall to the ground. Unlike a dud flare, which is projected to be a 1 in 10,000 event, residual flare materials are deposited on the ground after each flare deployment. For the M-206 flare, residual materials consist of a plastic end cap, a piston, one or two felt spacers, and a piece of aluminum-coated wrapper. The wrapper may be partially consumed during ignition, so the wrapping residual material could range in size from the smallest size, 1 inch x 1 inch, to the largest size, 2 inches x 13 inches. The size of the residual wrapping material would depend upon the amount

of combustion that occurred as the flare was deployed. Even a parasitic M-206 flare that begins burning as it is ejected may not completely consume the aluminum-coated Mylar wrapping around the flare pellet.

After ignition, residual components of the M-206 flare have high surface to mass ratios and are not judged capable of damage or injury when they impact the surface. The weight of flare residual materials was of environmental interest in case the materials represented a safety risk. The M-206 piston and felt cushion together weigh approximately 0.0043 pounds. The M-206 wrapping materials have a high surface-to-weight ratio and do not fall with much force.

AFI 11-214 (22 December 2005) prohibits using flare systems except in approved areas with intent to dispense, and sets certain conditions for employment of flares. Flares are to be armed only in an approved airspace. Aircrews may employ flares over government-owned and controlled property and over-water Warning Areas with no minimum altitude restrictions when there is no fire hazard (unless a higher altitude is specified in range orders). If a fire hazard exists, minimum altitudes will be maintained in accordance with the applicable directive or range order. A minimum flare employment altitude of 2,000 feet AGL over non-government owned or controlled property is prescribed unless specified otherwise in governing regulations.

Policies and Regulations Addressing Flare Use

Air Force policy on flare use was established by the Airspace Subgroup of Headquarters (HQ) Air Force Flight Standards Agency (AFFSA) in 1993 (Memorandum from John R. Williams, 28 June 1993) (Air Force 1997). This policy permits flare drops over military-owned or controlled land and in Warning Areas. Flare drops are permitted in Military Operations Areas (MOAs) and Military Training Routes (MTRs) only when an environmental analysis has been completed. Minimum altitudes must be adhered to. Flare drops must also comply with established written range regulations and procedures.

AFI 11-214 (22 December 2005) prohibits using flare systems except in approved areas with intent to dispense, and sets certain conditions for employment of flares. Flares are to be armed only in an approved airspace. Aircrews may employ flares over government-owned and controlled property and over-water Warning Areas with no minimum altitude restrictions when there is no fire hazard (unless a higher altitude is specified in range orders). If a fire hazard exists, minimum altitudes will be maintained in accordance with the applicable directive or range order. A minimum flare employment altitude of 2,000 feet AGL over non-government owned or controlled property is prescribed unless specified otherwise in governing regulations.

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APPENDIX C
PUBLIC INVOLVEMENT AND AGENCY CORRESPONDENCE

Privacy Advisory

The following privacy advisory was included on the internal title page of the Draft Environmental Impact Statement (EIS). The privacy advisory was posted at scoping meetings and public hearings. The privacy advisory was included in all parts of the environmental process that requested public comments.

Public comments on this Draft Environmental Impact Statement (EIS) are requested pursuant to the National Environmental Policy Act, 42 USC 4321, et seq. All written comments received during the comment period will be made available to the public and considered during Final EIS preparation. The provision of private address information with your comment is voluntary. However, this information is used to compile the mailing list for Final EIS distribution and failure to provide such information will result in your name not being included on the list. Private address information will not be released for any other purpose unless required by law.

Final EIS Distribution List

Final EIS Distribution

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		Albert W. Thompson Memorial Library	Clayton	NM	88415
		Department of Cultural Affairs	Santa Fe	NM	87501
		Fort Sumner Public Library	Fort Sumner	NM	88119
		Clovis-Carver Public Library	Clovis	NM	88101
		Portales Public Library	Portales	NM	88130
		New Mexico State Library	Santa Fe	NM	87507
Adair	The Honorable Rod	New Mexico Senate	Santa Fe	NM	87503
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Allyn	David D.	New Mexico Pilots Assoc.	Santa Fe	NM	87508
Andreas	Kenneth		Ft. Sumner	NM	88119
Arguello	Richard	Union County Commissioner	Clayton	NM	88415
Baeza	Benito	Rooney & Moon Broadcasting (radio)	Portales	NM	88130
Beard	Barrett		Gladstone	NM	88422
Beck	Robert		Clayton	NM	88415
Berry	Brian	Cannon AFB	Cannon AFB	NM	88103
Bingaman	The Honorable Jeff		Roswell	NM	88201
Birdsong	Ronnie	Eastern NM University	Portales	NM	88130
Bonner	Jim		Clovis	NM	88102
Boyce	Garth	Mayor of Clayton	Clayton	NM	88415
Brewer	Barry		Clovis	NM	88101
Burroughes	Claire	City of Clovis	Clovis	NM	88101
Buzard	Kendall		Floyd	NM	88118
Caffey	David		Clovis	NM	88101

Last Name	First Name	Organization Name	City	State	Zip
Campos	The Honorable Pete	New Mexico Senate	Santa Fe	NM	87503
Campos	The Honorable Jose A.	New Mexico House of Representatives	Santa Rosa	NM	88435
Carter	Sheley	Clayton County Commissioner	Clayton	NM	88415
Chavez	Juan	Mayor of Fort Sumner	Fort Sumner	NM	88119
Clark	Jackie		Portales	NM	88130
Connolly	Michael F.		Clovis	NM	88101
Corey	Toby	Det 1, HQ AFSOC	Cannon AFB	NM	88103-5305
Crook	The Honorable Anna Marie	New Mexico House of Representatives	Santa Fe	NM	87503
Cross			Clovis	NM	88101
Daniel	Bud and Cathy	Daniel Cattle Co.	Folsom	NM	88419
Davis	Tom and Sharon		Portales	NM	88130
Dehart	Clyde	Federal Aviation Administration	Fort Worth	TX	76193-0001
Dimsha	Mark	Epsilon System Solutions	Albuqurque	NM	87106
Doll	Kristi	27 CES/CEV	Cannon AFB	NM	88103
Domenici	The Honorable Pete		Roswell	NM	88201
Dorsey-Gonzales	Ruby	Union County Community Development Corp.	Clayton	NM	88415
Elliott	A.S.	El Bigotte Cattle Co., L.L.C, Gottomitee, LTD.	Ft. Sumner	NM	88119
Elliott	A.S.	El Bigotte Cattle Co., L.L.C, Gottomitee, LTD.	Uvalde	TX	78801-9700
Emiro	Neil	Stolor Research Corp.	Raton	NM	87740
Espinoza	Nora		Roswell	NM	88201
Essary	Don		Floyd	NM	88118
Essary	Jeff		Floyd	NM	88118
Ezzell	The Honorable Candy Spence	New Mexico House of Representatives	Roswell	NM	88202

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Fang Hsuan	Huang		Clovis	NM	88101
Fikany	Frances Hall	Canyon Blanco Ranch	Fort Sumner	NM	88119
Floyd	Wanda & James		Clovis	NM	88101
Floyd	James	WBY	Cannon AFB	NM	88103
Foisre	Gerry		Clovis	NM	88101
Foley	The Honorable Daniel R.	New Mexico House of Representatives	Santa Fe	NM	87503
Foley	The Honorable Daniel R.	New Mexico House of Representatives	Roswell	NM	88202
Franks	Lois		Melrose	NM	88124
Gamble	Steve	Eastern NM University	Portales	NM	88130
Gardner	The Honorable Keith J.	New Mexico House of Representatives	Roswell	NM	88201
Garza	Juan		Clovis	NM	88101
Goff	Tom and Mary		Elida	NM	88116
Gordon	Louis	City of Clovis	Clovis	NM	88101
Greathouse	Jack		Portales	NM	88130
Greathouse	Ross		Portales	NM	88130
Greathouse	Betty		Portales	NM	88130
Greathouse	Jack and Betty		Portales	NM	88130
Harden	The Honorable Clinton D.	New Mexico Senate	Santa Fe	NM	87503
Harris	Randy	Bank of Clovis	Clovis	NM	88101
Hartley	Ted		Clovis	NM	88102
Hartz	Marlena	Clovis News Journal	Clovis	NM	88101
Haynes	Jeff		Clovis	NM	88101
Heringa	J.W.		Clayton	NM	88415
Hittson	Barry		Des Moines	NM	88418

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Hoffner	Charles and Freda		Folsom	NM	88419
Horse	Billy Evans	Kiowa Tribe	Carnegie	OK	73015
Hoy	Bob	Coldwell Banker/Colonial Real Estate	Clovis	NM	88101
Ingle	The Honorable Stuart	New Mexico Senate	Santa Fe	NM	87503
J.	Sanders		Clovis	NM	88102-5196
James	Louis and Elaine		Nara Visa	NM	88430
Jennings	The Honorable Timothy Z.	New Mexico Senate	Santa Fe	NM	87503
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Kibler	John		Clovis	NM	88101
Kilgore	Teresa		Clovis	NM	88101
King	Sharon	Roosevelt County Chamber	Portales	NM	88130
Konis	Jinni		Amarillo	TX	79102
Kos	Ernie	Clovis/Curry County Chamber of Commerce	Clovis	NM	88101
Kostzuta	Henry	Apache Tribe of Oklahoma	Andarko	OK	73005
Labrier	Ethan		Clayton	NM	88415
Landry	Connie		Clovis	NM	88102-1793
Lansford	The Honorable David	City of Clovis	Clovis	NM	88101
Lee	Bruce	Salt Farms	Floyd	NM	88118
Leslie	Lonnie		Clovis	NM	88101
Like	Cody & Nora	Fred Like Farms	Folsom	NM	88419
Louden	Mack		Branson	CO	81027
Luce	Donna		Ft. Sumner	NM	88119
Lunsford	Lance	Lubbock Avalanche Journal	Lubbock	TX	79402
Madrid Jr.	The Honorable Paul	City of Vaughn	Vaughn	NM	88353

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Mallett	Gary	HQ FAA	Ft. Worth	TX	78193
Marley	Mark		Roswell	NM	88201-9448
McAlister	Lois		Floyd	NM	88118
McElhannon	W.C. "Dub"		Gladstone	NM	88422
Miller	Trina	EPCOG	Clovis	NM	88101
Moberly	Terry & Mary Jo	Committee of 50	Clovis	NM	88101
Mondragon	Raymond	ENMU Plateau	Clovis	NM	88101
Moore	Jeff	ENMR Plateau	Clovis	NM	88102
Moore	Jerry		Clayton	NM	88415
Moore	Bill	EPCOG	Clovis	NM	88101
Moore	The Honorable Brian K.	New Mexico House of Representatives	Santa Fe	NM	87503
Morris	Donald		Fort Sumner	NM	88119
Morrow	Tim		Capulin	NM	88414
Nicholopoulos	Joy	U.S. Department of the Interior	Albuquerque	NM	87113
Niesen	Robert	Pick N Shovel Ranch	Fort Sumner	NM	88119
Ortega	Orlando		Clovis	NM	88130
Ortega, Jr.	The Honorable Orlando	City of Portales	Portales	NM	88130
Pace	Leon and Pat		Fort Sumner	NM	88119
Padilla	Robert		Santa Fe	NM	87507
Patterson	Lacey	EPCOG	Clovis	NM	88101
Pearce	The Honorable Steve		Roswell	NM	88201
Perez	Michael	Perez Ranches	Vaughn	NM	88353
Perez	Debra		Vaughn	NM	88353
Peterson	Nick		Roswell	NM	88201
Phillips	Ralph		Clovis	NM	88101

Last Name	*First Name*	*Organization Name*	*City*	*State*	*Zip*
Pigg	James		Las Cruces	NM	88011
Prather	Blake	AG Services	Clovis	NM	88101
Prescott	Tom and Janice	TJ Ranch	Clovis	NM	88101
Pyle	Lance	Mayor of Melrose	Melrose	NM	88124
Rice	Laura	KVII	Amarillo	TX	79109
Richards	David	City of Clovis	Clovis	NM	88101
Richardson	The Honorable Bill	State of New Mexico	Santa Fe	NM	87503
Richardson	Sue	Union County Leader Newspaper	Clayton	NM	88415
Riley	Winfred	Ag Services, Inc.	Clovis	NM	88101
Robbins	Kevin	Rooney Moon Broadcasting	Portales	NM	88130
Robertson	Van		Nara Visa	NM	88430
Sanders	J.		Clovis	NM	88102-5196
Sandoval	Antonio	State of NM	Albuquerque	NM	87113
Scott	Bruce	ENMU Plateau	Clayton	NM	88415
Scott, USAF (Ret.)	Brigadier General Hanson	Office of Military Base Planning & Support	Santa Fe	NM	87505
Seidenworm	Rhonda	Clovis Municipal Schools	Clovis	NM	88102
Slick	Katherine	New Mexico Historic Preservation Division	Santa Fe	NM	87501
Smith	Richard A.	NMOMBPS	Albuquerque	NM	87111
Smith	Jessica	Union County Leader Newspaper	Clayton	NM	88415
Smyer	Zack	FAA	Roswell	NM	88203
Sonnenschein	Lisa	Portales News-Tribune	Portales	NM	88130
Sparks	Allen	FSCOC	Fort Sumner	NM	88119
Stinnett	Marshall & Helen		Portales	NM	88130
Stinnett	Scot and Lisa	De Baca County News	Ft. Sumner	NM	88119

Last Name	First Name	Organization Name	City	State	Zip
Sutton	Loretta	Office of the Environmental Policy and Compliance	Washington	DC	20240
Taylor	Joe and Nancy	Food Bank	Clovis	NM	88101
Taylor	Buddy & Donna		Elida	NM	88116
Taylor	Jimmie	City Trustee	Clayton	NM	88415
Thomas	Joe	City of Clovis	Clovis	NM	88101
Toahty	Ruth	Comanche Nation	Lawton	OK	73502
Toliver	Oscar		Clovis	NM	88101
Udall	The Honorable Tom		Clovis	NM	88102
Uslan	Stephen D.	U.S. Pilots Association	Odessa	TX	79762-5455
Van Valin	Gary	Keystone Intl.	Bernalillo	NM	87004
Ventura	Diana	U.S. Senator Jeff Bingaman's Office	Roswell	NM	88201
Vick	Carl		Fort Sumner	NM	88119
Vigel-Muniz	Claudia	Jicarilla Apache Tribe	Dulce	NM	87528
Vincent	John		Des Moines	NM	88418
Wang	Harry	City of Clovis	Clovis	NM	88101
Wilkerson	Ava	U.S. Department of Transportation, FAA	Fort Worth	TX	76137-4298
Williams	The Honorable W.C.	New Mexico House of Representatives	Santa Fe	NM	87503
Williams	Gregg	EPCOG	Clovis	NM	88101
Wilson	Elmer		Fort Sumner	NM	88119
Wilson	The Honorable Heather		Albuquerque	NM	87102
Wilson	Kim	Cannon Federal Credit Union	Clovis	NM	88102
Winford	Jerry		Branson	CO	81027
Winfred	Riley	AG Services Inc.	Clovis	NM	88101
Witschi	David F.	Office of Economic Adjustment	Arlington	VA	22202-4704

Last Name	*First Name*	*Organization Name*	*City*	*State*	*Zip*
Worthington	Bob	New Mexico Pilots Association	Las Cruces	NM	88011
Wright	Kathy		Clovis	NM	88102
Zamie	Peter		Clovis	NM	88101
Zerrenner	Adam	U.S. Department of Interior, U.S. Fish and Wildlife Service	Albuquerque	NM	87113
Zhang	Hong Wu	City of Clovis	Clovis	NM	88101

Public Involvement Materials

Environmental Impact Statement

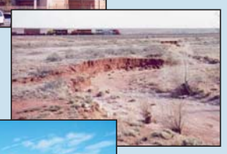
AFSOC Assets Beddown

Cannon AFB, New Mexico

The Environmental Impact Statement (EIS) will be prepared in accordance with the National Environmental Policy Act (NEPA).

NEPA requires federal decision makers to consider the potential environmental consequences of the proposed action and reasonable alternatives in an EIS. The EIS complies with environmental regulations and guidelines and considers impact to:

- **Airspace and Range Management**
  Airspace, Noise, Air Quality and Safety



- **Natural Resources**
  Soils, Water and Biological Resources

- **Cultural Resources**
  Archaeological, Architectural and Traditional Resources

- **Human Resources**
  Grazing, Land Use, Recreation, Socioeconomics and Environmental Justice

- **Community Infrastructure**
  Public Services, Transportation, Hazardous Materials and Waste

Your involvement and input are essential to the environmental process.

The EIS Timeline

Opportunities for Public Involvement

- Notice of Intent (NOI) Published in Federal Register
- Scoping
- Preparation of Draft EIS
- Notice of Availability of Draft EIS
- 45-Day Public Comment Period
- Preparation of Final EIS
- Notice of Availability of Final EIS
- 30-Day Waiting Period
- Record of Decision

There are many opportunities to be involved in the AFSOC Assets Beddown at Cannon AFB EIS.

- Participate in a scoping meeting
- Identify community-specific issues
- Make sure you are included on our mailing list
- Comment on the Draft EIS
- Participate in public hearings
- Review the Final EIS

For More Information Contact:

Carl T. Hoffman
427 Cody Avenue, Suite 225
Hurburt Field, FL 32544
(850) 884-5984

Public involvement is an essential part of the NEPA process. Your participation identifies local concerns or issues to be addressed with rigorous environmental analysis. The NEPA process allows us to make informed decisions based on community and Air Force needs.

Environmental Impact Statement

AFSOC Assets Beddown

Cannon AFB, New Mexico

Pre-BRAC Mission of Cannon Air Force Base (AFB)

Cannon AFB is currently home to the 27th Fighter Wing (FW). The 27th FW's mission is to provide superior power with F-16 fighter aircraft capable of day, night and all-weather combat operations. As a result of BRAC, Cannon AFB's F-16s will be reassigned to other Air Force units.

Proposed Mission of Cannon AFB:
Air Force Special Operations Command (AFSOC)

Under this proposal, Cannon AFB management would transfer from Air Combat Command (ACC) to AFSOC. AFSOC is headquartered at Hurlburt Field, Florida, and is one of nine major commands in the U.S. Air Force. The proposal is to transfer certain AFSOC personnel and assets to Cannon AFB.

The AFSOC Mission:

"America's specialized air power...a step ahead in a changing world, delivering Special Operations power anytime, anywhere."

AFSOC Core Missions:

Precision aerospace fires; specialized air mobility; battlefield air operations; intelligence, surveillance and reconnaissance; combat aviation advisory; agile combat support; specialized refueling; information operations; and psychological operations.

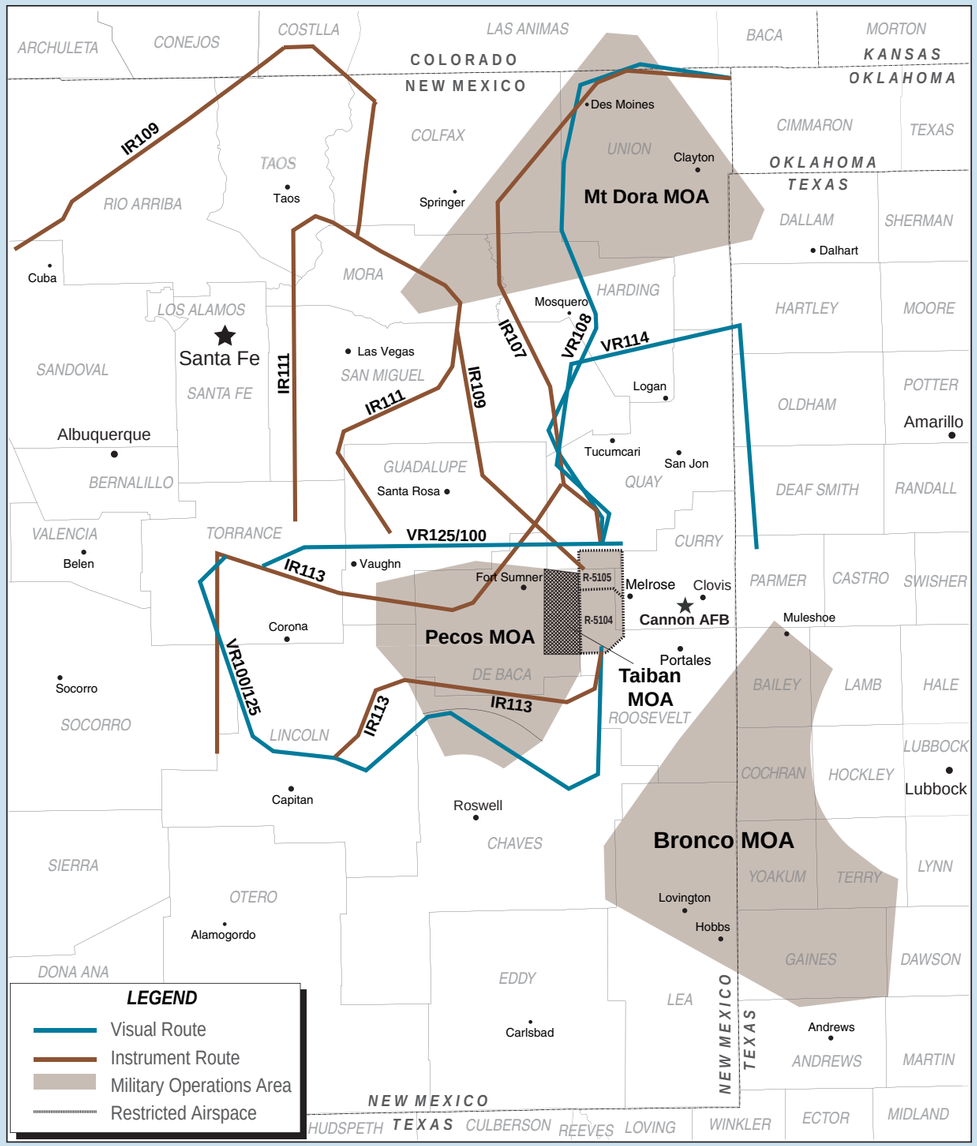
Environmental Impact Statement

AFSOC Assets Beddown

Cannon AFB, New Mexico

SOF Mobility - Conduct infiltration and exfiltration of Special Operations Forces (SOF); resupply operational elements through air drops.

Intelligence, Surveillance and Reconnaissance - Mission supports reconnaissance, surveillance and targeting.



Existing Military Training Airspace Around Cannon AFB, New Mexico

Aerial Refueling - Most MC-130 aircraft have capability to refuel special operations helicopters and CV-22 Osprey.

Ground and Air Live Fire - Identify and engage targets with available aircraft weapons, often directed by ground forces.

Proposed Action: Transfer certain AFSOC assets and operations (aircraft and personnel) to Cannon AFB pursuant to the Secretary of Defense (SECDEF) Recommendation #100 as set forth in the 2005 Defense Base Closure and Realignment Commission (BRAC) Report to the President.

Background: The BRAC recommendation requires SECDEF to seek a new mission for Cannon AFB. On June 19, 2006, in accordance with the 2005 Defense BRAC Report, the SECDEF designated AFSOC's establishment of a Special Operations Wing at Cannon AFB, beginning in the Fall of 2007, as the new mission for that base. Because the proposed action is to be taken as a result of the BRAC directive, the basing/installation alternative will be limited to Cannon AFB. The EIS will analyze the impacts of the beddown and associated training to the environment.

AFSOC is considering what aircraft and other equipment to base at Cannon AFB, how best to utilize existing facilities and what facilities will need to be modified or built. The proposed action will consider moving approximately 90 aircraft and approximately 3,500 personnel to Cannon AFB. It is possible that additional facilities may need to be constructed at Melrose Air Force Range (AFR) to support realistic AFSOC training. Potential environmental consequences to airspace include training in the Restricted Airspace supporting Melrose AFR, surrounding Military Training Routes (MTRs), and Military Operations Areas (MOAs) including the Mt. Dora MOA, Pecos MOA and Bronco MOA.

The EIS will also address alternative beddown facility locations on Cannon AFB, alternative Melrose AFR targets and facilities, alternative uses of airspace for training activities, and the No Action Alternative that would not beddown AFSOC assets at Cannon AFB after the 27th Fighter Wing's F-16s are reassigned.

Scoping Meetings

for the Beddown of Air Force Special Operations Command (AFSOC) Assets to Cannon Air Force Base (AFB) New Mexico, Environmental Impact Statement (EIS)

Welcome!

The U.S. Air Force is conducting scoping meetings for the transfer of AFSOC Assets to Cannon AFB, New Mexico as part of the National Environmental Policy Act (NEPA) EIS. Cannon AFB has been home to the 27th Fighter Wing (FW). The 27th FW's primary mission is to provide superior combat power with F-16 fighter aircraft capable of day, night and all-weather combat operations. As a result of the 2005 Defense Base Closure and Realignment Commission (BRAC) decisions, Cannon AFB F-16s will be reassigned to other Air Force units.

Under this proposal, Cannon AFB management would transfer from Air Combat Command (ACC) to AFSOC. AFSOC is headquartered at Hurlburt Field, Florida and is one of nine major commands in the U.S. Air Force. The proposal is to transfer certain AFSOC personnel and assets to Cannon AFB.

Scoping meetings provide the public an opportunity to learn about the proposal and provide input to define the proposed action and alternatives. Scoping allows us to identify and address community-specific issues and concerns regarding the proposed beddown and training.

The Air Force will include your input and comments in the evaluation of potential environmental consequences associated with the proposed action and alternatives including the No-Action Alternative. Your involvement and input are vital to help us frame the environmental analysis.

Meeting Agenda

Open House.....6:00 - 8:00 p.m.
Air Force Presentation.....6:15 p.m.

- Welcome and Introductions
- Scoping Meeting Purpose and Objectives
- NEPA and EIS Analysis Process
- Purpose and Need
- Proposed Action and Alternatives

Comments and Questions.....*Following AF Presentation*
Open House Resumes

Providing Comments

To provide comments, please fill out a comment sheet and give your comments to an Air Force representative or place it in the comment box. Comments or your own letter can also be sent to:

Mr. Carl T. Hoffman, R.A.
427 Cody Avenue, Suite 225
Hurlburt Field, FL 32544

Send your comments by **October 5, 2006**.

Please note that by including your name and address on correspondence, you agree the information may be made public as part of the environmental process.

Keys to Making Effective Comments

Your involvement and input are essential in helping the Air Force make informed decisions during the environmental impact analysis process. Listed below are tips on how to make your comments useful and effective:

- Be specific. It is helpful to state particular reasons for your concerns instead of making broad statements.
- Focus your comments on particular issues or resources, and provide as much detail as possible.
- Let us know what environmental and community factors you consider important for analysis in the EIS.

This type of input will help us include community-specific issues as we work to balance the Air Force mission with the environment and community concerns.

National Environmental Policy Act (NEPA)

The EIS will be prepared in accordance with NEPA and Air Force Instructions. NEPA requires all federal agencies to consider potential environmental impacts of proposed actions and reasonable alternatives in making decisions about those actions.

Public involvment is an essential part of the process. Public involvement ensures that individual's concerns are addressed in the EIS. The EIS considers impacts to both the natural environment (air, water, biology, etc.) and the human environment (airspace, safety, cultural resources, socioeconomics, environmental justice, etc.)

The EIS Timeline

Opportunities for Public Involvement

- Notice of Intent (NOI) Published in Federal Register
- Scoping
- Preparation of Draft EIS
- Notice of Availability of Draft EIS
- 45-Day Public Comment Period
- Preparation of Final EIS
- Notice of Availability of Final EIS
- 30-Day Waiting Period
- Record of Decision

For More Information Contact:

Cannon AFB Public Affairs
Capt. Rebecca Garcia
110 East Sextant Avenue, Suite 1098A
Cannon AFB, NM 88103
(505) 784-4131

PUBLIC MEETINGS

You Are Invited!

The U.S. Air Force will hold community meetings as part of the scoping process for the Air Force Special Operations Command (AFSOC) beddown of assets at Cannon Air Force Base (AFB) Environmental Impact Statement (EIS).

The Air Force proposes to transfer aircraft and personnel from Hurlburt Field, Florida, or other existing operational locations to Cannon AFB. Potential AFSOC assets that may come to Cannon AFB include aircraft, weapons systems, equipment, and personnel. Growth is planned through Fiscal Year 2013 at Cannon AFB, and AFSOC proposes to begin utilizing Melrose Air Force Range (AFR), existing training airspace, and existing Military Training Routes from Cannon AFB.

AFSOC is considering what aircraft and other equipment to base at Cannon AFB, how best to utilize existing facilities, and what facilities will need to be modified or built. The proposed action will consider moving approximately 90 aircraft and approximately 3,500 personnel to the base. It is possible that additional facilities may need to be constructed at Melrose AFR. Locations for outlying drop zones within or outside of Melrose AFR, or water training within two hours travel from Cannon AFB may also be identified for training use. Potential environmental impacts from the proposed action and alternatives will be considered in the EIS.

Three scoping meetings are scheduled to provide interested individuals and organizations an opportunity to learn more about this proposal and the environmental impact analysis process. You are encouraged to attend and provide community-specific input.

Scoping Meetings- When and Where

September 18, 2006 6 to 8 p.m.	Clovis Community College, 417 Schepps Blvd., Clovis, N.M.
September 19, 2006, 6 to 8 p.m.	Clayton High School, 323 South Fifth Street, Clayton, N. M.
September 20, 2006, 6 to 8 p.m.	Fort Sumner Community House, 137 East Baker Avenue, Fort Sumner, N.M.

For additional information or to submit written comments, please make note of the following address and phone number:

Send Written Comments to: Mr. Carl T. Hoffman HQ AFSOC/A7CV 427 Cody Avenue, Suite 225 Hurlburt Field, Florida 32544-5434	For General Information, Contact: Cannon AFB Public Affairs Capt. Rebecca Garcia (505) 784-4131

Please submit written comments before October 5, 2006!

MEDIA RELEASE

“America’s Most Lethal Warfighting Team”
27TH FIGHTER WING PUBLIC AFFAIRS,
110 E. SEXTANT, SUITE 1098A, CANNON AFB, NM 88103
Telephone: (505) 784-4131 Fax: (505) 784-2338
Contact: Capt. Rebecca Garcia

Public Service Announcement

Cannon Air Force Base invites you to attend one of three upcoming public scoping meetings to learn about the proposed Air Force Special Operations Command transfer of assets to Cannon Air Force Base Environmental Impact Statement.

Please attend a meeting in Clovis on Monday, Sept. 18 from 6 to 8 p.m., in Clayton on Tuesday, Sept 19 from 6 to 8 p.m. or in Fort Sumner on Wednesday, Sept 20 from 6 to 8 p.m.

For more information, call Cannon Public Affairs at 505-784-4131.

-30-

Agency Correspondence

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE SPECIAL OPERATIONS COMMAND (AFSOC)

8 Sep 06

079112

George R. Omley, P.E.
Chief, Environmental Branch
Installations and Mission Support Directorate
427 Cody Avenue, Suite 225
Hurlburt Field, FL 32544-5434

Katherine Slick
Director
New Mexico Historic Preservation Division
Room 320, La Villa Rivera
228 East Palace Avenue
Santa Fe, NM 83501

Dear Ms. Slick

The United States Air Force (Air Force) is in the process of preparing an Environmental Impact Statement (EIS) to assess the potential environmental impacts of a proposal to transfer certain Air Force Special Operations Command (AFSOC) equipment and personnel to Cannon AFB, New Mexico.

The Air Force proposes to transfer aircraft and personnel from Hurlburt Field, Florida, or other existing operational locations to Cannon AFB. Potential AFSOC assets to beddown include aircraft, weapons systems, equipment, and personnel. Growth is planned through Fiscal Year 2013 at Cannon AFB, and AFSOC proposes to begin utilizing Melrose Air Force Range (AFR), existing training airspace, and existing Military Training Routes from Cannon AFB.

The proposed action will consider moving approximately 90 aircraft and approximately 3,500 personnel to Cannon AFB. AFSOC is considering what aircraft and other equipment to base at Cannon AFB, how best to utilize existing facilities, and what facilities will need to be modified or built. It is possible that additional facilities may need to be constructed at Melrose AFR. Locations for outlying drop zones within or outside of Melrose AFR, or water training within two hours travel from Cannon AFB may also be identified for training use. The impacts from the proposed actions and alternatives will be considered in the EIS.

We are beginning the process of identifying applicable cultural resources information for not only areas under the involved airspace, but ground areas also. We would appreciate any assistance you could provide in identifying and retrieving this important information, as well as

concerns you may have about the potential effects of the proposal on significant cultural resources. Please respond to: Science Applications International Corporation (SAIC), ABC EIS, 405 S. 8th Street, Suite 301, Boise, Idaho, 83702.

The Air Force will hold a series of scoping meetings to solicit public input concerning the scope of the proposed action and alternatives, as well as to help identify other concerns and issues to be addressed in the environmental analysis. Scoping meetings will be held at the locations shown in the table below. During the meetings, the Air Force will describe the proposed action and all alternatives, the National Environmental Policy Act process, and outline the opportunities for public involvement in the process. We look forward to receiving your comments as part of this process.

Schedule for Scoping Meetings		
Monday, September 18, 2006 6 to 8 p.m.	Clovis	Clovis Community College, 417 Schepps Blvd.
Tuesday, September 19, 2006 6 to 8 p.m.	Clayton	Clayton High School, 323 South Fifth Street
Wednesday, September 20, 2006 6 to 8 p.m.	Fort Sumner	Fort Sumner Community House, 137 East Baker Avenue

In an effort to analyze the potential impact of this proposed action, the Air Force or its contractors may be contacting you in their data collection efforts. In advance, we thank you for your assistance in this activity. If you have any specific concerns about the proposal, we would like to hear from you. Please contact the AFSOC Project Manager, Mr. Carl T. Hoffman, at the above address. Mr. Hoffman can be reached at (850) 884-5984. Thank you for your assistance in this matter.

George R Omley

GEORGE R. OMLEY, P.E.
Chief, Environmental Branch
Installations and Mission Support Directorate

Atch
Map of Affected Areas

COMMENTS

Jan McMeyer 9/25/06
for NM State Historic Preservation Officer

There is a potential for adverse effects to historic properties. Cultural resources surveys and tribal consultations should be conducted or may be necessary once the area of potential effects is better defined. Please call our archives for site location info maintence at 476-1282.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New Mexico Ecological Services Field Office
2105 Osuna NE
Albuquerque, New Mexico 87113
Phone: (505) 346-2525 Fax: (505) 346-2542

OCT - 2 2006

Thank you for your recent request for information on threatened or endangered species or important wildlife habitats that may occur in your project area. The New Mexico Ecological Services Field Office has posted lists of the endangered, threatened, proposed, candidate and species of concern occurring in all New Mexico Counties on the Internet. Please refer to the following web page for species information in the county where your project occurs: http://ifw2es.fws.gov/NewMexico/SBC_intro.cfm. If you do not have access to the Internet or have difficulty obtaining a list, please contact our office and we will mail or fax you a list as soon as possible.

After opening the web page, find New Mexico Listed and Sensitive Species Lists on the main page and click on the county of interest. Your project area may not necessarily include all or any of these species. This information should assist you in determining which species may or may not occur within your project area.

Under the Endangered Species Act, as amended (Act), it is the responsibility of the Federal action agency or its designated representative to determine if a proposed action "may affect" endangered, threatened, or proposed species, or designated critical habitat, and if so, to consult with us further. Similarly, it is their responsibility to determine if a proposed action has no effect to endangered, threatened, or proposed species, or designated critical habitat. If your action area has suitable habitat for any of these species, we recommend that species-specific surveys be conducted during the flowering season for plants and at the appropriate time for wildlife to evaluate any possible project-related impacts. Please keep in mind that the scope of federally listed species compliance also includes any interrelated or interdependent project activities (e.g., equipment staging areas, offsite borrow material areas, or utility relocations) and any indirect or cumulative effects.

Candidates and species of concern have no legal protection under the Act and are included on the web site for planning purposes only. We monitor the status of these species. If significant declines are detected, these species could potentially be listed as endangered or threatened. Therefore, actions that may contribute to their decline should be avoided. We recommend that candidates and species of concern be included in your surveys.

Also on the web site, we have included additional wildlife-related information that should be considered if your project is a specific type. These include communication towers, power line safety for raptors, road and highway improvements and/or construction, spring developments and livestock watering facilities, wastewater facilities, and trenching operations.

Under Executive Orders 11988 and 11990, Federal agencies are required to minimize the destruction, loss, or degradation of wetlands and floodplains, and preserve and enhance their natural and beneficial values. We recommend you contact the U.S. Army Corps of Engineers for permitting requirements under section 404 of the Clean Water Act if your proposed action could impact floodplains or wetlands. These habitats should be conserved through avoidance, or mitigated to ensure no net loss of wetlands function and value.

The Migratory Bird Treaty Act (MBTA) prohibits the taking of migratory birds, nests, and eggs, except as permitted by the U.S. Fish and Wildlife Service. To minimize the likelihood of adverse impacts to all birds protected under the MBTA, we recommend construction activities occur outside the general migratory bird nesting season of March through August, or that areas proposed for construction during the nesting season be surveyed, and when occupied, avoided until nesting is complete.

We suggest you contact the New Mexico Department of Game and Fish, and the New Mexico Energy, Minerals, and Natural Resources Department, Forestry Division for information regarding fish, wildlife, and plants of State concern.

Thank you for your concern for endangered and threatened species and New Mexico's wildlife habitats. We appreciate your efforts to identify and avoid impacts to listed and sensitive species in your project area.

Sincerely,

Adam Zerrenner
Acting Field Supervisor

U.S. Department
of Transportation
**Federal Aviation
Administration**

Federal Aviation Administration
Southwest Region

Fort Worth, Texas 76193-0001

OCT 0 4 2006

Mr. George R. Omley, PE
Chief, Environmental Branch
Installation and Mission Support Directorate
427 Cody Avenue, Suite 225
Hurburt Field, FL 32544-5434

Dear Mr. Omley:

Thank you for the invitation and opportunity to participate in the National Environmental Policy Act (NEPA) process concerning the establishment of a new mission at Cannon Air Force Base (AFB), New Mexico. At this time, it appears the changes listed in your letter do not constitute a Federal Aviation Administration (FAA) Federal action requiring environmental review in accordance with NEPA. Although the proposal does not contemplate actions constituting an FAA Federal action, we will be happy to offer comments and airspace expertise, as appropriate.

As noted in your letter, the mission of the 27 FW at Cannon AFB and its use of the existing airspace complex in and around Cannon AFB appears to be very different from the potential use by the Air Force Special Operations Command. Accordingly, we intend to conduct a Special Use Airspace Review prior to the transition to the new mission to determine the appropriate airspace configuration that satisfies the military's needs as well as the needs of other civil users of the airspace. We look forward to coordinating this activity with you.

Should you or your staff have any questions, please contact Joe Yadouga, Airspace Specialist, Systems Support Group, Central Service Center at 817-222-5597

Sincerely,

Ava L. Wilkerson
Regional Administrator,
Southwest Region

Interest Group Correspondence

The following two letters were included in the Draft EIS, but were inappropriately incorporated in the section on Agency Correspondence.

COMANCHE TRIBE
NAGPRA

October 9, 2006

George Omley, PE, Chief
Environmental Branch
Installations and Mission Support Directorate
427 Cody Ave, Suite 225
Hurlburt Field, FL 32544-5434

Re: Preparation of an Environmental Impact Statement (EIS) to assess the potential environmental impacts of a proposal to transfer certain Air Force Special Operations Command (AFSOC) equipment and personnel to Cannon AFB

Dear Mr. Omley:

Thank you for your letter of September 8th regarding the above referenced project.

At this time, the Comanche Nation has no immediate concerns or issues regarding the project; however, please keep us informed of the project's progress. We also would like to receive any archaeological reports and findings for the project area.

If in the process of the project human remains or archaeological items are discovered, we request that you immediately cease the project work and notify us so that we may discuss appropriate disposition with you and the other Tribal Nations that may be affected by such discoveries.

We look forward to your reports as activities proceed.

Sincerely,

Ruth Toahty

Ruth Toahty, NAGPRA Associate

PO Box 908 • Lawton, Oklahoma 73502 • PHONE: (580) 492-3740 • FAX: (580) 492-3745

United States Pilots Association

483 So. Kirkwood Road, Suite 10 St. Louis, MO 63122 314-849-8772

October 2, 2006

Mr. Carl T. Hoffman, R.A.
Environmental Compliance Manager
HQ AFSOC/A7CV
427 Cody Avenue, Suite 225
Hurlburt Field, FL 32544-5434

Re: Comments from The United States Pilots Association (USPA) for the Cannon AFB AFSOC Proposal EIS

Dear Mr. Hoffman:

The USPA is very concerned about the planned movement of 3,500 personnel and some 90 aircraft to Cannon AFB. Regrettably the AF did not see their way clear to give us enough time to attend one of the scoping meetings.

We are not against the Air Force moving to Cannon to train. We are against the injection of some 90 additional aircraft into airspace currently utilized by small private airplanes as well as business jets and commuter airlines. The same objections we had to the supersonic bombing range previously proposed for Cannon are still valid.

Radar coverage north of Roswell by Albuquerque Center is almost non-existent below 10,000 feet AGL. Radio coverage is totally non-existent some 35 miles north of Roswell until approaching the Manzano mountains or flying through the pass just west of Corona.

The hazards to civilian pilots of operating UAVs in this environment is just too great to be permitted under present radar and radio communications.

USPA formerly requests that new remote stations be set up in the "dead zone," perhaps on top of Gallinas Peak. This would allow for separation of traffic and still permit night flights by both sides in relative safety.

I routinely fly in the affected areas and can testify to the non-existence of proper communications and radar. The Albuquerque Center controller tells me that radar contact is lost, and I cannot hear him several miles further. In effect I am flying deaf and dumb. And if the AF intends to bring a huge volume of manned and unmanned traffic into these areas, then the AF needs to assume responsibility for improving the radar and radio.

We also favor the insertion of NOTAMS to the FAA advising of all operations including UAVs in both day and night conditions. It will only take one accident to sway public opinion against these operations.

One last issue. Not having attended the scoping meetings, I wonder about the status of the two VFR airways running from Roswell to Albuquerque. I strongly advise against the formerly proposed elimination of one of these airways and the temporary frequent closure of the other. This airspace sits on the direct course for all civilian traffic originating from the Houston, San Antonio, Austin, San Angelo areas, through Midland-Odessa to Hobbs, Roswell, Albuquerque, and Denver.

Please continue to furnish the undersigned with advisories and publications as this process continues through the permitting process.

Sincerely,

Steve D. Uslan jr

Stephen D. Uslan, President
United States Pilots Association
Former President, New Mexico Pilots Association
FAA Safety Counselor
2 Rocky Place
Odessa, TX 79762-5455
Cell 432-556-0120

IICEP List and Correspondence

Biological Resources Letter Recipient

Joy Nicholopoulos, U.S. Department of the Interior, U.S. Fish and Wildlife Service, 2105 Osuna NE, Albuquerque, NM 87113

Sample Biological Resources Letter

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE SPECIAL OPERATIONS COMMAND (AFSOC)

8 Sep 06

George R. Omley, P.E.
Chief, Environmental Branch
Installations and Mission Support Directorate
427 Cody Avenue, Suite 225
Hurlburt Field, FL 32544-5434

Joy Nicholopoulos
U.S. Department of the Interior
U.S. Fish and Wildlife Service
2105 Osuna NE
Albuquerque, NM 87113

Dear Ms. Nicholopoulos

The United States Air Force (Air Force) is in the process of preparing an Environmental Impact Statement (EIS) to assess the potential environmental impacts of a proposal to transfer certain Air Force Special Operations Command (AFSOC) equipment and personnel to Cannon AFB.

The Air Force proposes to transfer aircraft and personnel from Hurlburt Field, Florida, or other existing operational locations to Cannon AFB, New Mexico. Potential AFSOC assets to beddown include aircraft, weapons systems, equipment, and personnel. Growth is planned through Fiscal Year 2013 at Cannon AFB, and AFSOC proposes to begin utilizing Melrose Air Force Range (AFR), existing training airspace, and existing Military Training Routes from Cannon AFB.

AFSOC is considering what aircraft and other equipment to base at Cannon AFB, how best to utilize existing facilities, and what facilities will need to be modified or built. The proposed action will consider moving approximately 90 aircraft and approximately 3,500 personnel to the base. It is possible that additional facilities may need to be constructed at Melrose AFR. Locations for outlying drop zones within or outside of Melrose AFR, or water training within two hours travel from Cannon AFB may also be identified for training use. The impacts from the proposed actions and alternatives will be considered in the EIS.

We are beginning the process of identifying applicable cultural resources information for areas under the involved airspace. We would appreciate any assistance you could provide in identifying and retrieving this important information, as well as concerns you may have about the potential effects of the proposal on significant cultural resources. Please respond to: Science Applications International Corporation (SAIC), ABC EIS, 405 S. 8th Street, Suite 301, Boise, Idaho, 83702. The Air Force will hold a series of scoping meetings to solicit public input concerning the scope of the proposed action and alternatives, as well as to help identify other concerns and issues to be addressed in the environmental analysis. Scoping meetings will be held at the locations shown in the table below. During the meetings, the Air Force will describe the proposed action and all alternatives, the National Environmental Policy Act process, and outline the opportunities for public involvement in the process. We look forward to receiving your comments as part of this process.

Schedule for Scoping Meetings		
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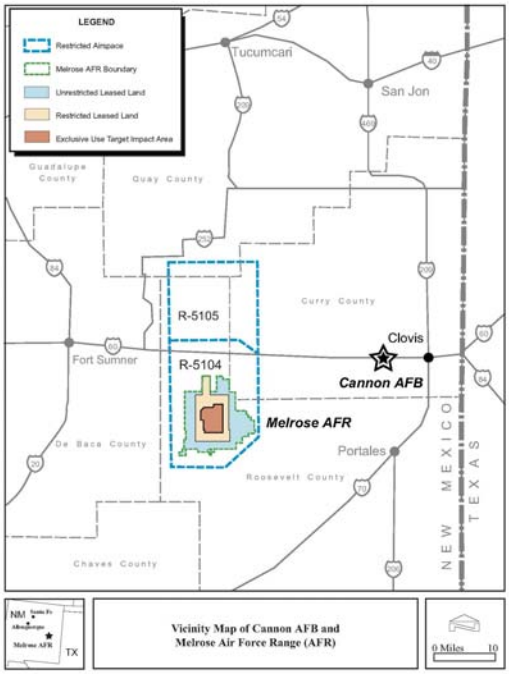
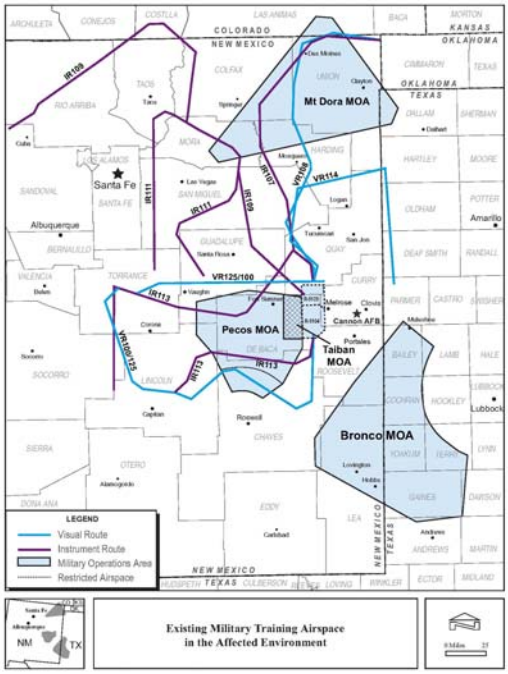
Wednesday, September 20, 2006 6 to 8 p.m.	Fort Sumner	Fort Sumner Community House, 137 East Baker Avenue

In an effort to analyze the potential impact of this proposed action, the Air Force or its contractors may be contacting you in their data collection efforts. In advance, we thank you for your assistance in this activity. If you have any specific concerns about the proposal, we would like to hear from you. Please contact the AFSOC Project Manager, Mr. Carl T. Hoffman, at the above address. Mr. Hoffman can be reached at (850) 884-5984. Thank you for your assistance in this matter.

GEORGE R. OMLEY, P.E.
Chief, Environmental Branch
Installations and Mission Support Directorate

Atch
Map of Affected Areas





Cultural Resources Letter Recipient

Katherine Slick, Director, New Mexico Historic Preservation Division, Room 320, La Villa Rivera, 228 East Palace Avenue, Santa Fe NM 83501

Sample Cultural Resources Letter

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE SPECIAL OPERATIONS COMMAND (AFSOC)

8 Sep 06

George R. Omley, P.E.
Chief, Environmental Branch
Installations and Mission Support Directorate
427 Cody Avenue, Suite 225
Hurlburt Field, FL 32544-5434

Katherine Slick
Director
New Mexico Historic Preservation Division
Room 320, La Villa Rivera
228 East Palace Avenue
Santa Fe, NM 83501

Dear Ms. Slick

The United States Air Force (Air Force) is in the process of preparing an Environmental Impact Statement (EIS) to assess the potential environmental impacts of a proposal to transfer certain Air Force Special Operations Command (AFSOC) equipment and personnel to Cannon AFB, New Mexico.

The Air Force proposes to transfer aircraft and personnel from Hurlburt Field, Florida, or other existing operational locations to Cannon AFB. Potential AFSOC assets to beddown include aircraft, weapons systems, equipment, and personnel. Growth is planned through Fiscal Year 2013 at Cannon AFB, and AFSOC proposes to begin utilizing Melrose Air Force Range (AFR), existing training airspace, and existing Military Training Routes from Cannon AFB.

The proposed action will consider moving approximately 90 aircraft and approximately 3,500 personnel to Cannon AFB. AFSOC is considering what aircraft and other equipment to base at Cannon AFB, how best to utilize existing facilities, and what facilities will need to be modified or built. It is possible that additional facilities may need to be constructed at Melrose AFR. Locations for outlying drop zones within or outside of Melrose AFR, or water training within two hours travel from Cannon AFB may also be identified for training use. The impacts from the proposed actions and alternatives will be considered in the EIS.

We are beginning the process of identifying applicable cultural resources information for not only areas under the involved airspace, but ground areas also. We would appreciate any assistance you could provide in identifying and retrieving this important information, as well as concerns you may have about the potential effects of the proposal on significant cultural resources. Please respond to: Science Applications International Corporation (SAIC), ABC EIS, 405 S. 8th Street, Suite 301, Boise, Idaho, 83702.

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GEORGE R. OMLEY, P.E.
Chief, Environmental Branch
Installations and Mission Support Directorate

Atch
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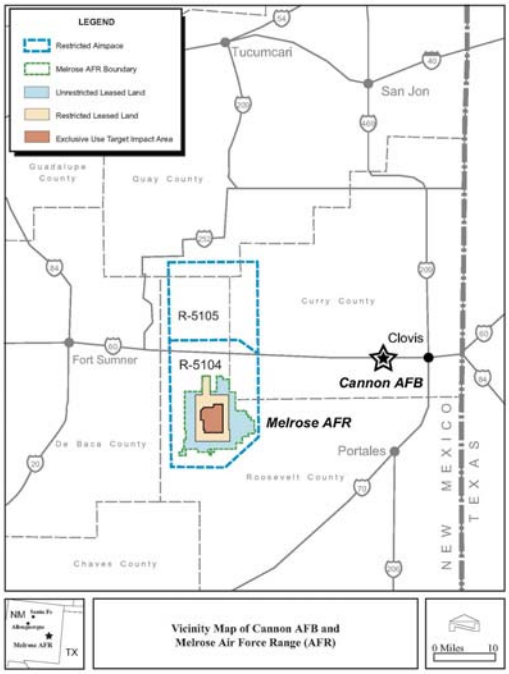
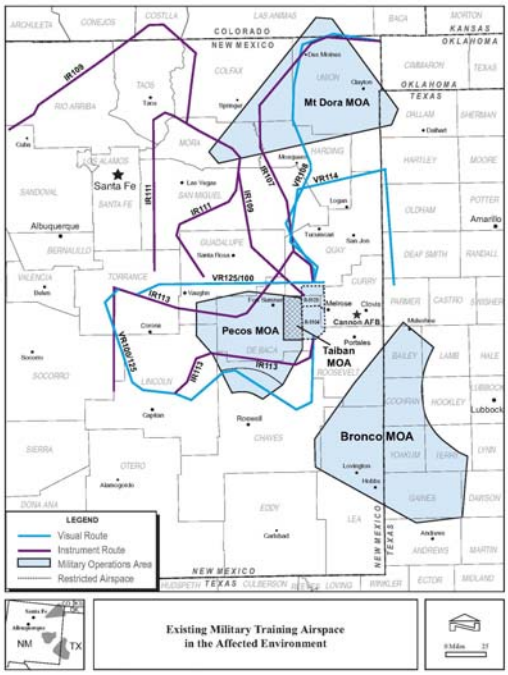


Vicinity Map of Cannon AFB and Melrose Air Force Range (AFR)



Existing Military Training Airspace in the Affected Environment

Congressional Letter Recipients

The Honorable Rod Adair, New Mexico Senate, Room 416D, State Capitol, Santa Fe, NM 87503

The Honorable Jeff Bingaman, 105 W 3rd, Suite 409, Roswell, NM 88201

The Honorable Jose A. Campos, New Mexico House of Representatives, 1050 S. 10th Street, Santa Rosa, NM 88435

The Honorable Pete Campos, New Mexico Senate, Room 302B, State Capitol, Santa Fe, NM 87503

The Honorable Anna Marie Crook, New Mexico House of Representatives, Room 230JCN, State Capitol, Santa Fe, NM 87503

The Honorable Pete Domenici, 140 Federal Building, Roswell, NM 88201

The Honorable Candy Spence Ezzell, New Mexico House of Representatives, PO Box 2125, Roswell, NM 88202

The Honorable Daniel R. Foley, New Mexico House of Representatives, Room 203FCN, State Capitol, Santa Fe, NM 87503

The Honorable Daniel R. Foley, New Mexico House of Representatives, PO Box 3194, Roswell, NM 88202

The Honorable Keith J. Gardner, New Mexico House of Representatives, 4500 Verde Dr., Roswell, NM 88201

The Honorable Clinton D. Harden, New Mexico Senate, Room 416E, State Capitol, Santa Fe, NM 87503

The Honorable Stuart Ingle, New Mexico Senate, Room 109A, State Capitol, Santa Fe, NM 87503

The Honorable Timothy Z. Jennings, New Mexico Senate, Room 300D, State Capitol, Santa Fe, NM 87503

The Honorable Gay Kernan, New Mexico Senate, Room 415E, State Capitol, Santa Fe, NM, 87503

The Honorable Brian K. Moore, New Mexico House of Representatives, Room 203GCN, State Capitol, Santa Fe, NM 87503

The Honorable Steve Pearce, 1717 W 2nd Street, Suite 100, Roswell, NM 88201

The Honorable Bill Richardson, State of New Mexico, Office of the Governor, State Capital Building, Santa Fe, NM 87503

The Honorable Mary Skeen, New Mexico House of Representatives, PO Box 67, Picacho, NM 88343

The Honorable Tom Udall, Clovis-Carver Public Library, 701 N Main St/PO Box 868, Clovis, NM 88102

The Honorable W.C. Williams, New Mexico House of Representatives, Room 230JCN, State Capitol, Santa Fe, NM 87503

Sample Congressional Letter

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE SPECIAL OPERATIONS COMMAND (AFSOC)

7 Sep 06

Brady R. Reitz, Colonel, USAF
Deputy Director Installations and Mission Support
427 Cody Avenue, Suite 225
Hurlburt Field, FL 32544-5434

The Honorable Steve Pearce
1717 W 2nd Street, Suite 100
Roswell, NM 88201

Dear Representative Pearce

The United States Air Force (Air Force) is in the process of preparing an Environmental Impact Statement (EIS) to assess the potential environmental impacts of a proposal to transfer certain Air Force Special Operations Command (AFSOC) equipment and personnel to Cannon AFB, New Mexico.

The Air Force proposes to transfer aircraft and personnel from Hurlburt Field, Florida, or other existing operational locations to Cannon AFB. Potential AFSOC assets to beddown include aircraft, weapons systems, equipment, and personnel. Growth is planned through Fiscal Year 2013 at Cannon AFB, and AFSOC proposes to begin utilizing Melrose Air Force Range (AFR), existing training airspace, and existing Military Training Routes from Cannon AFB.

The proposed action will consider moving approximately 90 aircraft and approximately 3,500 personnel to Cannon AFB. AFSOC is considering what aircraft and other equipment to base at Cannon AFB, how best to utilize existing facilities, and what facilities will need to be modified or built. It is possible that additional facilities may need to be constructed at Melrose AFR. Locations for outlying drop zones within or outside of Melrose AFR, or water training within two hours travel from Cannon AFB may also be identified for training use. The impacts from the proposed actions and alternatives will be considered in the EIS.

The Air Force will hold a series of scoping meetings to solicit public input concerning the scope of the proposed action and alternatives, as well as to help identify other concerns and issues to be addressed in the environmental analysis. Scoping meetings will be held at the locations shown in the table below. During the meetings, the Air Force will describe the proposed action and all alternatives, the National Environmental Policy Act process, and outline the opportunities for public involvement in the process. We look forward to receiving your comments as part of this process.

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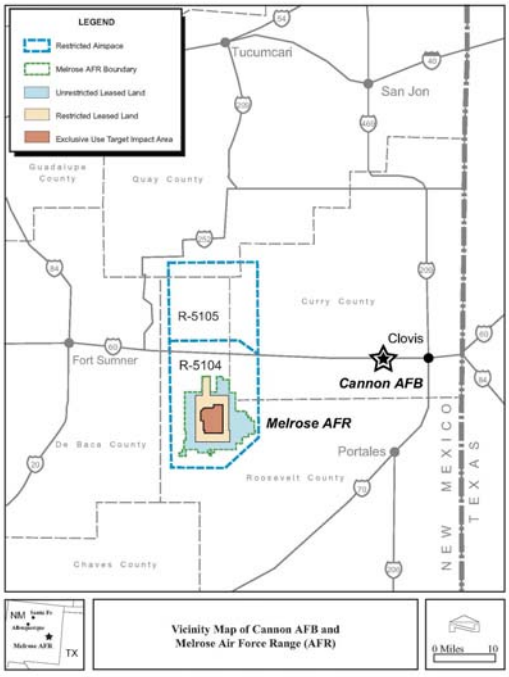
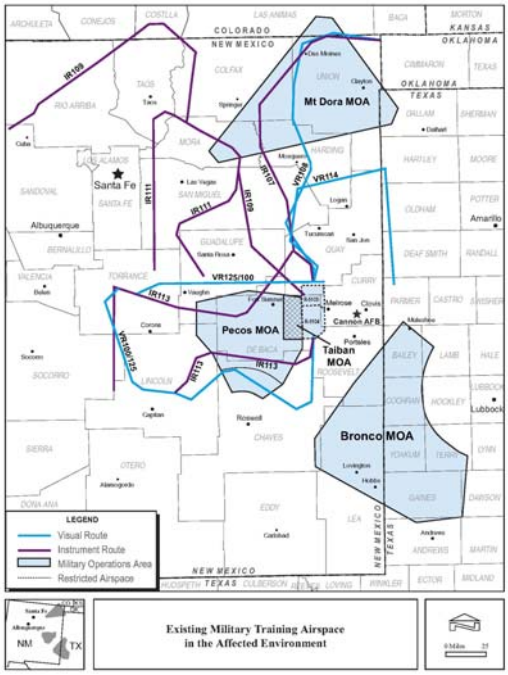
In an effort to analyze the potential impact of this proposed action, the Air Force or its contractors may be contacting you in their data collection efforts. In advance, we thank you for your assistance in this activity. If you have any specific concerns about the proposal, we would like to hear from you. Please contact the AFSOC Project Manager, Mr. Carl T. Hoffman, at (850) 884-5984. Thank you for your assistance in this matter.

BRADY R. REITZ, Colonel, USAF
Deputy Director Installations and Mission Support

Atch
Map of Affected Areas



Vicinity Map of Cannon AFB and Melrose Air Force Range (AFR)



Existing Military Training Airspace in the Affected Environment

Tribal Letter Recipients

Henry Kostzuta, Chairman, Apache Tribe of Oklahoma, PO Box 1220, Andarko, OK 73005
Billy Evans Horse, Chairman, Kiowa Tribe, PO Box 369, Carnegie, OK 73015
Comanche Nation, c/o NAGPRA Coordinator, PO Box 908, Lawton, OK 73502
Claudia Vigel-Muniz, President, Jicarilla Apache Tribe, PO Box 507, Dulce, NM 87528

Sample Tribe Letter

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE SPECIAL OPERATIONS COMMAND (AFSOC)

8 Sep 06

George R. Omley, P.E.
Chief, Environmental Branch
Installations and Mission Support Directorate
427 Cody Avenue, Suite 225
Hurlburt Field, FL 32544-5434

Billy Evans Horse
Chairman
Kiowa Tribe
PO Box 369
Carnegie, OK 73015

Dear Mr. Horse

The United States Air Force (Air Force) is in the process of preparing an Environmental Impact Statement (EIS) to assess the potential environmental impacts of a proposal to transfer certain Air Force Special Operations Command (AFSOC) equipment and personnel to Cannon AFB.

The Air Force proposes to transfer aircraft and personnel from Hurlburt Field, Florida, or other existing operational locations to Cannon AFB, New Mexico. Potential AFSOC assets to beddown include aircraft, weapons systems, equipment, and personnel. Growth is planned through Fiscal Year 2013 at Cannon AFB, and AFSOC proposes to begin utilizing Melrose Air Force Range (AFR), existing training airspace, and existing Military Training Routes from Cannon AFB.

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As part of the EIS process, the Air Force would like to consider your concerns and initiate Government-to-Government consultation regarding the proposed action. The Air Force will hold a series of scoping meetings to solicit public input concerning the scope of the proposed action and alternatives, as well as to help identify other concerns and issues to be addressed in the environmental analysis. Scoping meetings will be held at the locations shown in the table below. During the meetings, the Air Force will describe the proposed action and all alternatives, the National Environmental Policy Act process, and outline the opportunities for public involvement in the process. We look forward to receiving your comments as part of this process.

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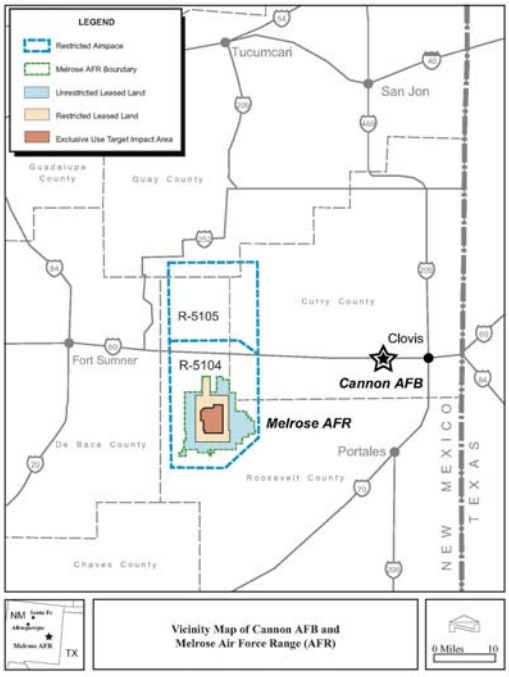

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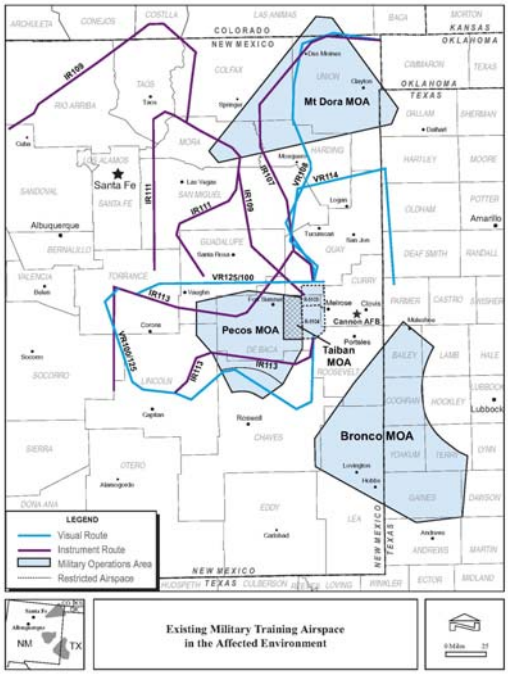

Existing Military Training Airspace in the Affected Environment

General Letter Recipients

Bureau of Indian Affairs Intermountain Region, Regional Director, PO Box 26567, Albuquerque, NM 87125

Melrose Cattle Co., Portales, NM 881301

Natural Resources Conservation Service, 6200 Jefferson NE, Albuquerque, NM 87109-3734

New Mexico Ecological Services Field Office, 2105 Osuna Road NE, Albuquerque, NM 87113-1001

Office of Environmental Policy and Compliance, U.S. Department of Interior, P.O. Box 26567 (MC-9), Albuquerque, NM 87125-6567

The Honorable Leandro Abeyta, City of Vaughn, PO Box 278, Vaughn, NM 88353

David D. Allyn, Santa Fe, NM 87508

Andy & Mary Andreas, Fort Sumner, NM 88119

Leslie & Glenda Armstrong, Fort Sumner, NM 88119

Jeff Ashley, Floyd, NM 88118-96011

Tim Ashley Commissioner, Chair, Curry County, 700 N. Main Street, Suite 10, County Courthouse, Clovis, NM 88101

Tom Baca, Aviation Director, New Mexico Aviation Division, 1550 Pacheco Street, , Santa Fe, NM 87505-1149

Randy Bailey, Ruidoso, NM 88345

Randy Ballard, Ft. Sumner, NM 88119

Aron Balok, Regional Director, New Mexico Farm and Livestock, 89 Las Flores Dr., Roswell, NM 88203

Jimmy Barela, Commissioner, Chair, Guadalupe County, 420 Parker Avenue, County Courthouse, Santa Rosa, NM 88435

Barrett Beard, Gladstone, NM 88422

Jerry D. Bell, Clovis, NM 88101

Don Bennett, Elida, NM 88116

Jeff Bilberry, Elida, NM 88116

Bill, Roswell, NM 88201

Pat Bonne IV, Elida, NM 88116

John R. Bourne, Clovis, NM 88101

Carole Brabham, Clovis, NM 88101

Clarence O. Brady, Fort Sumner, NM 88119

Jennifer Brady, Roswell, NM 88203

Clarence O. Brady, Ft. Sumner, NM 88119

Dr. Art Brokenbeck, House, NM 88121

Kendall Buzard, Floyd, NM 88118

Charlie Buzard, Floyd, NM 881181

R.A. Canning, Capitan, NM 88316

Joan M. Carlson, United Aero, Inc., 200 First St., Farwell, TX 79325
Powhatan Carter, III, Commissioner, Chair, De Baca County, PO Box 347, County Courthouse, Fort Sumner, NM 88119
Alvin Clark, Clovis, NM 88101
Tim Coleman, Albuquerque, NM 87120-2468
Michael F. Connolly, Clovis, NM 88101
Carolyn Cook, Santa Fe, NM 87505
Billie Cooper, Portales, NM 88130
Charlie Creek, Roswell, NM 88201
Glen Crenshaw, Taiban, NM 88134
William L. Crenshaw, Taiban, NM 881341
Clay Crist, Yeso, NM 88136
Ron Curry, Cabinet Secretary, New Mexico Environment Department, Harold S. Runnels Building, 1190 St Francis Drive, Santa Fe, NM 87505
Joe Dauna, Vaughn, NM 88353
Tom & Sharon Davis, Portales, NM 88130
Thomas H. Davis, Portales, NM 881301
Chad Davis, Commissioner, Chair, Roosevelt County, 109 W 1st Street, County Courthouse, Portales, NM 88130
Clyde Dehart, Federal Aviation Administration, Southwest Region, ASW-900/AF Representative, Fort Worth, TX 76193-0001
Mary Dose', Carrizozo, NM 88301
Kevin Doyle, Santa Fe, NM 87508
Carter DuBois, Santa Fe, NM 87505
Frank DuBois, New Mexico Department of Agriculture, Box 30005, Dept. 3189, Las Cruces, NM 88003
Ron Dunton, Deputy State Director, U.S. Department of the Interior, Bureau of Land Management, PO Box 27115, Santa Fe, NM 87502
A.S. Elliott, Ft. Sumner, NM 88119
Charley & Teresa Engelking, Capitan, NM 88316
Jeff Essary, Floyd, NM 88118
Don Essary, Floyd, NM 88118
Cynthia Etchepareborde, Portales, NM 88130
Frances Hall Fikany, Fort Sumner, NM 88119
Johnnie Firestone, Ft. Sumner, NM 88119
Wanda & James Floyd, Clovis, NM 88101
Loretta Fogerson, Clovis, NM 88101
Gerry Foisre, Clovis, NM 88101

Harv Forsgren, Regional Forester, U.S. Department of Agriculture, Forest Service, 333 Broadway SE, Albuquerque, NM 87102
Lois Franks, Melrose, NM 88124
Nettie Fuchs, Roswell, NM 88201
Tom & Claryce Gainer, Floyd, NM 88118
Tom Goff, Elida, NM 88116
Mary Goff, Elida, NM 88116
Jeanne Good, Ft. Sumner, NM 88119
Sid & Cheryl Goodloe, Capitan, NM 88316
Louis Gordon, Clovis, NM 88101
Jim Gottwald, Clovis, NM 88101
Jack Graham, Roswell, NM 88201
Kevin Grant, Fort Sumner, NM 88119
Betty Greathouse, Portales, NM 88130
Jack Greathouse, Portales, NM 88130
Ross Greathouse, Portales, NM, 88130
M.S. Gresham, Portales, NM 88130
Paul Grider, Melrose, NM 881241
Wanda Grider, Portales, NM 881301
Shelly Johnson Grider, Clovis, NM 88101
Jim Grizzle, Clovis, NM 881011
Jennifer Hall, Holland & Hart, , 600 East Main Street, Ste. 104, , Aspen, CO, 81611
Ted Hargrove, Floyd, NM 88118
E. Dale Harner, Clovis, NM 88101
Randy Harris, President & CEO, Bank of Clovis, , 300 Main Street, Clovis, NM 88101
Brent Hart, , Aircraft Owners and Pilots Association, 421 Aviation Way, Fredrick, MD 21701-4798
John Haumont, Roswell, NM 88201
Cathy Haynes, Clovis, NM 88101
Barbara Head, Fort Sumner, NM 88119
Gene Hendrick, Clovis, NM 88101
Harold Hobson, Commissioner, Chair, Chaves County, PO Box 1817, County Courthouse, Roswell, NM 88202
Bill Hoglan, Georgetown, TX 78628-9575
Paul E. Horney, Ft. Sumner, NM 88119
Clinette Hosier, Federal Aviation Administration, , 8000 Louisiana Blvd NE, Albuquerque, NM 87109
Chuck Huber, Denton, TX 76201-2410

Chuck Huber, United States Pilots Association, 483 S. Kirkwood Road, Ste. 10, St. Louis, MO 63122
Diana Huey, Clovis, NM 88101
Kenneth Ingham, Albuquerque, NM 87106
Larry Jewell, Portales, NM 88130
Fred & Mary Alice Jewell, Elida, NM 88116
James P. Johns, Roswell, NM 88202
Kristine Johnson, PhD, Director, New Mexico State Heritage Program, UNM Biology Dept., MSC03 2020, 1 U of NM, Albuquerque, NM 87131
Lee Jones, Albuquerque, NM 87111
Bernard Karwick, Sag Harbor, NY 11963
John Kibler, Clovis, NM 88101
Jodee Kinser, Portales, NM 88130
Lisa Kirkpatrick, Chief, State of New Mexico, Dept of Game and Fish, PO Box 25122, Santa Fe, NM 87504
Jessica Kok, TX 79325
Jinni Konis, Amarillo, TX 79102
Ernie Kos, Clovis/Curry County Chamber of Commerce, 215 Main St., Clovis, NM 88101
Anita Lafuente, Friona, TX 79035
Connie Landry, Clovis, NM 88102-1793
The Honorable David Lansford, City of Clovis, PO Box 760, Clovis, NM 88101
Linda Lavendar, City Treasurer, P.O. Box 682, House, NM 88121
Leonard Leary, Portales, NM 88130
Eddie Lee, Floyd, NM 88118
Taylor Lee, Floyd, NM 88118
Wayne Lee, Floyd, NM 88118
Houston & Mary Lee, Floyd, NM 88118
Ryan Lengerich, Clovis News Journal, 308 Wilmington Circle, Clovis, NM 88101
Teresa Leslie, Clovis, NM 88101
Ruth Leverenz, Administrator, Federal Aviation Administration, Southwest Region, 2601 Meacham Boulevard, Fort Worth, TX 76137-4298
Marianne Long, Portales, NM 88130
The Honorable Raymond Lopez, Village of Fort Sumner, PO Box 180, Fort Sumner, NM 88119
D.W. Luce, Melrose, NM 88123
Michael R. Mack, Ft. Sumner, NM 88119
Ronda Maddox, Portales, NM 88130
Grace Madrid, County Commissioner, Quay County, 6380 Cedar Court, Tucumcari, NM 88401
Lloyd Maness, Yeso, NM
Mark Marley, Roswell, NM 88201-9448

Tom & Dorothy Martin, Roswell, NM 88201
Betty Martin, Roswell, NM 882011
Sherman W. Martin, Village of House, 109 East 4th St., P.O. Box 682, House, NM 88121-0682
Frank Martz, Ft. Sumner, NM 88119
Tara May, Roswell Daily Record, 2601 N. Main, Roswell, NM 88201
Loren & Karen McCaslin, Floyd, NM 88118
W.C. "Dub" McElhannon, Gladstone, NM 88422
Willie & Hazel McInnes, Roswell, NM 88201
David J. McVinnie, Chief Flight Instructor, Bode Aviation, P.O. Box 19006, Albuquerque, NM 87119-0006
Carl D. Melinat, Clovis, NM 88101
Mitzi Miller, Floyd, NM 88118
Dwayne Milliro, Ft. Sumner, NM 88119
Terry & Mary Jo Moberly, Clovis, NM 88101
Joe & Charlotte Montgomery, Melrose, NM 88124
Donald Morris, Fort Sumner, NM 88119
Doug Mote, Portales, NM 88130
Michael Murphy, Melrose, NM 88124
Gavin Nash, Floyd, NM 88118
Dave Nash, Floyd, NM 88118
Robert Niesen, Fort Sumner, NM 88119
Harold Nixon, Floyd, NM 88118
Vivian Oaxaca, Logistics Coordinator, Bureau of Land Management, Roswell Field Office, 2909 W 2nd Street, Roswell, NM 88201
Orlando Ornelas, Portales, NM 88130
The Honorable Orlando Ortega, Jr., City of Portales, 100 W 1st Street, Portales, NM 88130
The Honorable Bill Owen, City of Roswell, 425 N Richardson Avenue, Roswell, NM 88201
Leon & Pat Pace, Ft. Sumner, NM 88119
Alan Parker, Farmington, NM 87401
Domenic M. Perez, Vaughn, NM 88353
Nick Peterson, Roswell, NM 88201
James Pigg, Las Cruces, NM 88011
T. Prescott, Clovis, NM 88101
John Ranson, Roswell, NM
Nelson Rector, Portales, NM 88130
Weldon & Vernell Reed, Floyd, NM 88118
Mike Rice, New Mexico Aviation Division, 1550 Pacheco Street, Sante Fe, NM 87505
Gail Rierson, Clovis, NM 88101
Winfred Riley, Clovis, NM 88101

Clinton Rogers, Floyd, NM 881181
Grace Roybal, Ft. Sumner, NM 88119
Sharon Russell, Floyd, NM 88118
William Sadlon, Annapolis, MD 21401
J. Sanders, Clovis, NM 88102-5196
Jim Saunders, Grenville, NM
Brigadier General Hanson Scott, USAF (Ret.), Director, Office of Military Base Planning & Support, Joseph M. Montoya Building, Room 1060, 1100 St Francis Drive, Santa Fe, NM 87505
Dan Scurlock, Ft. Sumner, NM 88119
Terry Sherburne, Portales, NM 88130-9613
Ernest Shuey, Clovis, NM 88101
David Simon, Director, New Mexico Department of Parks and Recreation, PO Box 1147, Santa Fe, NM 87501
Kenneth Simons, Greenville, TX 754011
Nancy Skinner, Chief, U.S. Department of the Interior, National Park Service, PO Box 728, Santa Fe, NM 87504
Richard A. Smith, Albuquerque, NM 87111
Eldon W. Smith, Clovis, NM 88101
Donald R. Smith, Acting Manager, Airspace Branch, Central En Route and Oceanic Service Area, 2601 Meacham Blvd., Fort Worth, TX 76193
Christine Smith, Regional Reporter, Lubbock Avalanche Journal, 710 Avenue J, Lubbock, TX 79408
Gregory Scott Smith, Museum of New Mexico, P.O. Box 356, Ft. Sumner, NM 88119
Jeanette Smoot, Capitan, NM 88316
Zack Smyer, Roswell, NM
Lance Sommers, Andrews, TX 79714
Lisa Sonnenschein, Portales, NM 88130
Melvin B. Stanford, Floyd, NM 88118
David M. Stevens, Roswell, NM 88201
Marshal & Helen Stinnett, Portales, NM 88130
Scot Stinnett, DeBaca County News, Box 448, Ft. Sumner, NM 88119
Buddy & Donna Taylor, Elida, NM 88116
Richard Terrell, Park Superintendent, Sumner Lake State Park, HC 64, Box 125, Fort Sumner, NM 88119
Kelly Tibbets, Portales, NM 88130
Oscar Toliver, Clovis, NM 88101
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Ian Twombly, Aircraft Owners and Pilots Association, 421 Aviation Way, Fredrick, MD 21701-4798
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Charles Vaughan, Ft. Sumner, NM 88119
Joe Vicente, Vaughn, NM 88353
Carl Vick, Fort Sumner, NM 88119
Wayne Waldrip, Smyrna, GA 30082
Carlton Walker, Roswell, NM 88201
Mark Waters, Clovis, NM 88101
Leona West, Fort Sumner, NM 88119
Bill West, Fort Sumner, NM 88119
Bob & Mary Whelchel, Fort Sumner, NM 88119
Heidi J. Williams, Director, Air Traffic Services, AOPA, 421 Aviation Way, Frederick, MD 21701-4798
The Honorable Heather Wilson, 20 First Plaza NW, Ste. 603, Albuquerque, NM 87102
James W. Wilson, Fort Sumner, NM 88119
Rex Wilson, Commissioner, Chair, Lincoln County, PO Box 711, County Courthouse, Carrizozo, NM 88301
Susan Chase Wilson, NM Base Commission, 3718 General Arnold NE, Albuquerque, NM 87111
Pete C. Wilt, Clovis, NM 88101
Sharon G. Winn, Ponca City, OK 74601
Percy G. Wood, Roswell, NM 88203
Dwain Woody, Lubbock, TX 79401
Bob Worthington, President, New Mexico Pilots Association, 1136 Cave Springs Trail, Las Cruces, NM 88011
Col. A.L. Young, Clovis, NM 88101-3326
Ted Zolman, Tulia, TX 79088-0383

Sample General Letter

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE SPECIAL OPERATIONS COMMAND (AFSOC)

8 Sep 06

George R. Omley, P.E.
Chief, Environmental Branch
Installations and Mission Support Directorate
427 Cody Avenue, Suite 225
Hurlburt Field, FL 32544-5434

The Honorable Bill Owen
City of Roswell
425 N Richardson Avenue
Roswell, NM 88201

Dear Mayor Owen

The United States Air Force (Air Force) is in the process of preparing an Environmental Impact Statement (EIS) to assess the potential environmental impacts of a proposal to transfer certain Air Force Special Operations Command (AFSOC) equipment and personnel to Cannon AFB, New Mexico.

The Air Force proposes to transfer aircraft and personnel from Hurlburt Field, Florida, or other existing operational locations to Cannon AFB. Potential AFSOC assets to beddown include aircraft, weapons systems, equipment, and personnel. Growth is planned through Fiscal Year 2013 at Cannon AFB, and AFSOC proposes to begin utilizing Melrose Air Force Range (AFR), existing training airspace, and existing Military Training Routes from Cannon AFB.

The proposed action will consider moving approximately 90 aircraft and approximately 3,500 personnel to Cannon AFB. AFSOC is considering what aircraft and other equipment to base at Cannon AFB, how best to utilize existing facilities, and what facilities will need to be modified or built. It is possible that additional facilities may need to be constructed at Melrose AFR. Locations for outlying drop zones within or outside of Melrose AFR, or water training within two hours travel from Cannon AFB may also be identified for training use. The impacts from the proposed actions and alternatives will be considered in the EIS.

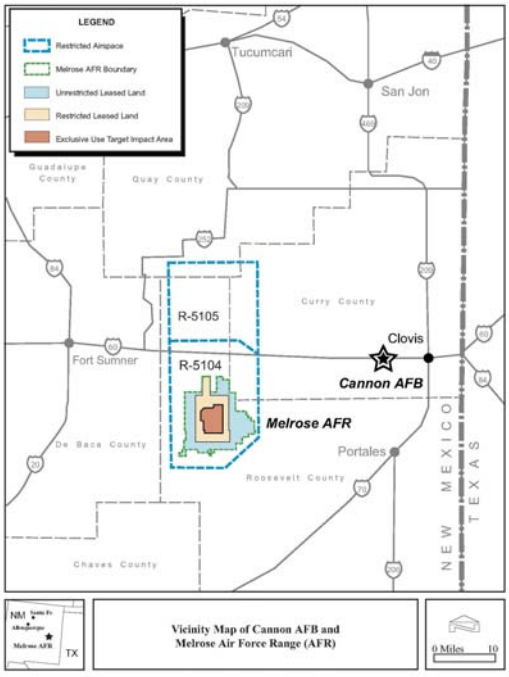
The Air Force will hold a series of scoping meetings to solicit public input concerning the scope of the proposed action and alternatives, as well as to help identify other concerns and issues to be addressed in the environmental analysis. Scoping meetings will be held at the locations shown in the table below. During the meetings, the Air Force will describe the proposed action and all alternatives, the National Environmental Policy Act process, and outline the opportunities for public involvement in the process. We look forward to receiving your comments as part of this process.

Schedule for Scoping Meetings		
Monday, September 18, 2006 6 to 8 p.m.	Clovis	Clovis Community College, 417 Schepps Blvd.
Tuesday, September 19, 2006 6 to 8 p.m.	Clayton	Clayton High School, 323 South Fifth Street
Wednesday, September 20, 2006 6 to 8 p.m.	Fort Sumner	Fort Sumner Community House, 137 East Baker Avenue

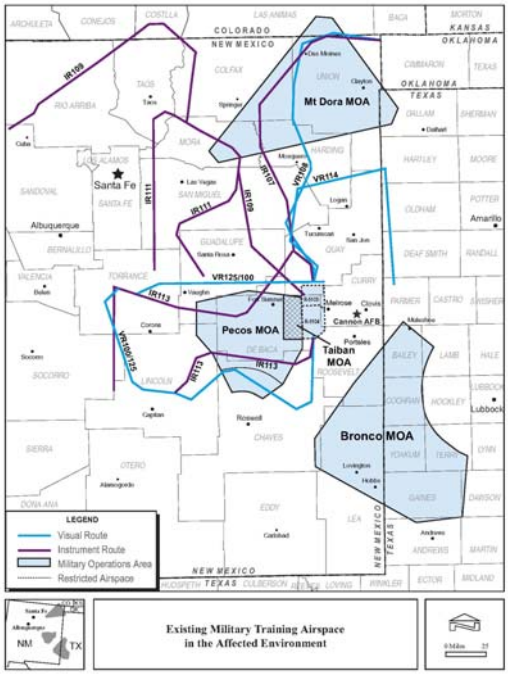
In an effort to analyze the potential impact of this proposed action, the Air Force or its contractors may be contacting you in their data collection efforts. In advance, we thank you for your assistance in this activity. If you have any specific concerns about the proposal, we would like to hear from you. Please contact the AFSOC Project Manager, Mr. Carl T. Hoffman, at the above address. Mr. Hoffman can be reached at (850) 884-5984. Thank you for your assistance in this matter.

GEORGE R. OMLEY, P.E
Chief, Environmental Branch
Installations and Mission Support Directorate

Atch
Map of Affected Areas



Vicinity Map of Cannon AFB and Melrose Air Force Range (AFR)



Existing Military Training Airspace in the Affected Environment

Scoping Participation and Response

SCOPING PARTICIPATION AND RESPONSE

This section is reprinted for reference from the Draft EIS. Scoping meetings were held in New Mexico to present details about the proposal, the NEPA process and opportunities for public and agency involvement (refer to Table 1). A total of 86 members of the public and agency representatives attended the three scoping meetings. Several of these people provided informal verbal comments and 18 persons submitted written comments during the scoping process. To the extent possible, scoping comments have been used to shape the analysis and focus the issues in this Draft EIS (see Table 2).

Table 1 identifies the location of the three AFSOC scoping meetings conducted as part of the environmental analysis. Written and verbal comments during public meetings and throughout the scoping period resulted in the issues presented in Table 2. These issues are discussed in the EIS resource analysis in Chapters 3.0 (Cannon AFB), 4.0 (Melrose AFR), 5.0 (Airspace), and 6.0 (Cumulative).

Table 1. AFSOC Scoping Meetings Conducted During September 2006

Date	*Time*	*Location*	*Address*
September 18, 2006, Monday	6:00 – 8:00 p.m.	Clovis, New Mexico	Clovis Community College 417 Schepps Blvd.
September 19, 2006, Tuesday	6:00 – 8:00 p.m.	Clayton, New Mexico	Clayton High School, 323 South Fifth Street
September 20, 2006, Wednesday	6:00 – 8:00 p.m.	Fort Sumner, New Mexico	Fort Sumner Community House, 137 East Baker Avenue

Table 2. Issues Raised During Scoping Review by EIS Section
(Page 1 of 3)

Issue Raised	*Included in AFSOC EIS Section*
CLOVIS, NEW MEXICO	
Cannon AFB	
How can a person obtain environmental documentation?	2.5.1
What changes in personnel are expected?	2.1.1.3
How will the drawdown and staff-up of base personnel affect the local economy of Clovis and Portales?	3.9.3
How will the drawdown and build-up of base personnel affect volunteer activities in the Clovis and Portales areas?	3.9.3
How many jobs will come to the community?	3.9.3
How will schools and other services be affected by the AFSOC beddown?	3.9.3
What economic documentation would be used to evaluate the effects of 27th drawdown and AFSOC build-up?	3.9.3
Melrose AFR	
Improved fire management is needed on Melrose AFR.	4.3.3
What will happen to grazing leases on Melrose AFR?	4.9.3
How will grazing access on Melrose AFR leased land be affected?	4.9.3
How can ranchers find out about changes to grazing leases in advance so that they can look elsewhere for grazing?	4.9.3
What grazing activity would be permitted within the AFSOC target areas?	4.9.3
How will investments, such as center pivot irrigation systems, on grazing leased land be affected?	4.9.3
Will other users continue to train on Melrose AFR?	2.3.6
What will be the noise levels associated with munitions use on Melrose AFR?	4.2.3
What will be the schedule or timing of munitions use on the range?	2.2.1.1
What will be the size of munitions footprints on the range?	4.3.3
Airspace	
How low will the training aircraft fly?	2.3.1
What will be the noise levels associated with aircraft overflights?	5.2.3
Fire risk is substantial throughout the area. How will AFSOC help control fires?	4.3.3, 5.3.3
Will the AFSOC low-level flights affect siting of wind farms?	5.1.3
Will the AFSOC training activities affect oil exploration?	5.1.3
How will low-level flights affect dairy production?	5.9.3
What is the relationship between AFSOC activities and New Mexico Training Range Initiative (NMTRI)?	6.0
CLAYTON, NEW MEXICO	
Airspace	
How will the MTRs be used?	2.3.1
Although the F-111 very low-level activity is gone, how will AFSOC manage continuing F-16 and other aircraft low-level activity?	5.1.3
How can scheduling of aircraft be modified to avoid cattle round-up periods?	5.9.3

Table 2. Issues Raised During Scoping Review by EIS Section (Page 2 of 3)

Issue Raised	*Included in AFSOC EIS Section*
Jets are fast and loud with a substantial startle effect. How will this change with AFSOC?	5.2.3.1, 5.9.3
What is the noise volume of the F-16 as compared to the C-130?	4.2.2, 5.2.3.1
What steps can be taken to avoid overflight of houses?	5.1.3.1, 5.8.3
How will other users of the MTRs and the Mt. Dora MOA be scheduled?	5.1.3.1, 5.9.3
How can AFSOC ensure that other users adhere to agreements regarding avoiding round-ups or other avoidance areas?	
Are there any ground impacts under the Mt. Dora MOA?	2.3.1, 2.3.4, 5.9.3
Are there any plans for a new range under the Mt. Dora MOA?	2.3.1
Is there any use of the Clayton airport anticipated?	2.3.1
Will the Clayton airport be used for instrument approach training?	2.3.1
What are the refueling altitudes for AFSOC aircraft?	2.3.1
How much fuel would be lost during refueling?	5.8.3
Will there be fuel dumping by AFSOC aircraft?	5.8.3
FT. SUMNER, NEW MEXICO	
Cannon AFB	
Cannon AFB needs to have a Memorandum of Understanding (MOU) with the Fort Sumner Fire Department for fire control.	5.3.2
What will be the hazard team response from Cannon AFB for the Fort Sumner area?	4.3.2
How can addresses and zip codes be corrected?	2.5
How can a person receive a copy of the Draft EIS?	Cover Sheet
How will comments from the public be incorporated into the Draft EIS?	2.5.1
How will comments from the public be incorporated in the Final EIS?	2.5.1
Melrose AFR	
How much noise will there be from gunship firing?	4.2.3
During gunship training, where will the firing occur?	2.3.1
How will existing grazing rights be affected by training on the range?	4.9.3
How will gunship orbits affect safety zones?	2.2.1, 4.3.2
How often will unexploded ordnance (UXO) on the range be cleaned up?	4.5.3
What will be the air quality effects from dust created by target areas and munitions use?	4.4.3
What will be the schedule for night training on the range?	2.2.1, 2.3.1
How much of a change will there be in fire management on the range?	4.3.3
Who will be responsible for maintaining fire breaks?	4.3.3
Airspace	
At what altitude will the AFSOC aircraft fly?	2.3.1
How will noise from the aircraft affect residences?	4.2.3, 5.2.3, 5.9.3
How will noise-sensitive areas be treated on MTRs and MOAs?	5.9.3
Will AFSOC accept existing avoidance areas?	2.3.1
How can a ranch under the MOA or MTR be listed as an avoidance area?	5.9.3

Table 2. Issues Raised During Scoping Review by EIS Section (Page 3 of 3)

Issue Raised	*Included in AFSOC EIS Section*
When a person is affected by low-level jets or low-level aircraft, how can Cannon AFB be contacted?	5.8.3, 5.9.3
Will AFSOC training go down to the Visual Flight Rule (VFR) levels of 100 feet AGL?	2.3.1
How will the fire risks under the airspace be controlled?	5.3.3
Will chaff and flares be used?	2.3.2
What types of chaff and flare materials will be used?	2.3.2
What altitude will be used for chaff and flare training?	2.3.2
Will current restrictions on chaff and flare use be used by AFSOC?	2.3.2
What will the Air Force do about chaff and flare debris?	5.7.3, 5.8.3
What areas will be used for landing zones (LZ) or drop zones (DZ)?	2.3.4
How will LZ or DZ drops and pick-up be coordinated with local residents and/or organizations?	2.3.4
What emergency response will be needed for LZ or DZ activities?	2.3.4
During DZ drop training, what are the bundles?	2.3.4
Will there be leaflet drops?	2.1.1.1
What emergency response will be needed for water training?	2.3.4
What will be the air quality effects from aircraft flying at low altitudes?	5.4.3, 5.8.3
How can accidents during low-level night training be avoided?	5.9.3
During what time will night training occur?	2.3.1
What helicopter training will occur in the area? Cattle are especially sensitive to helicopters because helicopters are used to herd cattle.	5.9.3
How can AFSOC adjust its schedule to prevent impacts during cattle round-ups?	5.9.3
How will information about avoidance areas or cattle round-ups be dispensed so that other users avoid the areas?	5.9.3
What is the potential risk from flare debris to bovine hardware disease?	5.6.3.1, 5.7.3
What are the wind vortex effects of low-level flights?	5.9.3
How visible or audible will low-level flights be?	5.2.3
Will other pilots be aware of low-level flights?	5.9.3
Where will Predators be used?	2.3.3
How accurate is the navigation for AFSOC aircraft?	5.1.3
How will AFSOC control other users of the airspace and range?	2.3.1, 5.1.3.1, 5.9.3

APPENDIX D
RELEVANT STATUTES, REGULATIONS, AND GUIDELINES

APPENDIX D RELEVANT STATUTES, REGULATIONS, AND GUIDELINES

General

National Environmental Policy Act (NEPA) 42 USC 4321 et seq (1969)

Air Force Instruction (AFI) 32-7061 Environmental Impact Analysis Process (12 March 2003)

Air Force Policy Directive (AFPD) 32-70, Environmental Quality (20 July 1994)

Executive Order 11514, Protection and Enhancement of Environmental Quality (1970)

Executive Order 11991, Relating to Protection and Enhancement of Environmental Quality (1977)

Airspace

Federal Aviation Act, 49 USC 1353 et seq (1958)

Federal Aviation Regulation Part 71 (1975)

Federal Aviation Regulation Part 73 (1975)

Federal Aviation Regulation Part 91 (1990)

Federal Aviation and Administration Handbook 7400.2C

Federal Aviation and Administration Handbook 7110.65

Noise

Executive Order 12088, Federal Compliance with Pollution Control Standards (1978)

Federal Interagency Committee on Urban Noise, Guidelines for Considering Noise in Land Use Planning and Control, (1980)

Safety

AFI 32-2001, The Fire Protection Operations and Fire Prevention Program (1 April 1999)

AFI 32-3001, Explosive Ordnance Disposal Program, (8 October 2004)

AFI 91-202, The United States Air Force Mishap Prevention Program (1 August 1998)

AFI 91-301, Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Standards, (1 June 1996)

Air Force Manual 91-201, Explosives Safety Standards, (18 October 2001)

11-201 Flight Information Publications, (1 September 1997)

Hazardous Materials

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, 42 USC 103 et seq. (1980)

Superfund Amendments and Reauthorization Act (SARA) 42 USC 9601 et seq (1986)

Hazardous Materials Transportation Act, 49 USC 101 et seq (1975)

Resource Conservation and Recovery Act (RCRA) 42 USC 6901 et seq (1976)

Solid Waste Disposal Act (SWDA) and Amendments, 42 USC 7001 et. seq (1976)

Hazardous and Solid Waste Amendments (HSWA), 42 USC 6926 et. seq (1984)

Toxic Substance Control Act (TSCA), 15 USC 2601 et seq (1976)

Inspection Procedures for Occupational Exposure to Asbestos Final Rule, 29 CFR Parts 1910.1001, 1926.1101, and 1915.1001 (1996)

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 7 USC 136 et. seq (1996)

AFI 10-2501, Air Force Emergency Management (EM) Program Planning and Operations, (24 January 2007)

AFI 90-801, Environmental Safety and Occupational Health Councils (ESOHC), (25 March 2005)

AFI 32-7042, Solid and Hazardous Waste Compliance, (12 May 1994)

AFI 32-7080, Pollution Prevention Program (12 May 1994)

AFI 32-7086, Hazardous Material Management (1 November 2004)

Natural Resources

Federal Water Pollution Control Act, 33 USC 1251 et seq (1948)

Clean Water Act, 33 USC 1251 et seq (1977)

Executive Order 19988, Floodplain Management (1977)

Executive Order 11990, Protection of Wetlands (1977)

North American Wetlands Conservation Act, 16 USC 4401 et seq (1989)

Lacey Act, 18 USC 42, 16 USC 3371 et seq. (1900)

Migratory Bird Treaty, 16 USC 703 et seq (1918)

Fish and Wildlife Conservation Act, 16 USC 2901 et seq. (1980)

Magnuson-Stevens Fishery Conservation and Management Act, 16 USC 1801 (1976)

Bald Eagle Protection Act, 16 USC 668 et seq (1940)

Endangered Species Act, 16 USC 1531 et seq (1973)

Executive Order 12962, Recreational Fisheries (1995)

Clean Air Act, 42 USC 7401 et seq. (1977)

Executive Order 12088, Federal Compliance with Pollution Control Standards (1978)

Cultural Resources

National Historic Preservation Act, 16 USC 470 (1966)

Protection of Historic and Cultural Properties, 36 CFR 800 (1986)

Native American Grave Protection and Repatriation Act, 25 USC 3001 et seq (1990)

Archaeological Resources Protection Act (ARPA), 16 USC 470aa et seq (1979)

American Indian Religious Freedom Act, 42 USC 1996 et seq (1978)

Executive Order 13007, Protection of Religious Practices and Sacred Sites (1996)

Executive Order 13084, Consultation and Coordination with Indian Tribal Governments (1998)

AFI 32-7065, Cultural Resource Management Program, (1 June 2004)

Department of Defense (Dodd) American Indian and Alaska Native Policy, (20 October 1998)

Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations (1995)

Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks (1997)

Air Force Guidance, Interim Guide for Environmental Justice Analysis with the Environmental Impact Analysis Process (November 1997)

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APPENDIX E
MILITARY TRAINING AIRSPACE OPERATIONS DATA

TABLE E-1. SORTIES FOR RESTRICTED AREAS

Restricted Area	Aircraft Type (Modeled as)	Baseline			Proposed Action		
		0700-2200	2200-0700	Total	0700-2200	2200-0700	Total
R-5104A	AC-130H	0	0	0	936	312	1248
	MC-130H	0	0	0	468	312	780
	MC-130P	0	0	0	468	312	780
	MC-130W	0	0	0	468	312	780
	CV-22	0	0	0	750	500	1250
	C-47 (DC-3)	0	0	0	137	91	228
	UH-1	0	0	0	113	38	151
	NSA[1] (GA Single Engine Prop)	0	0	0	456	456	912
	UAS[2] (Not modeled)	0	0	0	90	90	180
	F-16	1691	559	2250	0	0	0
	Transient (F-16)	1170	300	1470	1170	300	1470
	TOTAL	2861	859	3720	5056	2723	7779
	Actual Change				**2195**	**1864**	**4059**
	Percent Change				**77%**	**217%**	**109%**
R-5104B	AC-130H	0	0	0	9	3	12
	MC-130H	0	0	0	60	39	99
	MC-130P	0	0	0	60	39	99
	MC-130W	0	0	0	60	39	99
	CV-22	0	0	0	0	0	0
	C-47 (DC-3)	0	0	0	0	0	0
	UH-1	0	0	0	0	0	0
	NSA[1] (GA Single Engine Prop)	0	0	0	0	0	0
	UAS[2] (Not modeled)	0	0	0	90	90	180
	F-16	1691	559	2250	0	0	0
	Transient (F-16)	1170	300	1470	1170	300	1470
	TOTAL	2861	859	3720	1449	510	1959
	Actual Change				**-1412**	**-349**	**-1761**
	Percent Change				**-49%**	**-41%**	**-47%**
R-5105	AC-130H	0	0	0	936	312	1248
	MC-130H	0	0	0	468	312	780
	MC-130P	0	0	0	468	312	780
	MC-130W	0	0	0	468	312	780
	CV-22	0	0	0	750	500	1250
	C-47 (DC-3)	0	0	0	137	91	228
	UH-1	0	0	0	113	38	151
	NSA[1] (GA Single Engine Prop)	0	0	0	456	456	912
	UAS[2] (Not modeled)	0	0	0	90	90	180
	F-16	0	0	0	0	0	0
	Transient (F-16)	1170	300	1470	1170	300	1470
	TOTAL	1170	300	1470	5056	2723	7779
	Actual Change				**3886**	**2423**	**6309**
	Percent Change				**332%**	**808%**	**429%**

[1] NSA = Non Standard Aircraft
[2] UAS = Unmanned Aerial Systems

TABLE E-2. FLIGHT PROFILES AND ALTITUDE DISTRIBUTIONS FOR RESTRICTED AREAS

Restricted Area	Aircraft Type (Modeled as)	Average Profile (Modeled as)			Average Altitude Distribution (Estimated feet AGL)				
		Power Setting	Speed (KIAS)	Sortie Duration (minutes)	500-1000	1000-2000	2000-5000	5000-10000	10000 and over
R-5104A	AC-130H	850 CTIT	180	120			10%	80%	10%
	MC-130H	850 CTIT	180	60	40%	30%	10%	10%	10%
	MC-130P	850 CTIT	180	60	40%	30%	10%	10%	10%
	MC-130W	850 CTIT	180	60	40%	30%	10%	10%	10%
	CV-22	70% Q	140(110)	60	50%	30%	20%		
	C-47 (DC-3)[1]	(120.5%CNT)	160	60	10%	25%	25%	25%	15%
	UH-1	N/A	80	90	70%	15%	10%	5%	
	NSA[2,3] (GA Single Engine Prop)	(95%CNT)	150	60	10%	25%	25%	25%	15%
	UAS[4] (Not modeled)	N/A	N/A	N/A					
	F-16	94%NC	465	30	1%	5%	5%	40%	49%
	Transient (F-16)	94%NC	465	30	1%	5%	5%	40%	49%
R-5104B	AC-130H	850 CTIT	180	60					100%
	MC-130H	850 CTIT	180	60					100%
	MC-130P	850 CTIT	180	60					100%
	MC-130W	850 CTIT	180	60					100%
	CV-22	70% Q	110	60					100%
	C-47 (DC-3)[1]	(120.5%CNT)	160	60					100%
	UH-1	N/A	80	90					100%
	NSA[2,3] (GA Single Engine Prop)	(95%CNT)	150	60					100%
	UAS[4] (Not modeled)	N/A	N/A	N/A					100%
	F-16	94%NC	465	30					100%
	Transient (F-16)	94%NC	465	30					100%
R-5105	AC-130H	850 CTIT	180	60		10%	90%		
	MC-130H	850 CTIT	180	30	80%	10%	10%		
	MC-130P	850 CTIT	180	30	80%	10%	10%		
	MC-130W	850 CTIT	180	30	80%	10%	10%		
	CV-22	70% Q	110	60	80%	10%	10%		
	C-47 (DC-3)[1]	(120.5%CNT)	160	60	80%	10%	10%		
	UH-1	N/A	80	60	90%	10%			
	NSA[2,3] (GA Single Engine Prop)	(95%CNT)	150	60	80%	10%	10%		
	UAS[4] (Not modeled)	N/A	N/A	N/A					
	F-16	94%NC	465	6	10%	20%	70%		
	Transient (F-16)	94%NC	465	6	10%	20%	70%		

[1]DC-3 noise data estimated using the Integrated Noise Model
[2]GA Single Engine Prop noise data estimated using the Integrated Noise Model
[3]NSA = Non Standard Aircraft
[4]UAS = Unmanned Aerial Systems
KIAS - Knots Indicated Airspeed
C TIT - Turbine Inlet Temperature in degrees centigrade
Q - Torque
NC - Compressor Speed
CNT - Corrected Net Thrust

TABLE E-3. SORTIES FOR MILITARY OPERATIONS AREAS

Military Operations Area	Aircraft Type (Modeled as)	Baseline			Proposed Action		
		0700-2200	2200-0700	Total	0700-2200	2200-0700	Total
Mt Dora (North, East, West)	AC-130H	0	0	0	207	112	319
	MC-130H	0	0	0	507	273	780
	MC-130P	0	0	0	507	273	780
	MC-130W	0	0	0	507	273	780
	CV-22	0	0	0	0	0	0
	C-47 (DC-3)	0	0	0	0	0	0
	UH-1	0	0	0	0	0	0
	NSA[1] (GA Single Engine Prop)	0	0	0	0	0	0
	F-16	381	0	381	0	0	0
	Transient (F-16)	356	10	366	356	10	366
	TOTAL	737	10	747	2084	941	3025
	Actual Change				**1347**	**931**	**2278**
	Percent Change				**183%**	**9310%**	**305%**
Pecos (North and South)	AC-130H	0	0	0	811	437	1248
	MC-130H	0	0	0	507	273	780
	MC-130P	0	0	0	507	273	780
	MC-130W	0	0	0	507	273	780
	CV-22	0	0	0	1008	543	1551
	C-47 (DC-3)	0	0	0	148	80	228
	UH-1	0	0	0	130	70	200
	NSA[1] (GA Single Engine Prop)	0	0	0	130	70	200
	F-16	2002	669	2671	0	0	0
	Transient (F-16)	606	200	806	606	200	806
	TOTAL	2608	869	3477	4354	2219	6573
	Actual Change				**1746**	**1350**	**3096**
	Percent Change				**67%**	**155%**	**89%**
Taiban	AC-130H	0	0	0	811	437	1248
	MC-130H	0	0	0	507	273	780
	MC-130P	0	0	0	507	273	780
	MC-130W	0	0	0	507	273	780
	CV-22	0	0	0	813	438	1251
	C-47 (DC-3)	0	0	0	148	80	228
	UH-1	0	0	0	107	57	164
	NSA[1] (GA Single Engine Prop)	0	0	0	593	319	912
	F-16	1779	602	2381	0	0	0
	Transient (F-16)	1170	300	1470	1170	300	1470
	TOTAL	2949	902	3851	5163	2450	7613
	Actual Change				**2214**	**1548**	**3762**
	Percent Change				**75%**	**172%**	**98%**
Bronco (1, 2, 3 and 4)	AC-130H	0	0	0	169	91	260
	MC-130H	0	0	0	169	91	260
	MC-130P	0	0	0	169	91	260
	MC-130W	0	0	0	169	91	260
	CV-22	0	0	0	0	0	0
	C-47 (DC-3)	0	0	0	0	0	0
	UH-1	0	0	0	0	0	0
	NSA[1] (GA Single Engine Prop)	0	0	0	0	0	0
	F-16	777	188	965	0	0	0
	Transient (F-16)	150	85	235	150	85	235
	TOTAL	927	273	1200	826	449	1275
	Actual Change				**-101**	**176**	**75**
	Percent Change				**-11%**	**64%**	**6%**

[1]NSA = Non Standard Aircraft

TABLE E-4. FLIGHT PROFILES AND ALTITUDE DISTRIBUTIONS FOR MILITARY OPERATIONS AREAS

Military Operations Area	Aircraft Type (Modeled as)	Average Profile (Modeled as)			Average Altitude Distribution (Estimated feet AGL)					
		Power Setting	Speed (KIAS)	Sortie Duration (minutes)	500-1000	1000-2000	1500-2000	2000-5000	5000-10000	10000 and over
Mt Dora (North, East, West)	AC-130H	850 CTIT	180	60				10%	80%	10%
	MC-130H	850 CTIT	180	60			70%	10%	10%	10%
	MC-130P	850 CTIT	180	60			70%	10%	10%	10%
	MC-130W	850 CTIT	180	60			70%	10%	10%	10%
	CV-22	70% Q	110	60			70%	10%	10%	10%
	C-47 (DC-3)[1]	(120.5%CNT)	160	60			70%	10%	10%	10%
	UH-1	N/A	80	60			90%	10%		
	NSA[2,3] (GA Single Engine Prop)	(95%CNT)	150	60			70%	10%	10%	10%
	F-16	94%NC	465	25			6%	5%	40%	49%
	Transient (F-16)	94%NC	465	25			6%	5%	40%	49%
Pecos (North and South)	AC-130H	850 CTIT	180	60				10%	80%	10%
	MC-130H	850 CTIT	180	60	40%	30%		10%	10%	10%
	MC-130P	850 CTIT	180	60	40%	30%		10%	10%	10%
	MC-130W	850 CTIT	180	60	40%	30%		10%	10%	10%
	CV-22	70% Q	110	60	50%	30%		20%		
	C-47 (DC-3)[1]	(120.5%CNT)	160	60	10%	25%		25%	25%	15%
	UH-1	N/A	80	60	70%	15%		10%	5%	
	NSA[2,3] (GA Single Engine Prop)	(95%CNT)	150	60	10%	25%		25%	25%	15%
	F-16	94%NC	465	25	1%	5%		5%	40%	49%
	Transient (F-16)	94%NC	465	25	1%	5%		5%	40%	49%
Taiban	AC-130H	850 CTIT	180	60				10%	80%	10%
	MC-130H	850 CTIT	180	60	40%	30%		10%	10%	10%
	MC-130P	850 CTIT	180	60	40%	30%		10%	10%	10%
	MC-130W	850 CTIT	180	60	40%	30%		10%	10%	10%
	CV-22	70% Q	110	60	50%	30%		20%		
	C-47 (DC-3)[1]	(120.5%CNT)	160	60	10%	25%		25%	25%	15%
	UH-1	N/A	80	60	70%	15%		10%	5%	
	NSA[2,3] (GA Single Engine Prop)	(95%CNT)	150	60	10%	25%		25%	25%	15%
	F-16	94%NC	465	25	1%	5%		5%	40%	49%
	Transient (F-16)	94%NC	465	25	1%	5%		5%	40%	49%
Bronco (1, 2, 3 and 4)	AC-130H	850 CTIT	180	60					80%	20%
	MC-130H	850 CTIT	180	60					80%	20%
	MC-130P	850 CTIT	180	60					80%	20%
	MC-130W	850 CTIT	180	60					80%	20%
	CV-22	70% Q	110	60					80%	20%
	C-47 (DC-3)[1]	(120.5%CNT)	160	60					80%	20%
	UH-1	N/A	80	60					80%	20%
	NSA[2,3] (GA Single Engine Prop)	(95%CNT)	150	60					80%	20%
	F-16	94%NC	465	25					40%	60%
	Transient (F-16)	94%NC	465	25					40%	60%

[1]DC-3 noise data estimated using the Integrated Noise Model
[2]GA Single Engine Prop noise data estimated using the Integrated Noise Model
[3]NSA = Non Standard Aircraft
KIAS - Knots Indicated Airspeed
C TIT - Turbine Inlet Temperature in degrees centigrade
Q - Torque
NC - Compressor Speed
CNT - Corrected Net Thrust
Sub-area sorties are proportional to their area in square feet

TABLE E-5. SORTIES ON MILITARY TRAINING ROUTES (PAGE 1 OF 2)

Military Training Routes	Aircraft Type (Modeled as)	Baseline			Proposed Action		
		0700-2200	2200-0700	Total	0700-2200	2200-0700	Total
IR-107	AC-130H	0	0	0	0	0	0
	MC-130H	0	0	0	154	102	256
	MC-130P	0	0	0	154	102	256
	MC-130W	0	0	0	154	102	256
	CV-22	0	0	0	307	205	512
	C-47 (DC-3)	0	0	0	0	0	0
	UH-1	0	0	0	0	0	0
	NSA[1] (GA Single Engine Prop)	0	0	0	0	0	0
	F-16	7	0	7	0	0	0
	Transient (F-16)	6	0	6	6	0	6
	TOTAL	13	0	13	775	511	1286
	Actual Change				**762**	**511**	**1273**
	Percent Change				**5862%**	**N/A**	**9792%**
IR-109	AC-130H	0	0	0	0	0	0
	MC-130H	0	0	0	154	102	256
	MC-130P	0	0	0	154	102	256
	MC-130W	0	0	0	154	102	256
	CV-22	0	0	0	307	205	512
	C-47 (DC-3)	0	0	0	0	0	0
	UH-1	0	0	0	0	0	0
	NSA[1] (GA Single Engine Prop)	0	0	0	0	0	0
	F-16	53	0	53	0	0	0
	Transient (F-16)	19	0	19	19	0	19
	TOTAL	72	0	72	788	511	1299
	Actual Change				**716**	**511**	**1227**
	Percent Change				**994%**	**N/A**	**1704%**
IR-111	AC-130H	2	1	3	0	0	0
	MC-130H	0	0	0	154	102	256
	MC-130P	0	0	0	154	102	256
	MC-130W	0	0	0	154	102	256
	CV-22	0	0	0	307	205	512
	C-47 (DC-3)	0	0	0	0	0	0
	UH-1	0	0	0	0	0	0
	NSA[1] (GA Single Engine Prop)	0	0	0	0	0	0
	F-16	11	0	11	0	0	0
	Transient (F-16)	11	0	11	11	0	11
	TOTAL	24	1	25	780	511	1291
	Actual Change				**756**	**510**	**1266**
	Percent Change				**3150%**	**51000%**	**5064%**
IR-113	AC-130H	0	0	0	0	0	0
	MC-130H	0	0	0	30	20	50
	MC-130P	0	0	0	30	20	50
	MC-130W	0	0	0	30	20	50
	CV-22	0	0	0	30	20	50
	C-47 (DC-3)	0	0	0	0	0	0
	UH-1	0	0	0	0	0	0
	NSA[1] (GA Single Engine Prop)	0	0	0	0	0	0
	F-16	20	0	20	0	0	0
	Transient (F-16)	25	0	25	25	0	25
	TOTAL	45	0	45	145	80	225
	Actual Change				**100**	**80**	**180**
	Percent Change				**222%**	**N/A**	**400%**

TABLE E-5. SORTIES ON MILITARY TRAINING ROUTES (PAGE 2 OF 2)

Military Training Routes	Aircraft Type (Modeled as)	Baseline			Proposed Action		
		0700-2200	2200-0700	Total	0700-2200	2200-0700	Total
VR-100	AC-130H	0	0	0	0	0	0
	MC-130H	0	0	0	154	102	256
	MC-130P	0	0	0	154	102	256
	MC-130W	0	0	0	154	102	256
	CV-22	0	0	0	307	205	512
	C-47 (DC-3)	0	0	0	0	0	0
	UH-1	0	0	0	0	0	0
	NSA[1] (GA Single Engine Prop)	0	0	0	60	40	100
	F-16	263	0	263	0	0	0
	Transient (F-16)	60	0	60	60	0	60
	TOTAL	323	0	323	889	551	1440
	Actual Change				**566**	**551**	**1117**
	Percent Change				**175%**	**N/A**	**346%**
VR-108	AC-130H	0	0	0	0	0	0
	MC-130H	0	0	0	154	102	256
	MC-130P	0	0	0	154	102	256
	MC-130W	0	0	0	154	102	256
	CV-22	0	0	0	307	205	512
	C-47 (DC-3)	0	0	0	0	0	0
	UH-1	0	0	0	0	0	0
	NSA[1] (GA Single Engine Prop)	0	0	0	60	40	100
	F-16	61	0	61	0	0	0
	Transient (F-16)	19	0	19	19	0	19
	TOTAL	80	0	80	848	551	1399
	Actual Change				**768**	**551**	**1319**
	Percent Change				**960%**	**N/A**	**1649%**
VR-114	AC-130H	0	0	0	0	0	0
	MC-130H	0	0	0	154	102	256
	MC-130P	0	0	0	154	102	256
	MC-130W	0	0	0	154	102	256
	CV-22	0	0	0	307	205	512
	C-47 (DC-3)	0	0	0	0	0	0
	UH-1	0	0	0	0	0	0
	NSA[1] (GA Single Engine Prop)	0	0	0	60	40	100
	F-16	436	0	436	0	0	0
	Transient (F-16)	37	0	37	37	0	37
	TOTAL	473	0	473	866	551	1417
	Actual Change				**393**	**551**	**944**
	Percent Change				**83%**	**N/A**	**200%**
VR-125	AC-130H	0	0	0	0	0	0
	MC-130H	0	0	0	154	102	256
	MC-130P	0	0	0	154	102	256
	MC-130W	0	0	0	154	102	256
	CV-22	0	0	0	307	205	512
	C-47 (DC-3)	0	0	0	0	0	0
	UH-1	0	0	0	0	0	0
	NSA[1] (GA Single Engine Prop)	0	0	0	60	40	100
	F-16	110	0	110	0	0	0
	Transient (F-16)	18	0	18	18	0	18
	TOTAL	128	0	128	847	551	1398
	Actual Change				**719**	**551**	**1270**
	Percent Change				**562%**	**N/A**	**992%**

[1]NSA = Non Standard Aircraft

TABLE E-6. FLIGHT PROFILES AND ALTITUDE DISTRIBUTIONS FOR MILITARY TRAINING ROUTES

Military Training Routes	Aircraft Type (Modeled as)	Average Profile (Modeled as)		Average Altitude Distribution (Estimated feet AGL)				
		Power Setting	Speed (KIAS)	100-250	250-500	500-1000	1000-2000	2000-5000
IR-107, IR-109, IR-111, VR-100, VR-108, VR-114, VR-125	AC-130H	850 CTIT	220	4%	60%	16%	10%	10%
	MC-130H	850 CTIT	220	4%	60%	16%	10%	10%
	MC-130P	850 CTIT	220	4%	60%	16%	10%	10%
	MC-130W	850 CTIT	220	4%	60%	16%	10%	10%
	CV-22	70% Q	210			80%	10%	10%
	C-47 (DC-3)[1]	(120.5%CNT)	160			80%	10%	10%
	UH-1	N/A	80			80%	10%	10%
	NSA[2,3] (GA Single Engine Prop)	(95%CNT)	150			80%	10%	10%
	F-16	94%NC	465			80%	10%	10%
	Transient (F-16)	94%NC	465			80%	10%	10%

[1]DC-3 noise data estimated using the Integrated Noise Model
[2]GA Single Engine Prop noise data estimated using the Integrated Noise Model
[3]NSA = Non Standard Aircraft
KIAS - Knots Indicated Airspeed
C TIT - Turbine Inlet Temperature in degrees centigrade
Q - Torque
NC - Compressor Speed
CNT - Corrected Net Thrust

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APPENDIX F
NOISE ANALYSIS

APPENDIX F NOISE ANALYSIS

Noise is generally described as unwanted sound. Unwanted sound can be based on objective effects (such as hearing loss or damage to structures) or subjective judgments (community annoyance). Noise analysis thus requires a combination of physical measurement of sound, physical and physiological effects, plus psycho- and socio-acoustic effects.

Section 1.0 of this appendix describes how sound is measured and summarizes noise impact in terms of community acceptability and land use compatibility. Section 2.0 of this appendix gives detailed descriptions of the effects of noise that lead to the impact guidelines presented in section 1.0. Section 3.0 of this appendix provides a description of the specific methods used to predict aircraft noise, including a detailed description of sonic booms.

1.0 NOISE DESCRIPTORS AND IMPACT

AFSOC aircraft operating in the training airspace generate noise, which is continuous sound generated by the aircraft's engines and also by air flowing over the aircraft itself. Aircraft practicing air-to-ground gunnery will also produce impulsive sounds generated by munitions, both from the firing of the ordnance and its detonation if it contains a high explosive charge. Continuous or impulsive sounds are quantified in different ways.

Section 1.1 of this appendix describes the characteristics that are used to describe sound. Section 1.2 of this appendix describes the specific noise metrics used for noise impact analysis. Section 1.3 of this appendix describes how environmental impact and land use compatibility are judged in terms of these quantities.

1.1 Quantifying Sound

Measurement and perception of sound involve two basic physical characteristics: amplitude and frequency. Amplitude is a measure of the strength of the sound and is directly measured in terms of the pressure of a sound wave. Because sound pressure varies in time, various types of pressure averages are usually used. Frequency, commonly perceived as pitch, is the number of times per second the sound causes air molecules to oscillate. Frequency is measured in units of cycles per second, or hertz (Hz).

Amplitude. The loudest sounds the human ear can comfortably hear have acoustic energy one trillion times the acoustic energy of sounds the ear can barely detect. Because of this vast range, attempts to represent sound amplitude by pressure are generally unwieldy. Sound is, therefore, usually represented on a logarithmic scale with a unit called the decibel (dB). Sound on the decibel scale is referred to as a sound level. The threshold of human hearing is approximately 0 dB, and the threshold of discomfort or pain is around 120 dB.

Because of the logarithmic nature of the decibel scale, sounds levels do not add and subtract directly and are somewhat cumbersome to handle mathematically. However, some simple rules of thumb are useful in dealing with sound levels. First, if a sound's intensity is doubled, the sound level increases by approximately 3 dB, regardless of the initial sound level. Thus, for example:

60 dB + 60 dB = 63 dB, and

80 dB + 80 dB = 83 dB.

The total sound level produced by two sounds of different levels is usually only slightly more than the higher of the two. For example:

60.0 dB + 70.0 dB = 70.4 dB.

Because the addition of sound levels behaves differently than that of ordinary numbers, such addition is often referred to as "decibel addition" or "energy addition." The latter term arises from the fact that combination of decibel values consists of first converting each decibel value to its corresponding acoustic energy, then adding the energies using the normal rules of addition, and finally converting the total energy back to its decibel equivalent.

The difference in dB between two sounds represents the ratio of the amplitudes of those two sounds. Because human senses tend to be proportional (i.e., detect whether one sound is twice as big as another) rather than absolute (i.e., detect whether one sound is a given number of pressure units bigger than another), the decibel scale correlates well with human response.

Under laboratory conditions, differences in sound level of 1 dB can be detected by the human ear. In the community, the smallest change in average noise level that can be detected is about 3 dB. A change in sound level of about 10 dB is usually perceived by the average person as a doubling (or halving) of the sound's loudness, and this relation holds true for loud sounds and for quieter sounds. A decrease in sound level of 10 dB actually represents a 90 percent decrease in sound intensity but only a 50 percent decrease in perceived loudness because of the nonlinear response of the human ear (similar to most human senses).

The one exception to the exclusive use of levels, rather than physical pressure units, to quantify sound is in the case of impulsive sounds. As described in Section 3.0 of this appendix, impulsive sounds created by lightning, ordnance detonation or by an object creating a sonic boom are coherent waves with specific characteristics. There is a long-standing tradition of describing such individual sounds by the amplitude of the shock waves, in pounds per square foot (psf). This is particularly relevant when assessing structural effects as opposed to loudness or cumulative community response. In this study, impulsive sounds are quantified by either dB or psf, as appropriate for the particular impact being assessed.

Frequency. The normal human ear can hear frequencies from about 20 Hz to about 20,000 Hz. It is most sensitive to sounds in the 1,000 to 4,000 Hz range. When measuring community response to noise, it is common to adjust the frequency content of the measured sound to correspond to the frequency sensitivity of the human ear. This adjustment is called A-weighting (ANSI 1988). Sound levels that have been so adjusted are referred to as A-weighted sound levels. The amplitude of A-weighted sound levels is measured in dB. It is common for some noise analysts to denote the unit of A-weighted sounds by dBA. As long as the use of A-weighting is understood, there is no difference between dB or dBA: it is only important that the use of A-weighting be made clear. In this analysis, sound levels are reported in dB and are A-weighted unless otherwise specified.

A-weighting is appropriate for continuous sounds, which are perceived by the ear. Impulsive sounds, such as sonic booms or ordnance detonation, are perceived by more than just the ear. When experienced indoors, there can be secondary noise from rattling of the building. Vibrations may also be felt. C-weighting (ANSI 1988) is applied to such sounds. This is a frequency weighting that is flat over the range of human hearing (about 20 Hz to 20,000 Hz) and rolls off above and below that range. In this analysis, C-weighted sound levels are used for the assessment of impulsive sounds such as ordnance with high explosive charges. As with A-weighting, the unit is dB, but dBC is sometimes used for clarity. In this analysis, sound levels are reported in dB, and C-weighting is specified as necessary (e.g., when discussing noise effects from high explosive ordnance detonation).

Time Averaging. Sound pressure of a continuous sound varies greatly with time, so it is customary to deal with sound levels that represent averages over time. Levels presented as instantaneous (i.e., as might be read from the dial of a sound level meter) are based on averages of sound energy over either 1/8 second (fast) or 1 second (slow). The formal definitions of fast and slow levels are somewhat complex, with details that are important to the makers and users of instrumentation. They may, however, be thought of as levels corresponding to the root-mean-square sound pressure measured over the 1/8-second or 1-second periods.

The most common uses of the fast or slow sound level in environmental analysis are in the discussion of the maximum sound level that occurs from the action, and in discussions of typical sound levels. Figure F-1 is a chart of A-weighted sound levels from typical sounds. Some (air conditioner, vacuum cleaner) are continuous sounds whose levels are constant for some time. Some (automobile, heavy truck) are the maximum sound during a vehicle passby. Some (urban daytime, urban nighttime) are averages over some extended period. A variety of noise metrics have been developed to describe noise over different time periods. These are described in Section 1.2 of this appendix.

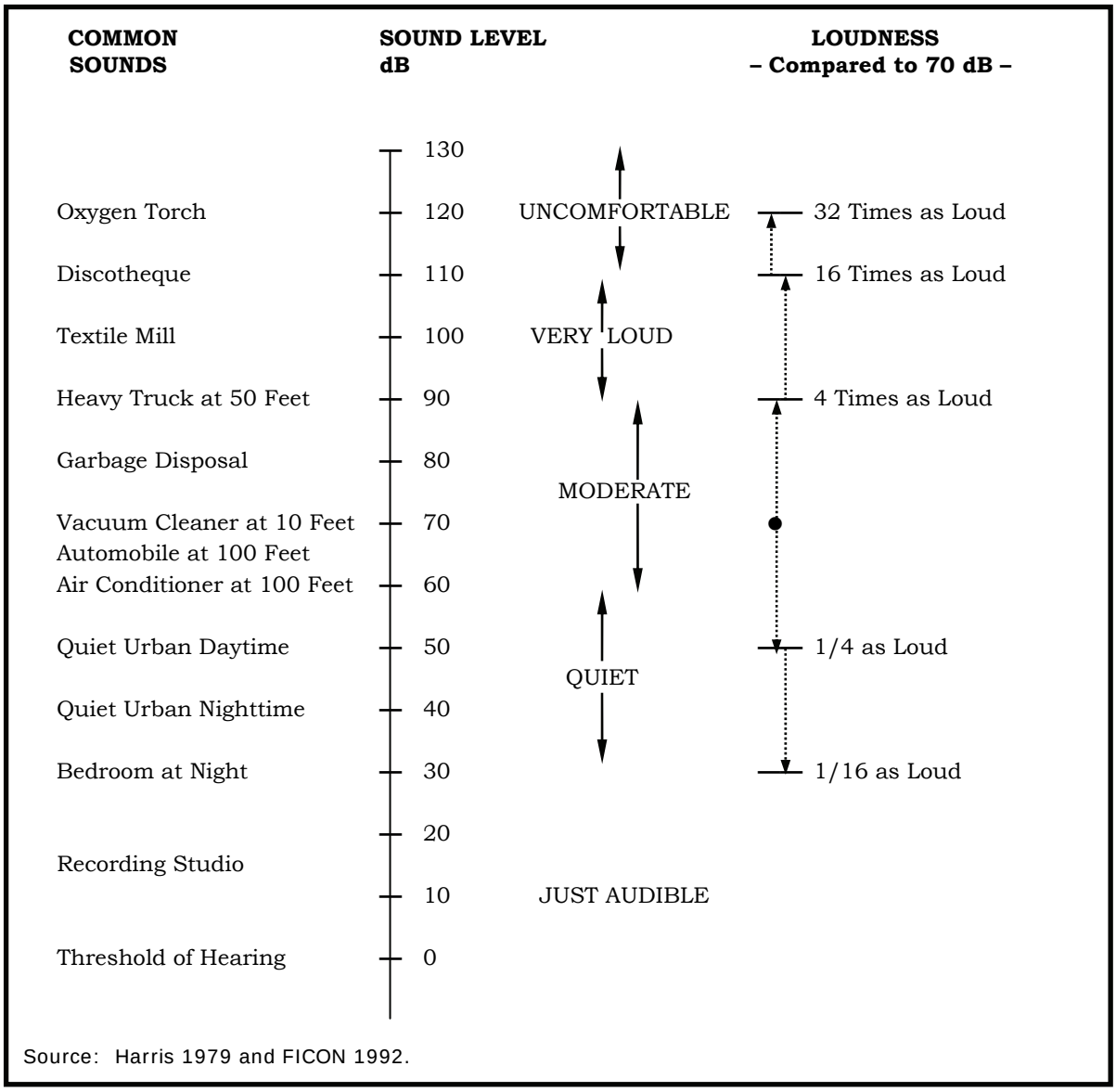
1.2 Noise Metrics

Maximum Sound Level

The highest A-weighted sound level measured during a single event in which the sound level changes value as time goes on (e.g., an aircraft overflight) is called the maximum A-weighted sound level or maximum sound level, for short. It is usually abbreviated by ALM, L_{max}, or L_{Amax}. The maximum sound level is important in judging the interference caused by a noise event with conversation, TV or radio listening, sleeping, or other common activities.

Peak Sound Level

For impulsive sounds, the true instantaneous sound pressure is of interest. For sonic booms, this is the peak pressure of the shock wave, as described in Section 3.2 of this appendix. This pressure is usually presented in physical units of pounds per square foot. Sometimes it is represented on the decibel scale, with symbol L_{pk}, and it is the U.S. Army's metric of choice for comparing impulsive noise sources such as the firing of large weapon systems and the detonation of high explosive charges. L_{pk} is the highest instantaneous level obtained by a sound level measurement device. Peak sound levels do not use either A or C weighting.



Source: Harris 1979 and FICON 1992.

FIGURE F-1. TYPICAL A-WEIGHTED SOUND LEVELS OF COMMON SOUNDS

Sound Exposure Level

Individual time-varying noise events have two main characteristics: a sound level that changes throughout the event and a period of time during which the event is heard. Although the maximum sound level, described above, provides some measure of the intrusiveness of the event, it alone does not completely describe the total event. The period of time during which the sound is heard is also significant. The Sound Exposure Level (abbreviated SEL or L_{AE} for A-weighted sounds) combines both of these characteristics into a single metric.

SEL is a composite metric that represents both the intensity of a sound and its duration. Mathematically, the mean square sound pressure is computed over the duration of the event, then multiplied by the duration in seconds, and the resultant product is turned into a sound level. It does not directly represent the sound level heard at any given time, but rather provides a measure of the net impact of the entire acoustic event. It has been well established in the scientific community that SEL measures this impact much more reliably than just the maximum sound level.

Because the SEL and the maximum sound level are both used to describe single events, there is sometimes confusion between the two, so the specific metric used should be clearly stated.

SEL can be computed for C-weighted levels (appropriate for impulsive sounds), and the results denoted CSEL or L_{CE}. SEL for A-weighted sound is sometimes denoted ASEL. Within this analysis, SEL is used for A-weighted sounds and CSEL for C-weighted.

Equivalent Sound Level

For longer periods of time, total sound is represented by the equivalent continuous sound pressure level (L_{eq}). L_{eq} is the average sound level over some time period (often an hour or a day, but any explicit time span can be specified), with the averaging being done on the same energy basis as used for SEL. SEL and L_{eq} are closely related, differing by (a) whether they are applied over a specific time period or over an event, and (b) whether the duration of the event is included or divided out.

Just as SEL has proven to be a good measure of the noise impact of a single event, L_{eq} has been established to be a good measure of the impact of a series of events during a given time period. Also, while L_{eq} is defined as an average, it is effectively a sum over that time period and is, thus, a measure of the cumulative impact of noise.

Day-Night Average Sound Level

Noise tends to be more intrusive at night than during the day. This effect is accounted for by applying a 10-dB penalty to events that occur after 10 pm and before 7 am. If L_{eq} is computed over a 24-hour period with this nighttime penalty applied, the result is the day-night average sound level (DNL or L_{dn}). DNL is the community noise metric recommended by the USEPA (USEPA 1974) and has been adopted by most federal agencies (FICON 1992). It has been well established that DNL correlates well with community response to noise (Schultz 1978; Finegold *et al.* 1994). This correlation is presented in Section 1.3 of this appendix.

While DNL carries the nomenclature "average," it incorporates all of the noise at a given location. For this reason, DNL is often referred to as a "cumulative" metric. It accounts for the total, or cumulative, noise impact.

It was noted earlier that, for impulsive sounds, C-weighting is more appropriate than A-weighting. The day-night average sound level can be computed for C-weighted noise and is denoted CDNL or L_{Cdn}. This procedure has been standardized, and impact interpretive criteria similar to those for DNL have been developed (CHABA 1981).

Onset-Adjusted Monthly Day-Night Average Sound Level

Aircraft operations in military airspace, such as MOAs and Warning Areas, generate a noise environment somewhat different from other community noise environments. Overflights are sporadic, occurring at random times and varying from day to day and week to week. This situation differs from most community noise environments, in which noise tends to be continuous or patterned. Individual military overflight events also differ from typical community noise events in that noise from a low-altitude, high-airspeed flyover can have a rather sudden onset.

To represent these differences, the conventional DNL metric is adjusted to account for the "surprise" effect of the sudden onset of aircraft noise events on humans (Plotkin *et al.* 1987; Stusnick *et al.* 1992; Stusnick *et al.* 1993). For aircraft exhibiting a rate of increase in sound level (called onset rate) of from 15 to 150 dB per second, an adjustment or penalty ranging from 0 to 11 dB is added to the normal SEL. Onset rates above 150 dB per second require an 11 dB penalty, while onset rates below 15 dB per second require no adjustment. The DNL is then determined in the same manner as for conventional aircraft noise events and is designated as Onset-Rate Adjusted Day-Night Average Sound Level (abbreviated L_{dnmr}). Because of the irregular occurrences of aircraft operations, the number of average daily operations is determined by using the calendar month with the highest number of operations. The monthly average is denoted L_{dnmr}. Noise levels are calculated the same way for both DNL and L_{dnmr}. L_{dnmr} is interpreted by the same criteria as used for DNL.

1.3 Noise Impact

Community Reaction

Studies of community annoyance to numerous types of environmental noise show that DNL correlates well with impact. Schultz (1978) showed a consistent relationship between DNL and annoyance. Shultz's original curve fit (Figure F-2) shows that there is a remarkable consistency in results of attitudinal surveys which relate the percentages of groups of people who express various degrees of annoyance when exposed to different DNLs.

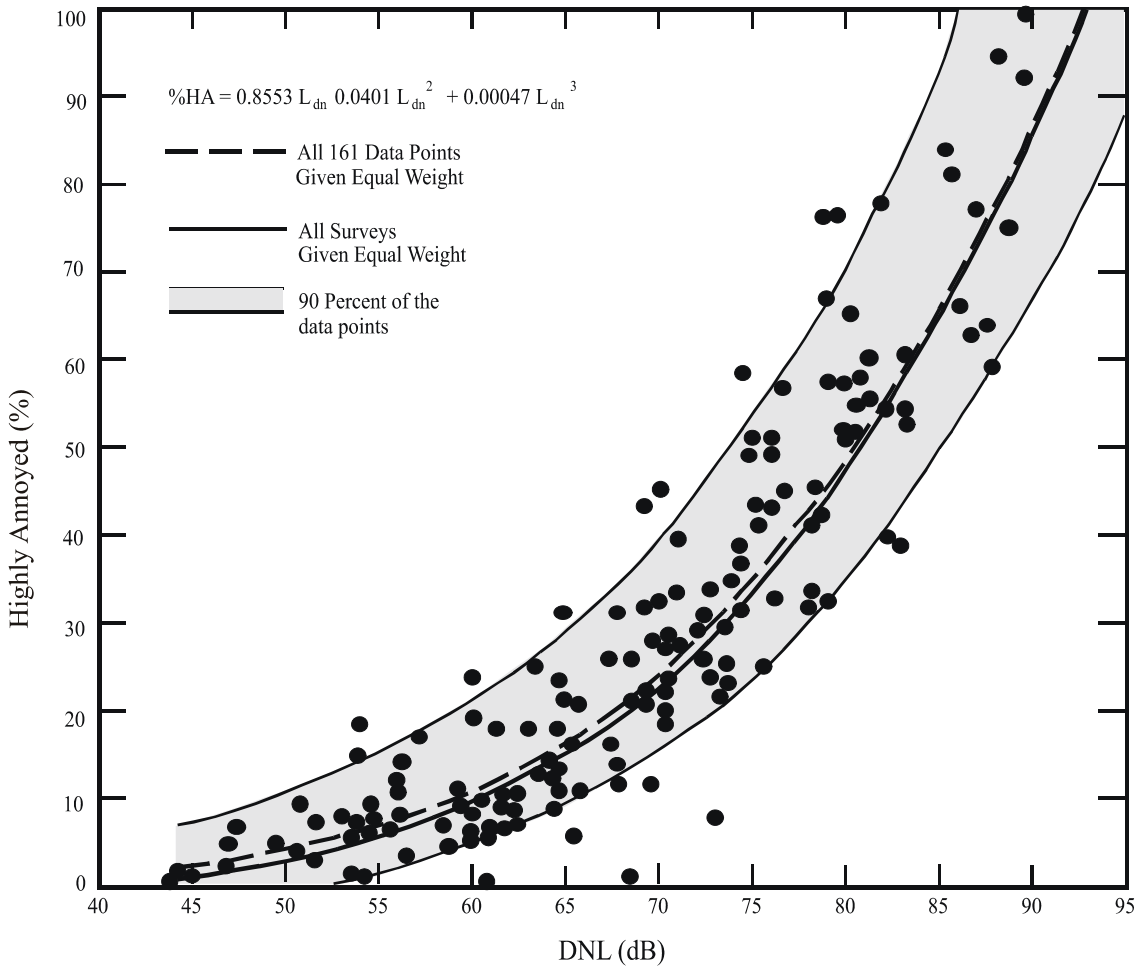


Figure F-2. Community Surveys of Noise Annoyance (Source: Schultz 1978)

A more recent study has reaffirmed this relationship (Fidell *et al.* 1991). Figure F-3 (FICON 1992) shows an updated form of the curve fit (Finegold *et al.* 1994) in comparison with the original. The updated fit, which does not differ substantially from the original, is the current preferred form. In general, correlation coefficients of 0.85 to 0.95 are found between the percentages of groups of people highly annoyed and the level of average noise exposure. The correlation coefficients for the annoyance of individuals are relatively low, however, on the order of 0.5 or less. This is not surprising, considering the varying personal factors that influence the manner in which individuals react to noise. Nevertheless, findings substantiate that community annoyance to aircraft noise is represented quite reliably using DNL.

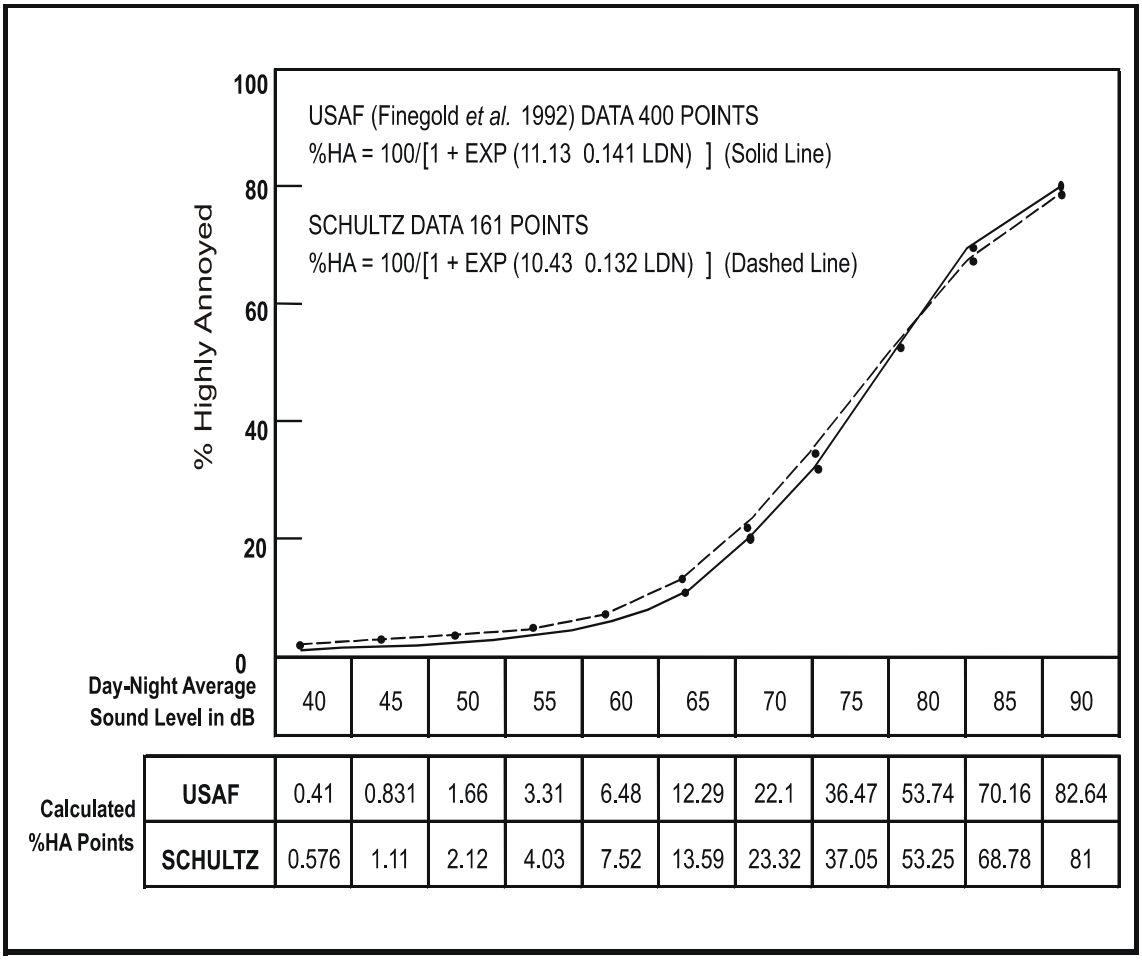
As noted earlier for SEL, DNL does not represent the sound level heard at any particular time, but rather represents the total sound exposure. DNL accounts for the sound level of individual noise events, the duration of those events, and the number of events. Its use is endorsed by the scientific community (ANSI 1980; ANSI 1988; USEPA 1974; FICUN 1980; FICON 1992).

While DNL is the best metric for quantitatively assessing cumulative noise impact, it does not lend itself to intuitive interpretation by non-experts. Accordingly, it is common for environmental noise analyses to include other metrics for illustrative purposes. A general indication of the noise environment can be presented by noting the maximum sound levels that can occur and the number of times per day noise events will be loud enough to be heard. Use of other metrics as supplements to DNL has been endorsed by federal agencies (FICON 1992).

The Schultz curve is generally applied to annual average DNL. In Section 1.2 of this appendix, L_{dnmr} was described and presented as being appropriate for quantifying noise in military airspace. The Schultz curve is used with L_{dnmr} as the noise metric. L_{dnmr} is always equal to or greater than DNL, so impact is generally higher than would have been predicted if the onset rate and busiest-month adjustments were not accounted for.

There are several points of interest in the noise-annoyance relation. The first is DNL of 65 dB. This is a level most commonly used for noise planning purposes and represents a compromise between community impact and the need for activities like aviation which do cause noise. Areas exposed to DNL above 65 dB are generally not considered suitable for residential use. The second is DNL of 55 dB, which was identified by USEPA as a level "...requisite to protect the public health and welfare with an adequate margin of safety," (USEPA 1974) which is essentially a level below which adverse impact is not expected. The third is DNL of 75 dB. This is the lowest level at which adverse health effects could be credible (USEPA 1974). The very high annoyance levels correlated with DNL of 75 dB make such areas unsuitable for residential land use.

Impulse noise exposure is measured by C-weighting, with the corresponding cumulative metric being CDNL. Correlation between CDNL and annoyance has been established, based on community reaction to impulsive sounds (CHABA 1981). Values of the C-weighted equivalent to the Schultz curve are different than that of the Schultz curve itself. Table F-1 shows the relation between annoyance, DNL, and CDNL.



Day-Night Average Sound Level in dB		40	45	50	55	60	65	70	75	80	85	90
Calculated %HA Points	USAF	0.41	0.831	1.66	3.31	6.48	12.29	22.1	36.47	53.74	70.16	82.64
	SCHULTZ	0.576	1.11	2.12	4.03	7.52	13.59	23.32	37.05	53.25	68.78	81

Figure F-3. Response of Communities to Noise; Comparison of Original (Schultz 1978) and Current (Finegold et al. 1994) Curve Fits.

Table F-1. Relation Between Annoyance, DNL and CDNL		
CDNL	*% Highly Annoyed*	*DNL*
48	2	50
52	4	55
57	8	60
61	14	65
65	23	70
69	35	75

Interpretation of CDNL from impulsive noise is accomplished by using the CDNL versus annoyance values in Table F-1. CDNL can be interpreted in terms of an "equivalent annoyance" DNL. For example, CDNL of 52, 61, and 69 dB are equivalent to DNL of 55, 65, and 75 dB, respectively. If both continuous and impulsive noise occurs in the same area, impacts are assessed separately for each.

Two curves are presented in Figure F-4 for relating long-term average C- and A-weighted sound levels with community annoyance and therefore to noise zones as defined for land use planning. The curve in red relates exposures to high-energy impulsive sounds expressed in terms of C weighted DNL to community annoyance. The curve is based on social surveys conducted in 1980 and recommended in the 1981 CHABA report (CHABA, 1981). The blue curve relates DNL (A-weighted sound levels) 1 to community annoyance and is the 1978 Shultz curve for general transportation noise. The Shultz curve is the recommended relationship for assessing general noise impacts to the community (endorsed and recommended by FICON in 1992). The red curve shows 15 percent of the population would be expected to be highly annoyed at a C weighted DNL of 62 dB, while the blue curve shows roughly the same amount of annoyance at a DNL of 65 dB.

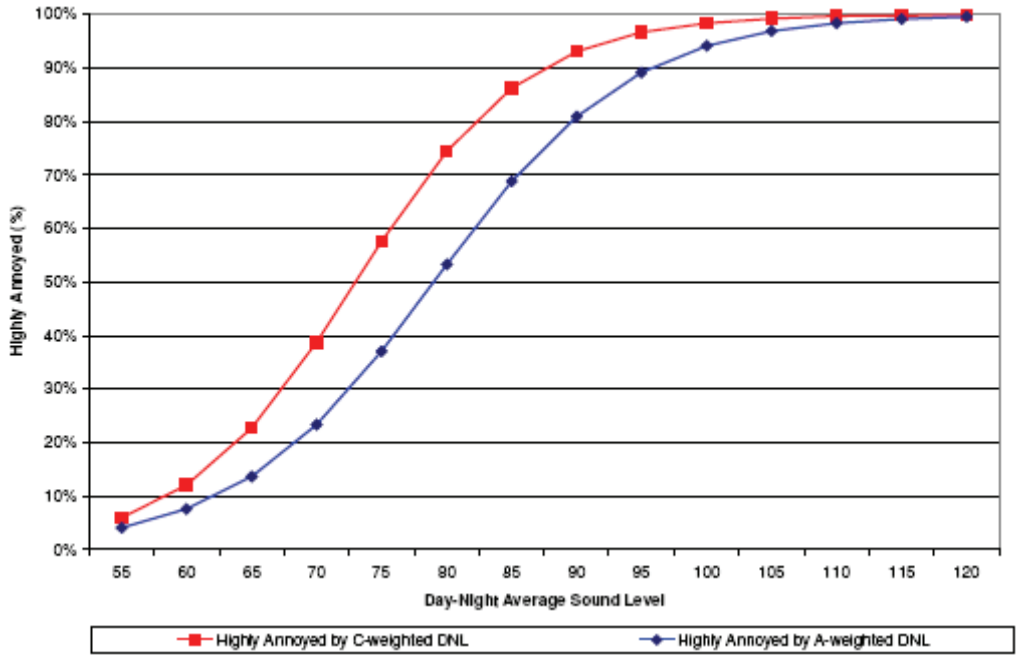


FIGURE F-4. SURVEY FINDINGS OF THE PREVALENCE OF ANNOYANCE ASSOCIATED WITH EXPOSURE TO BOTH HIGH-ENERGY IMPULSIVE SOUNDS AND TRANSPORTATION-RELATED NOISE

Noise exposure is generally divided into three categories as follows:

- Noise Zone I: Defined as an area of minimal impact refers to DNL values less than 65 dBA or C-weighted DNL values less than 62 dBC. This is also an area where social surveys show less than 15 percent of the population would be expected to be highly annoyed.
- Noise Zone II: Defined as an area of moderate impact, refers to DNL values between 65 dBA and 75 dBA or C-weighted DNL values between 62 dBC and 70 dBC. This is the area where social surveys show between 15 percent and 39 percent of the population would be expected to be highly annoyed.
- Noise Zone III: Defined as an area of most severe impact, refers to DNL values greater than 75 dBA or C-weighted DNL values greater than 70 dBC. This is the area where social surveys show greater than 39 percent of the population would be expected to be highly annoyed.

LAND USE COMPATIBILITY

As noted above, the inherent variability between individuals makes it impossible to predict accurately how any individual will react to a given noise event. Nevertheless, when a community is considered as a whole, its overall reaction to noise can be represented with a high degree of confidence. As described above, the best noise exposure metric for this correlation is the DNL or L_{dnmr} for military overflights. Impulsive noise can be assessed by relating CDNL to an "equivalent annoyance" DNL, as outlined in Section 1.3.1 of this appendix.

In June 1980, an ad hoc Federal Interagency Committee on Urban Noise (FICUN) published guidelines (FICUN 1980) relating DNL to compatible land uses. This committee was composed of representatives from DoD, Transportation, and Housing and Urban Development; USEPA; and the Veterans Administration. Since the issuance of these guidelines, federal agencies have generally adopted these guidelines as a goal and as a point of reference in noise analysis. In many cases, reaching complete land use compatibility, in accordance with these guidelines is not practicable given the close proximity of military training to noise sensitive land uses.

Following the lead of the committee, DoD and FAA adopted the concept of land-use compatibility as the accepted measure of aircraft noise effect. The FAA included the committee's guidelines in the Federal Aviation Regulations (USDOT 1984). These guidelines are reprinted in Table F-2, along with the explanatory notes included in the regulation. Although these guidelines are not mandatory (note the footnote "*" in the table), they provide the best means for determining noise impact in airport communities. Impacts related to the creation of additional incompatible land use must be assessed on a case by case basis for significance. In general, residential land uses normally are not compatible with outdoor DNL values above 65 dB, and the extent of land areas and populations exposed to DNL of 65 dB and higher provides the best means for assessing the noise impacts of alternative aircraft actions. In some cases, where noise change exceeds 3 dB, the 1992 FICON indicates the 60 dB DNL may be a more appropriate incompatibility level for densely populated areas.

The DoD maintains the Air Installation Compatible Use Zone (AICUZ) program to address incompatible development or encroachment around military airfields. The goal of the AICUZ program is to promote compatible land use through participation in local, regional, state and federal land use planning processes. DoD Instruction 4165.57 establishes and requires the military departments to develop, implement and maintain an AICUZ program for installations with flying operations. AFI 32-7063 sets forth the policy , responsibilities and requirements for the program. Air Force Handbook 32-7084 provides major command and base level Commanders and managers an overview of the program. The AICUZ program was implemented in 1973 and adopted the NOISEMAP to describe noise impacts created by military aircraft operations. The program incorporated the 1974 USEPA designation of the noise descriptor DNL and subsequently the guidelines described above and depicted in Table F-2.

2.0 NOISE EFFECTS

The discussion in Section 1.3 of this appendix presents the global effect of noise on communities. The following sections describe particular noise effects.

2.1 Hearing Loss

Noise-induced hearing loss is probably the best defined of the potential effects of human exposure to excessive noise. Federal workplace standards for protection from hearing loss allow a time-average level of 90 dB over an 8-hour work period, or 85 dB averaged over a 16-hour period. Even the most protective criterion (no measurable hearing loss for the most sensitive portion of the population at the ear's most sensitive frequency, 4,000 Hz, after a 40-year exposure) suggests a time-average sound level of 70 dB over a 24-hour period (USEPA 1974). Since it is unlikely that airport neighbors will remain outside their homes 24 hours per day for extended periods of time, there is little possibility of hearing loss below a DNL of 75 dB, and this level is extremely conservative.

Table F-2. Land-Use Compatibility With Yearly Day-Night Average Sound Levels

Land Use	Yearly Day-Night Average Sound Level (DNL) in Decibels					
	Below 65	**65–70**	**70–75**	**75–80**	**80–85**	**Over 85**
Residential						
Residential, other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)	N(1)	N	**N**	**N**
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoria, and concert halls	Y	25	30	N	N	N
Government services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial Use						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail—building materials, hardware, and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade—general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing, general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts, and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

Numbers in parentheses refer to notes.

* The designations contained in this table do not constitute a federal determination that any use of land covered by the program is acceptable or unacceptable under federal, state, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise-compatible land uses.

KEY TO TABLE F-2

Y (YES) = Land Use and related structures compatible without restrictions.
N (No) = Land Use and related structures are not compatible and should be prohibited.
NLR = Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
25, 30, or 35 = Land Use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structures.

NOTES FOR TABLE F-2

(1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor-to-indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide an NLR of 20 dB; thus the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year-round. However, the use of NLR criteria will not eliminate outdoor noise problems.
(2) Measures to achieve NLR 25 dB 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.
(3) Measures to achieve NLR 30 dB 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.
(4) Measures to achieve NLR 35 dB 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.
(5) Land-use compatible provided special sound reinforcement systems are installed.
(6) Residential buildings require an NLR of 25 dB.
(7) Residential buildings require an NLR of 30 dB.
(8) Residential buildings not permitted.

2.2 Nonauditory Health Effects

Nonauditory health effects of long-term noise exposure, where noise may act as a risk factor, have not been found to occur at levels below those protective against noise-induced hearing loss, described above. Most studies attempting to clarify such health effects have found that noise exposure levels established for hearing protection will also protect against any potential nonauditory health effects, at least in workplace conditions. The best scientific summary of these findings is contained in the lead paper at the National Institutes of Health Conference on Noise and Hearing Loss, held on January 22–24, 1990, in Washington, D.C., which states "The nonauditory effects of chronic noise exposure, when noise is suspected to act as one of the risk factors in the development of hypertension, cardiovascular disease, and other nervous disorders, have never been proven to occur as chronic manifestations at levels below these criteria (an average of 75 dBA for complete protection against hearing loss for an eight-hour day)" (von Gierke 1990; parenthetical wording added for clarification). At the International Congress (1988) on Noise as a Public Health Problem, most studies attempting to clarify such health effects did not find them at levels below the criteria protective of noise-induced hearing loss; and even above these criteria, results regarding such health effects were ambiguous.

Consequently, it can be concluded that establishing and enforcing exposure levels protecting against noise-induced hearing loss would not only solve the noise-induced hearing loss problem but also any potential nonauditory health effects in the workplace.

Although these findings were directed specifically at noise effects in the workplace, they are equally applicable to aircraft noise effects in the community environment. Research studies regarding the nonauditory health effects of aircraft noise are ambiguous, at best, and often contradictory. Yet, even those studies that purport to find such health effects use time-average noise levels of 75 dB and higher for their research.

For example, in an often-quoted paper, two University of California at Los Angeles (UCLA) researchers found a relation between aircraft noise levels under the approach path to Los Angeles International Airport (LAX) and increased mortality rates among the exposed residents by using an average noise exposure level greater than 75 dB for the "noise-exposed" population (Meecham and Shaw 1979). Nevertheless, three other UCLA professors analyzed those same data and found no relation between noise exposure and mortality rates (Frerichs *et al*. 1980).

As a second example, two other UCLA researchers used this same population near LAX to show a higher rate of birth defects during the period of 1970 to 1972 when compared to a control group residing away from the airport (Jones and Tauscher 1978). Based on this report, a separate group at the United States Centers for Disease Control performed a more thorough study of populations near Atlanta's Hartsfield International Airport for 1970 to 1972 and found no relation in their study of 17 identified categories of birth defects to aircraft noise levels above 65 dB (Edmonds 1979).

A recent review of health effects, prepared by a Committee of the Health Council of The Netherlands (CHCN 1996), analyzed currently available published information on this topic. The committee concluded that the threshold for possible long-term health effects was a 16-hour (6:00 am to 10:00 pm) L_{eq} of 70 dB. Projecting this to 24 hours and applying the 10 dB nighttime

penalty used with DNL, this corresponds to DNL of about 75 dB. The study also affirmed the risk threshold for hearing loss, as discussed earlier.

In summary, there is no scientific basis for a claim that potential health effects exist for aircraft time-average sound levels below 75 dB.

2.3 Annoyance

The primary effect of aircraft noise on exposed communities is one of annoyance. Noise annoyance is defined by the USEPA as any negative subjective reaction on the part of an individual or group (USEPA 1974). As noted in the discussion of DNL above, community annoyance is best measured by that metric.

Because the USEPA Levels Document (USEPA 1974) identified DNL of 55 dB as ". . . requisite to protect public health and welfare with an adequate margin of safety," it is commonly assumed that 55 dB should be adopted as a criterion for community noise analysis. From a noise exposure perspective, that would be an ideal selection. However, financial and technical resources are generally not available to achieve that goal. Most agencies have identified DNL of 65 dB as a criterion that protects those most impacted by noise, and that can often be achieved on a practical basis (FICON 1992). This corresponds to about 13 percent of the exposed population being highly annoyed.

Although DNL of 65 dB is widely used as a benchmark for significant noise impact, and is often an acceptable compromise, it is not a statutory limit, and it is appropriate to consider other thresholds in particular cases.

In this EIS, no specific threshold is used. The noise in the affected environment is evaluated on the basis of the information presented in this appendix and in the body of the EIS.

Community annoyance from impulsive noise is based on CDNL, as discussed in Section 1.3 of this appendix. These effects are implicitly included in the "equivalent annoyance" CDNL values in Table F-1, since those were developed from actual community noise impact.

2.4 Speech Interference

Speech interference associated with aircraft noise is a primary cause of annoyance to individuals on the ground. The disruption of routine activities in the home, such as radio or television listening, telephone use, or family conversation, gives rise to frustration and irritation. The quality of speech communication is also important in classrooms, offices, and industrial settings and can cause fatigue and vocal strain in those who attempt to communicate over the noise. Research has shown that the use of the SEL metric will measure speech interference successfully, and that a SEL exceeding 65 dB will begin to interfere with speech communication.

2.5 Sleep Interference

Sleep interference is another source of annoyance associated with aircraft noise. This is especially true because of the intermittent nature and content of aircraft noise, which is more disturbing than continuous noise of equal energy and neutral meaning.

Sleep interference may be measured in either of two ways. "Arousal" represents actual awakening from sleep, while a change in "sleep stage" represents a shift from one of four sleep stages to another stage of lighter sleep without actual awakening. In general, arousal requires a somewhat higher noise level than does a change in sleep stage.

An analysis sponsored by the Air Force summarized 21 published studies concerning the effects of noise on sleep (Pearsons *et al*. 1989). The analysis concluded that a lack of reliable in-home studies, combined with large differences among the results from the various laboratory studies, did not permit development of an acceptably accurate assessment procedure. The noise events used in the laboratory studies and in contrived in-home studies were presented at much higher rates of occurrence than would normally be experienced. None of the laboratory studies were of sufficiently long duration to determine any effects of habituation, such as that which would occur under normal community conditions. A recent extensive study of sleep interference in people's own homes (Ollerhead 1992) showed very little disturbance from aircraft noise.

There is some controversy associated with the recent studies, so a conservative approach should be taken in judging sleep interference. Based on older data, the USEPA identified an indoor DNL of 45 dB as necessary to protect against sleep interference (USEPA 1974). Assuming a very conservative structural noise insulation of 20 dB for typical dwelling units, this corresponds to an outdoor DNL of 65 dB as minimizing sleep interference.

A 1984 publication reviewed the probability of arousal or behavioral awakening in terms of SEL (Kryter 1984). Figure F-4, extracted from Figure 10.37 of Kryter (1984), indicates that an indoor SEL of 65 dB or lower should awaken less than 5 percent of those exposed. These results do not include any habituation over time by sleeping subjects. Nevertheless, this provides a reasonable guideline for assessing sleep interference and corresponds to similar guidance for speech interference, as noted above.

2.6 Noise Effects on Domestic Animals and Wildlife

Animal species differ greatly in their responses to noise. Each species has adapted, physically and behaviorally, to fill its ecological role in nature, and its hearing ability usually reflects that role. Animals rely on their hearing to avoid predators, obtain food, and communicate with and attract other members of their species. Aircraft noise may mask or interfere with these functions. Secondary effects may include nonauditory effects similar to those exhibited by humans: stress, hypertension, and other nervous disorders. Tertiary effects may include interference with mating and resultant population declines.

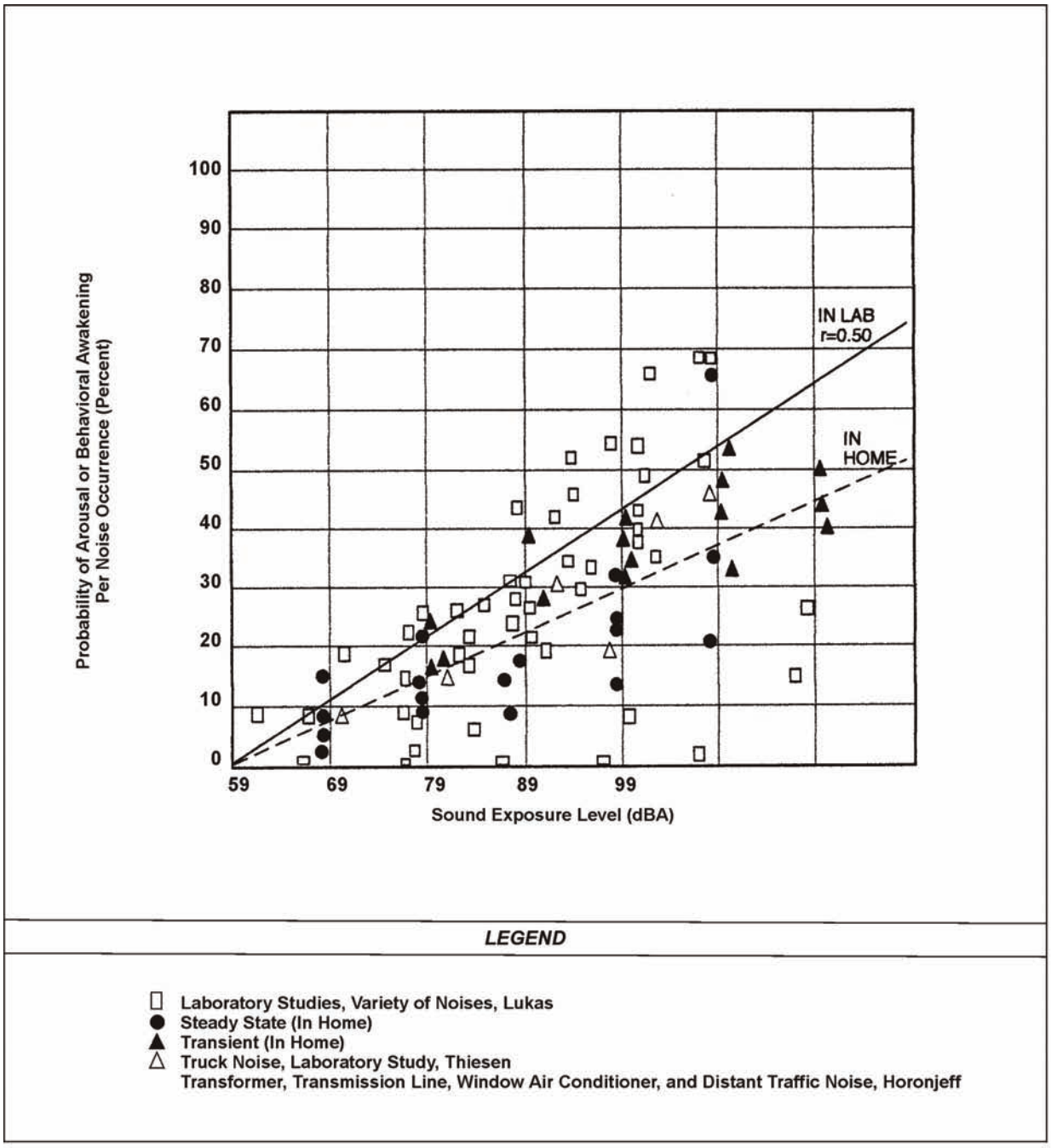


Figure F-4. Probability of Arousal or Behavioral Awakening in Terms of Sound Exposure Level

2.7 Noise Effects on Terrain

Members of the public often believe that noise from low-flying aircraft can cause avalanches or landslides by disturbing fragile soil or snow structures in mountainous areas. There are no known instances of such effects, and it is considered improbable that such effects will result from routine, subsonic aircraft operations.

2.8 Noise Effects on Historical and Archaeological Sites

Because of the potential for increased fragility of structural components of historical buildings and other historical sites, aircraft noise may affect such sites more severely than newer, modern structures. Again, there are few scientific studies of such effects to provide guidance for their assessment.

One study involved the measurements of sound levels and structural vibration levels in a superbly restored plantation house, originally built in 1795, and now situated approximately 1,500 feet from the centerline at the departure end of Runway 19L at Washington Dulles International Airport. These measurements were made in connection with the proposed scheduled operation of the supersonic Concorde airplane at Dulles (Wesler 1977). There was special concern for the building's windows, since roughly half of the 324 panes were original. No instances of structural damage were found. Interestingly, despite the high levels of noise during Concorde takeoffs, the induced structural vibration levels were actually less than those induced by touring groups and vacuum cleaning within the building itself.

As noted above for the noise effects of noise-induced vibrations on normal structures, assessments of noise exposure levels for normally compatible land uses should also be protective of historic and archaeological sites.

2.9 Noise Effects on Structures

Subsonic Aircraft Noise

Normally, the most sensitive components of a structure to airborne noise are the windows and, infrequently, the plastered walls and ceilings. An evaluation of the peak sound pressures impinging on the structure is normally sufficient to determine the possibility of damage. In general, at sound levels above 130 dB, there is the possibility of the excitation of structural component resonance. While certain frequencies (such as 30 Hz for window breakage) may be of more concern than other frequencies, conservatively, only sounds lasting more than one second above a sound level of 130 dB are potentially damaging to structural components (NRC/NAS 1977).

A study directed specifically at low-altitude, high-speed aircraft showed that there is little probability of structural damage from such operations (Sutherland 1989). One finding in that study is that sound levels at damaging frequencies (e.g., 30 Hz for window breakage or 15 to 25 Hz for whole-house response) are rarely above 130 dB.

Noise-induced structural vibration may also cause annoyance to dwelling occupants because of induced secondary vibrations, or "rattle," of objects within the dwelling, such as hanging

pictures, dishes, plaques, and bric-a-brac. Window panes may also vibrate noticeably when exposed to high levels of airborne noise, causing homeowners to fear breakage. In general, such noise-induced vibrations occur at sound levels above those considered normally incompatible with residential land use. Thus assessments of noise exposure levels for compatible land use should also be protective of noise-induced secondary vibrations.

Impulsive Noise – Sonic Booms

Impulsive noise commonly associated with structural damage consists of sonic booms from aircraft. Most damage claims are for brittle objects, such as glass and plaster. Impulsive noise created by munitions and experienced outside the range would not result in overpressures that could cause damage. Table F-3 summarizes the threshold of damage that might be expected at various overpressures. There is a large degree of variability in damage experience, and much damage depends on the pre-existing condition of a structure. Breakage data for glass, for example, span a range of two to three orders of magnitude at a given overpressure. At 1 psf, the probability of a window breaking ranges from one in a billion (Sutherland, 1990) to one in a million (Hershey and Higgins, 1976). These damage rates are associated with a combination of boom load and glass condition. At 10 psf, the probability of breakage is between one in a hundred and one in a thousand. Laboratory tests of glass (White 1972) have shown that properly installed window glass will not break at overpressures below 10 pounds per square foot (psf), even when subjected to repeated sonic booms, but in the real world glass is not in pristine condition.

Damage to plaster occurs at similar ranges to glass damage. Plaster has a compounding issue in that it will often crack due to shrinkage while curing, or from stresses as a structure settles, even in the absence of outside loads. Sonic boom damage to plaster often occurs when internal stresses are high from these factors.

Some degree of damage to glass and plaster should thus be expected from sonic boom impulsive noise, but would not be expected from impulsive noise associated with munitions.

Impulsive Noise – High Explosive Ordnance

High-energy impulsive sound from the firing of large weapon systems and the detonation of high explosive charges can cause structural vibration in buildings near ranges. The resulting vibrations can become the source of complaints. To address this issue, the Naval Surface Warfare Center, Dahlgren, Virginia established operational guidelines to minimize the incidence of such complaints. These guidelines are summarized in "Noise Abatement Program for Explosive Operations at NSWC/DL", presented by Pater in 1976, at the 17th Explosives Safety Seminar of the DoD Explosives Safety Board. These guidelines based on L_{pk} and more than 10 years of experience using meteorological forecasts, are presented in Table F-4.

Table F-3. Possible Damage to Structures From Sonic Booms

Sonic Boom Overpressure Nominal (psf)	*Item Affected*	*Type of Damage*
0.5 - 2	Plaster	Fine cracks; extension of existing cracks; more in ceilings; over door frames; between some plaster boards.
	Glass	Rarely shattered; either partial or extension of existing cracks.
	Roof	Slippage of existing loose tiles/slates; sometimes new cracking of old slates at nail hole.
	Damage to outside walls	Existing cracks in stucco extended.
	Bric-a-brac	Those carefully balanced or on edges can fall; fine glass, such as large goblets, can fall and break.
	Other	Dust falls in chimneys.
2 - 4	Glass, plaster, roofs, ceilings	For elements nominally in good condition, failures show that would have been difficult to forecast in terms of their existing localized condition.
4 - 10	Glass	Regular failures within a population of well-installed glass; industrial as well as domestic greenhouses.
	Plaster	Partial ceiling collapse of good plaster; complete collapse of very new, incompletely cured, or very old plaster.
	Roofs	High probability rate of failure in slurry wash in nominally good state; some chance of failures in tiles on modern roofs; light roofs (bungalow) or large area can move bodily.
	Walls (out)	Old, free standing, in fairly good condition can collapse.
	Walls (in)	Internal ("party") walls known to move at 10 psf.
Greater than 10	Glass	Some good window glass will fail when exposed to regular sonic booms from the same direction. Glass with existing faults could shatter and fly. Large window frames move.
	Plaster	Most plaster affected.
	Ceilings	Plaster boards displaced by nail popping.
	Roofs	Most slate/slurry roofs affected, some badly; large roofs having good tile can be affected; some roofs bodily displaced causing gale-end and wall-plate cracks; domestic chimneys dislodged if not in good condition.
	Walls	Internal party walls can move even if carrying fittings such as hand basins or taps; secondary damage due to water leakage.
	Bric-a-brac	Some nominally secure items can fall; e.g., large pictures, especially if fixed to party walls.

Source: Haber and Nakaki 1989

Table F-4. Impulse 1 Noise Guidelines

Sound Levels (dB Peak)	*Risk of Noise Complaints*
<115	Low
115-130	Moderate
130-140	High
>140	Risk of physiological damage to unprotected human ears and structural damage claims

The "One Shot" feature of the BNOISE Version 2 program provides the capability of computing statistical probabilities for L_{pk}. The "One Shot" model is based on an extensive measurement project conducted by the U.S. Army Construction Engineering Research Laboratory (USACERL) at Fort Leonard Wood and published in USACERL Technical Report N-13, "The Statistics of Amplitude and Spectrum of Blasts Propagated in the Atmosphere" of 1976. In 1985, Luz conducted an analysis of these measurements, and the results were published in "A statistical model for predicting the probability of complaints from Army weapon noise," and presented at the 110th Meeting of the Acoustical Society of America, Nashville, Tennessee.

3.0 NOISE MODELING

3.1 Subsonic Aircraft Noise

An aircraft in subsonic flight generally emits noise from two sources: the engines and flow noise around the airframe. Noise generation mechanisms are complex and, in practical models, the noise sources must be based on measured data. The Air Force has developed a series of computer models and aircraft noise databases for this purpose. The models include NOISEMAP (Moulton 1992) for noise around airbases, ROUTEMAP (Lucas and Plotkin 1988) for noise associated with low-level training routes, and MR_NMAP (Lucas and Calamia 1996) for use in MOAs and ranges. These models use the NOISEFILE database developed by the Air Force. NOISEFILE data include SEL and L_{Amax} as a function of speed and power setting for aircraft in straight flight.

Noise from an individual aircraft is a time-varying continuous sound. It is first audible as the aircraft approaches, increases to a maximum when the aircraft is near its closest point, then diminishes as it departs. The noise depends on the speed and power setting of the aircraft and its trajectory. The models noted above divide the trajectory into segments whose noise can be computed from the data in NOISEFILE. The contributions from these segments are summed.

MR_NMAP was used to compute noise levels in the airspace. The primary noise metric computed by MR_NMAP was L_{dnmr} averaged over each airspace. Supporting routines from NOISEMAP were used to calculate SEL and L_{Amax} for various flight altitudes and lateral offsets from a ground receiver position.

3.2 IMPULSIVE NOISE: SONIC BOOMS

Although the AFSOC proposed action does not include aircraft flying at supersonic speeds, this discussion of sonic booms generated by aircraft rounds out the background on noise presented in this appendix. Sonic boom impulsive noise can also result from aircraft launched ordnance.

When an object moves through the air, it pushes the air out of its way. At subsonic speeds, the displaced air forms a pressure wave that disperses rapidly. At supersonic speeds, the object is moving too quickly for the wave to disperse, so it remains as a coherent wave. This wave is a sonic boom. When heard at the ground, a sonic boom from an aircraft consists of two shock waves (one associated with the forward part of the aircraft, the other with the rear part) of approximately equal strength and (for fighter aircraft) separated by 100 to 200 milliseconds. When plotted, this pair of shock waves and the expanding flow between them have the appearance of a capital letter "N," so a sonic boom pressure wave is usually called an "N-wave." An N-wave has a characteristic "bang-bang" sound that can be startling. Figure F-5 shows the generation and evolution of a sonic boom N-wave under the aircraft. Figure F-6 shows the sonic boom pattern for an aircraft in steady supersonic flight. The boom forms a cone that is said to sweep out a "carpet" under the flight track.

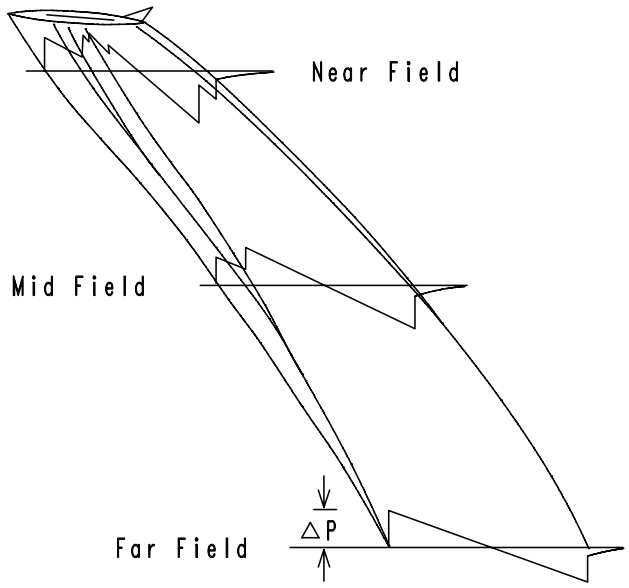


FIGURE F-5. SONIC BOOM GENERATION, AND EVOLUTION TO N-WAVE

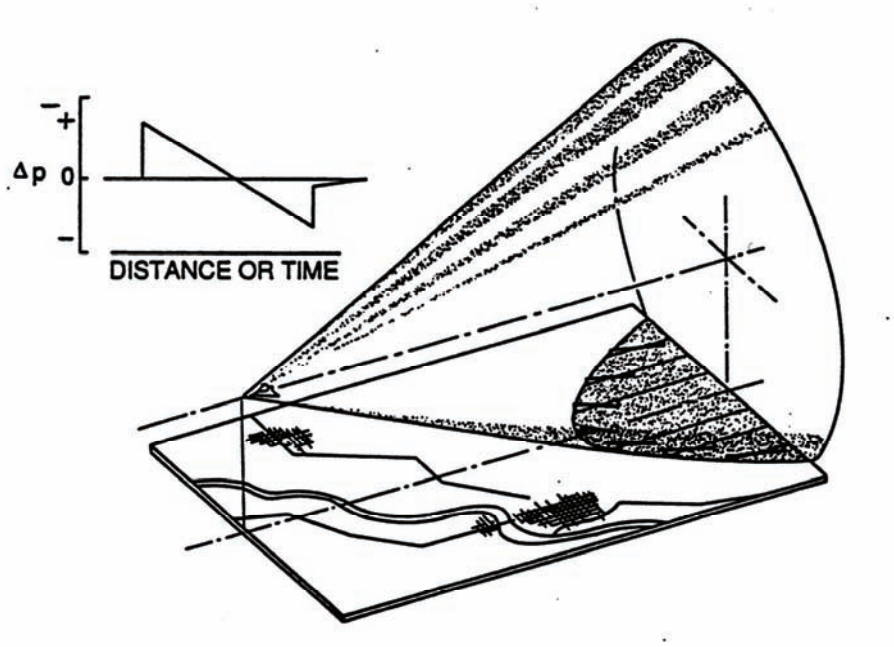


Figure F-6. Sonic Boom Carpet in Steady Flight

The complete ground pattern of an aircraft created sonic boom depends on the size, shape, speed, and trajectory of the aircraft. Even for a nominally steady mission, the aircraft must accelerate to supersonic speed at the start, decelerate back to subsonic speed at the end, and usually change altitude. Figure F-7 illustrates the complexity of a nominal full mission.

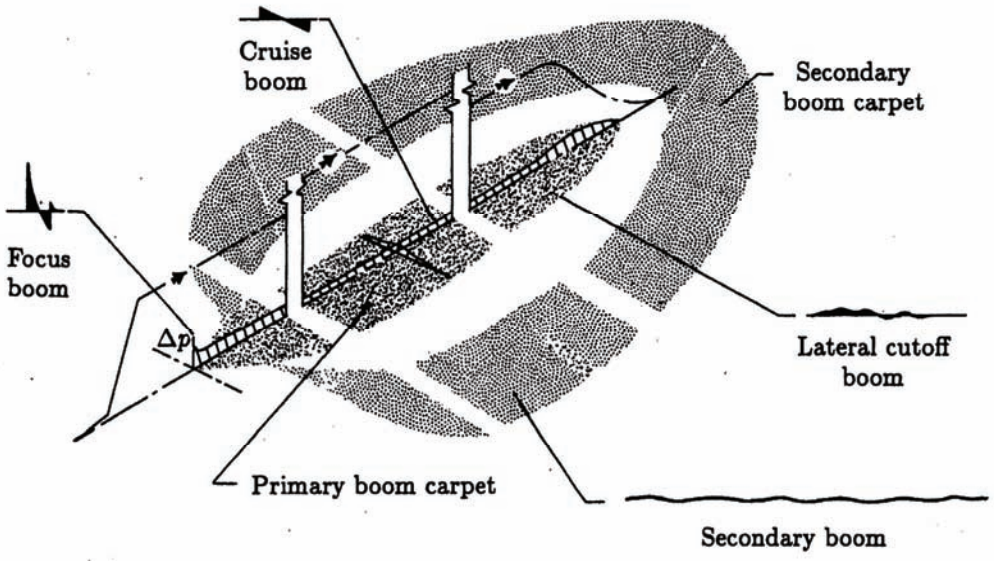


Figure F-7. Complex Sonic Boom Pattern for Full Mission

The Air Force's PCBoom4 computer program (Plotkin and Grandi 2002) can be used to compute the complete sonic boom footprint for a given single aircraft created impulsive sound event, accounting for details of a particular maneuver. Supersonic events occur as aircraft approach an engagement, break at the end, and maneuver for advantage during the engagement. Long time cumulative sonic boom exposure, CDNL, is meaningful for this kind of environment.

Long-term sonic boom measurement projects have been conducted in four supersonic ACT airspaces: White Sands, New Mexico (Plotkin *et al.* 1989); the eastern portion of the Goldwater Range, Arizona (Plotkin *et al.* 1992); the Elgin MOA at Nellis AFB, Nevada (Frampton *et al.* 1993); and the western portion of the Goldwater Range (Page *et al.* 1994). These studies included analysis of schedule and air combat maneuvering instrumentation data and supported development of the 1992 BOOMAP model (Plotkin *et al.* 1992). The current version of BOOMAP (Frampton *et al.* 1993; Plotkin 1996) incorporates results from all four studies. Because BOOMAP is directly based on long-term measurements, it implicitly accounts for such variables as maneuvers, statistical variations in operations, atmosphere effects, and other factors.

Figure F-8 shows a sample of supersonic flight tracks measured in the ACT airspace at White Sands (Plotkin *et al.* 1989). The tracks fall into an elliptical pattern aligned with preferred engagement directions in the airspace. Figure F-9 shows the CDNL contours that were fit to six months of measured booms in that airspace. The subsequent measurement programs refined the fit, and demonstrated that the elliptical maneuver area is related to the size and shape of the airspace (Frampton *et al*. 1993). BOOMAP quantifies the size and shape of CDNL contours, and also numbers of booms per day, in ACT airspaces. That model was used for prediction of cumulative sonic boom exposure in the study area.

Impulsive noise from munitions create supersonic events to those described for aircraft. The difference is the size of the object creating the supersonic event. Measured overpressures from supersonic objects are directly related to the object's size and shape. Experimentation with redesigned aircraft to reduce the potential for or magnitude of sonic booms has successfully demonstrated that design can influence boom overpressure. Munitions such as 105 Howitzer shells from an AC-130 gunship create an audible sonic boom that can be detected by the human ear as a "bip" sound. This impulsive sound would be audible beyond the boundaries of Melrose AFR and could cause annoyance similar to that of any unwanted sound. The impulsive noise overpressures from munitions would be below any possible damage causing overpressures on Table F-3.

Figure F-8. Supersonic Flight Tracks in Supersonic ACT Airspace

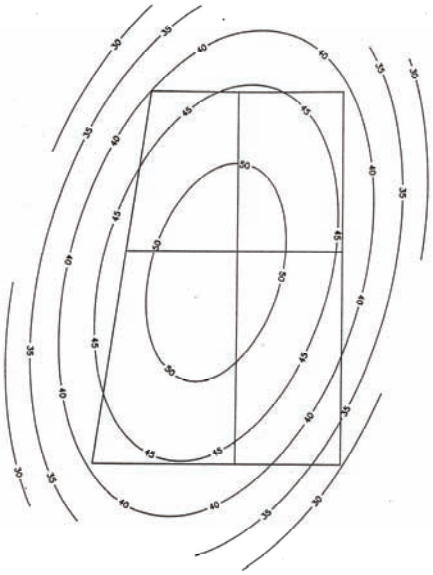


Figure F-9. Elliptical CDNL Contours in Supersonic ACT Airspace

3.3 Impulsive Noise: High Explosive Ordnance/Blast Noise

Noise from ordnance delivery (blast noise) is impulsive in nature and of short duration. Blast noise can consist of three components: the firing of the projectile from the weapon, the ballistic wave resulting from the projectile traveling through the air and the detonation of the projectile, if it contains a high explosive charge. If the projectile contains no high explosive charge, only the noise resulting from the firing of the projectile is calculated. Blast noise is often a source of discomfort for persons, and vibrations of buildings and structures induced by blast noise may result in increased annoyance.

Blast noise contours are developed using the DoD BNOISE program. BNOISE is a collection of computer programs, which together can produce C-weighted DNL contours for blasting activities or military operations resulting in impulsive noise. The software considers type of weapon and ammunition, number and time of rounds fired, range attributes, weather, and assessment procedures and metrics. It also accounts for spectrum and directivity of both muzzle blast and projectile sonic boom, which facilitates accurate calculation of propagation and frequency weighting. Noise source parameters are based on empirical data. BNOISE Version 2 was used in the preparation of this analysis. Input of data into BNOISE is accomplished through the program interface and stored in a Microsoft Access database file. The required data include:.

- The case identification information;
- The weather selection appropriate for the site studied;
- The assessment period and selected metric;
- The ranges and their geographic coordinates;
- The southwest corner of a rectangular grid described by its length, its width and the spacing between two consecutive grid points; and
- The activities including the firing point, the ordnance type, the height of the target, and the number of acoustical day (0700-2200 hours) and night (2200-0700 hours) events.

The BNOISE computer program generates a grid file, which is a collection of noise levels at equally spaced points in the grid. The NMPLOT program uses the grid file to draw contours of equal DNL for overlay onto base maps. These plots are presented in the EIS Section 4.2. The plots are associated with the munitions use presented in the EIS Section 2.2.5.

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APPENDIX G
RANGE MANAGEMENT DIRECTIVES

Department of Defense

DIRECTIVE

NUMBER 4715.11

May 10, 2004

USD(AT&L)

SUBJECT: Environmental and Explosives Safety Management on Operational Ranges Within the United States

References: (a) DoD Directive 4715.11, Environmental and Explosives Safety Management on Department of Defense Active and Inactive Ranges Within the United States," August 17, 1999 (hereby canceled)
(b) DoD Directive 4715.1, "Environmental Security," February 24, 1996
(c) DoD Directive 6055.9, "DoD Explosives Safety Board (DDESB) and Component Explosives Safety Responsibilities," July 29, 1996
(d) DoD Directive 4715.12, "Environmental and Explosives Safety Management on Department of Defense Operational Ranges Outside the United States," August 17, 1999
(e) through (m), see enclosure 1

1. REISSUANCE AND PURPOSE

This Directive reissues reference (a) to establish policy and assign responsibilities under references (b) and (c) for:

1.1. Sustainable use and management of operational ranges located within the United States.

1.2. The protection of DoD personnel and the public from explosive hazards on operational ranges located within the United States.

2. APPLICABILITY AND SCOPE

This Directive applies to:

2.1. The Office of the Secretary of Defense, the Military Departments, the Chairman of the Joint Chiefs of Staff and the Joint Staff; the Combatant Commands, the Office of the Inspector General of the Department of Defense, the Defense Agencies, the DoD Field Activities, and all other organizational entities in the Department of Defense (hereafter referred to collectively as "the DoD Components").

2.2. All operational ranges located within the United States.

2.2.1. For operational ranges that a non-DoD Component owns, this Directive applies subject to the terms of any agreement with the owner for the leasing or operation of the range. (The DoD Components shall attempt to ensure that future agreements are consistent with this Directive and provide for non-DoD users to proportionally reimburse the DoD Component for the costs of complying with this Directive.)

2.2.2. When a DoD Component other than the DoD Component exercising real property accountability operates an operational range, responsibility for compliance with this Directive is assigned to the operating DoD Component, unless the two parties agree otherwise.

2.3. This Directive does not apply to operational ranges located outside the United States. For such operational ranges, consult DoD Directive 4715.12 (reference (d)).

2.4. This Directive does not apply to indoor ranges.

3. DEFINITIONS

Terms used in this Directive are defined in enclosure 2. Other terms are defined in 10 U.S.C. 101 (reference (e)).

4. POLICY

It is DoD policy to:

4.1. Use and manage operational ranges in a manner that supports national security objectives and maintains the high state of operational readiness essential to the U.S. Armed Forces, consistent with DoD Directive 3200.15 (reference (f)).

4.2. Ensure the long-term viability of operational ranges while protecting human health and the environment.

4.3. Limit, to the extent practical, the potential for explosives mishaps and the damaging effects of such to personnel, operational capability, property, and the environment.

4.4. Resolve conflicts between explosive safety and other requirements with the objective of minimizing explosives hazards.

4.5. Design and use operational ranges and the munitions used on them, to the extent practical, to minimize both potential explosive hazards and harmful environmental impacts and to promote resource recovery and recycling.

4.6. Enhance the ability to prevent or respond to a release or substantial threat of a release of munitions constituents from an operational range to off-range areas.

5. RESPONSIBILITIES

5.1. The Under Secretary of Defense for Personnel and Readiness shall provide guidance to ensure DoD training ranges meet the operational requirements necessary to support national security objectives and maintain the high state of operational readiness essential to the U.S. Armed Forces.

5.2. The Under Secretary of Defense (Comptroller) shall provide financial management policy regarding operational range management activities in accordance with DoD 7000.14-R (reference (g)).

5.3. The Under Secretary of Defense For Acquisition, Technology, and Logistics shall:

5.3.1. Take overall OSD responsibility for safety, explosives safety, environmental, and technology policies related to implementation of this Directive.

5.3.2. Develop acquisition plans, strategies, guidance, and assessments to implement this Directive.

5.3.3. Ensure that research, development, test, and evaluation (RDT&E) programs address technology requirements to enhance sustainable range management.

5.3.4. Have OSD staff responsibility for all safety, explosives safety (through the Chair, Department of Defense Explosives Safety Board), and environmental policy and oversight related to implementation of this Directive.

5.3.5. Be the OSD proponent for operational range clearance technology requirements and coordinate such requirements with the Director, Test, Systems Engineering, and Evaluation.

5.3.6. Designate a DoD Component as Executive Agent responsible for:

5.3.6.1. The coordination of Joint Service operational ranges clearance technology requirements. (The Executive Agent shall coordinate such requirements affecting the explosives ordnance disposal (EOD) mission area with the Executive Manager for EOD Technology and Training.)

5.3.6.2. The transition of these requirements into technology programs.

5.3.7. Coordinate DoD Component efforts to assess the environmental impacts of munitions use on operational ranges.

5.3.8. Provide guidance to all DoD Components on establishing and maintaining complete inventories of operational ranges.

5.3.9. Provide guidance to enhance the DoD Components' ability to prevent or respond to a release or substantial threat of a release of munitions constituents from an operational range to off-range areas.

5.4. The Heads of the DoD Components shall:

5.4.1. Establish the necessary procedures to ensure that DoD Component operational ranges comply with this Directive and include sustainable range management goals in long-term planning efforts.

5.4.2. Establish and maintain an inventory of DoD Component operational ranges consistent with the guidance provided by the Deputy Under Secretary of Defense for Installations and Environment.

5.4.3. Establish and implement procedures to assess the environmental impacts of munitions use on operational ranges.

5.4.4. Ensure that required management plans at the installation or responsible activity level include planning for sustainable range use and are reviewed or updated at least every 5 years. Management plans for new ranges shall be in place prior to utilization of the range. This planning, at a minimum, will address: long-term sustainable use; hydrology and hydrogeology; management procedures; record keeping;

standards; monitoring; public outreach and public participation programs, if required; technology requirements to ensure sustainable range management; integration with other installation planning processes; and resources.

5.4.5. Establish procedures for range clearance operations to permit the sustainable safe use of operational ranges for their intended purpose. To determine the frequency and degree of range clearance operations, consider, at a minimum, the safety hazards of clearance, each range's intended use, and the quantities and types of munitions expended on that range.

5.4.6. Restrict access to operational ranges, especially impact areas and other areas suspected of containing unexploded ordnance (UXO).

5.4.6.1. Take appropriate action to prevent unauthorized access to operational ranges. Such actions include establishing access controls (e.g., posting UXO hazard warning signs, fencing the area, establishing roving security patrols) and providing public notifications of potential explosive hazards.

5.4.6.2. Provide appropriate explosives safety training to individuals authorized access to operational ranges before they enter the range. The DoD Components shall develop guidelines to determine when individuals authorized access to operational ranges shall be escorted.

5.4.7. Provide appropriate information to local officials regarding the compatible uses of non-DoD property located near operational ranges.

5.4.8. For operational ranges, maintain permanent records of:

5.4.8.1. All military munitions expended, including an estimated dud rate, by type, quantity, location, and using organization.

5.4.8.2. All range clearance operations or EOD incidents conducted on the operational range.

5.4.8.3. The coordinates of all areas known or suspected of containing UXO. (Installation master plans or range maps shall be used to document such areas.)

5.4.9. Minimize the use on operational ranges, including for RDT&E, of munitions that contain submunitions or depleted uranium (DU) to that required to support national security objectives.

5.4.9.1. For submunitions, restrict such use to specifically designated target or impact areas.

5.4.9.2. For DU, restrict such use to specifically designated Nuclear Regulatory Commission-licensed target or impact areas. When possible, DU shall be fired into containment fixtures, and high-explosive munitions shall not be fired into the same area as DU.

5.4.9.3. When practical, establish sole use target or impact areas to segregate such munitions from other munitions.

5.4.10. To the extent practicable, use targets on operational ranges that do not contain hazardous materials (e.g., petroleum, oils, lubricants, radium dials, and batteries).

5.4.11. Conduct a hazard assessment before any range clearance operation at operational ranges. This assessment shall include, at a minimum, rationale for the clearance, the number of personnel involved, support requirements, the types of munitions anticipated to be encountered, and expected UXO contamination levels. When range clearance is an integral part of a test or training plan, a hazard assessment shall be included.

5.4.12. Establish safe and practical methods for recycling or disposing of range residues in accordance with DoD 4160.21-M (reference (h)). Ensure that material potentially presenting an explosive hazard is managed in a manner that supports operational readiness and mission requirements and that complies with explosives safety standards and environmental requirements.

5.4.13. Prohibit controlled burning of vegetation as a method of operational range clearance. Controlled burns may be used to control dense brush or undergrowth or clear a range area of vegetation to make range clearance operations safe for personnel conducting the clearance.

5.4.14. Assess or review prior assessments of the hydrology and hydrogeology of operational ranges and how the ranges are being or have been used.

5.4.15. Where prior hydrologic and hydrogeologic assessments create a reasonable belief that munitions constituents may migrate off an operational range, conduct an additional, appropriate assessment, including testing and analysis, as necessary, to determine whether a release or substantial threat of a release of munitions constituents from an operational range to off-range areas has occurred or is about to occur.

5.4.16. Ensure procedures are in place to:

5.4.16.1. Notify installation personnel and the public, as appropriate, of range operations that may present an explosive hazard off the operational range.

5.4.16.2. Respond promptly to protect personnel and property from such hazards, both on and off the installation.

5.4.17. Participate, as appropriate, in established national public-involvement programs, including dialogues with interested members of the public, to discuss and explain the explosive hazards associated with operational ranges.

5.4.18. Ensure range issues that affect or have the potential to affect the surrounding communities (e.g., controlled burns, access controls, institutional controls) are addressed in appropriate local public participation forums.

5.4.19. Establish a program to educate DoD personnel, their dependents, and private citizens living near operational ranges on the explosive hazards associated with unexploded ordnance and trespassing on operational ranges.

5.4.20. Before changing the use of a range area, conduct appropriate range clearance operations consistent with the proposed use of the area.

5.4.21. Respond, in accordance with the Department of Defense's explosives safety authority (10 U.S.C. 172 (reference (i))), as implemented in reference (c) and DoD 6055.9-STD (reference (j)) and response authorities (10 U.S.C. 2701; 42 U.S.C. 9604; and Executive Order 12580, Sec. 2(d) (references (k) through (m))) to a release or substantial threat of a release of munitions constituents from an operational range to off-range areas, when such release poses an imminent and substantial threat to human health or the environment.

6. EFFECTIVE DATE

This Directive is effective immediately.

Paul Wolfowitz
Deputy Secretary of Defense

Enclosures - 2
E1. References, continued
E2. Definitions

E1. ENCLOSURE 1

REFERENCES, continued

(e) Section 101 of title 10, United States Code
(f) DoD Directive 3200.15, "Sustainment of Ranges and Operating Areas (OPAREAs)," January 10, 2003
(g) DoD 7000.14-R, "DoD Financial Management Regulations (FMRs)," current edition
(h) DoD 4160.21-M, "Defense Materiel Disposition Manual," August 18, 1997
(i) Section 172 of title 10, United States Code
(j) DoD 6055.9-STD, "DoD Ammunition and Explosives Safety Standards," July 1, 1999
(k) Section 2701 of title 10, United States Code
(l) Section 9604 of title 42, United States Code
(m) Executive Order 12580, "Superfund Implementation," January 23, 1987, as amended

E2. ENCLOSURE 2

DEFINITIONS

E2.1.1. Explosives Mishap. An accident or unexpected event involving DoD ammunition and explosives.

E2.1.2. Explosives Safety. A condition where operational capability and readiness, personnel, property, and the environment are protected from the unacceptable risk of a mishap involving military munitions.

E2.1.3. Impact Area. The identified area within a range intended to capture or contain ammunition, munitions, or explosives and resulting debris, fragments, and components from various weapon system employments.

E2.1.4. Munitions Constituents. Any materials originating from unexploded ordnance, discarded military munitions, or other military munitions, including explosive and non-explosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions.

E2.1.5. Operational Range. A range that is under the jurisdiction, custody, or control of the Secretary of Defense and:

E2.1.5.1. Is used for range activities; or

E2.1.5.2. Although not currently being used for range activities, that is still considered by the Secretary to be a range and has not been put to a new use that is incompatible with range activities.

E2.1.6. Submunition. Any munition that, to perform its task, separates from a parent munition.

E2.1.7. Sustainable Range Management. Management of an operational range in a manner that:

E2.1.7.1. Supports national security objectives and maintains the operational readiness of the Armed Forces; and

E2.1.7.2. Ensures the long-term viability of operational ranges while protecting human health and the environment.

E2.1.8. United States. The States, the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Marianas Islands, American Samoa, Guam, Johnston Atoll, Kingman Reef, Midway Island, Nassau Island, Palmyra Island, the U.S. Virgin Islands, Wake Island, and any other territory or possession over which the United States has jurisdiction, and associated navigable waters, contiguous zones, and ocean waters of which the natural resources are under the exclusive management authority of the United States.

BY ORDER OF THE
COMMANDER, 27th FIGHTER WING

AIR FORCE INSTRUCTION 13-212, VOLUME 1
ACC SUP1, CANNON AFB ADDENDA A

18 AUGUST 06

Space, Missile, Command, and Control

MELROSE WEAPONS RANGES

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

OPR: 27 OSS/OSR
(Mr. Johnny Rogers)
Supersedes: AFI 13-212_CANNON AFB SUP 1, 27 November 2000

Certified by: 27 OSS/CC
(Lt Col Danny R. Wolf)
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AFI 13-212 Vol 1, ACC Supplement 1, 27 May 2003, is supplemented with the attached Addendum. It establishes responsibilities, policies, and procedures for the maintenance, operation, and use of Melrose Bombing, Gunnery and EC Range Complex. This addendum applies to all who use and operate this range. Insert this addendum behind AFI 13-212, Vol 1, ACC Sup 1. Send comments and suggested improvements to this publication on AF Form 847, **Recommendation for Change of Publication**, through channels, to 27 OSS/OSR, Cannon AFB, NM.

SUMMARY OF REVISIONS

Exercise coordination requirements, Change “Impact Area” to “Hazard Area”, added definition of a “Contractor”, added aircraft operations during firefighting on hazard area, new Coordination for changing EC range operations hours, added “Cold Spots” to authorized range ordnance, added web page location for range line-up form, new coordinates for T-92, restricting laser operations during class “B” & “C” operations, new range fire conditions/limitations, added new CAS operations on the hazard area, added attachment 17 and 18.

1.4. Decontamination and EOD Operations:

1.4.1. The 27 CE/CC, through the 27 CE/CED, is responsible for Melrose Bombing, Gunnery and EC Range decontamination, on-range disposition of dud ordnance, disposition of munitions residue, and use of the range for disposal of munitions. 27th CE/CED shall:

1.4.1.1. Coordinate disposal and decontamination operations with 27 FW explosives safety and the contractor.

1.4.1.2. Coordinate the range clearance schedule with 27 OSS/OSR and 27 OSS/OSOS.

1.4.1.3. Not release any munitions residue without approval of higher authorities.

1.4.1.4. Ensure contractor personnel and fire fighters receive required EOD briefings.

1.4.2. Scheduled range maintenance and decontamination periods will be conducted IAW AFI 13-212. These periods will include the inspection, removal and disposal of unexploded ordnance and mutilation of classified ordnance by detonation. EOD personnel will inspect, certify, and mark all munitions residue as free of explosive material except small arms and 20MM target practice (TP) ammunition. Once complete, contract personnel will collect and dispose of the explosive-free munitions residue. EOD must brief contract personnel on explosive hazards initially upon hire and annually thereafter. EOD will file and maintain briefing statement for one year.

1.4.2.1. The maintenance schedule outlined in this chapter is a minimum requirement and the responsibility of contractor personnel. Range clearance operations may be more frequent, depending upon types and quantities of ordnance used and the frequency of target renovation. Maintenance should be preventative as well as corrective in nature and should be accomplished regularly in order to provide the same quality of target presentation to all users.

1.4.3. 75 Use-Day Procedures.

1.4.3.1. The area surrounding targets used for missile, rocket, and bomb training will be cleared of all unexploded ordnance and inert residue to a radius of 100 meters. Additional clearance/decontamination of hazard areas may be accomplished as necessary.

1.4.3.2. NWD targets will be inspected for proper condition and alignment.

1.4.4. Annual Procedures. Decontamination will be performed IAW AFI 13-212.

1.4.5. Five-Year Decontamination. The entire hazard area will be cleared of ordnance.

1.4.6. Responsibilities:

1.4.6.1. 27th Civil Engineer Squadron, EOD Flight (27 CE/CED) will:

1.4.6.1.1. Inspect and certify all munitions and munitions residue except small arms and 20 mm target practice (TP) ammunition before it leaves Melrose Bombing, Gunnery and EC Range.

1.4.6.1.2. Destroy all explosive items by detonation in accordance with (IAW) 60 series TOs.

1.4.6.1.3. Ensure internal fillers of all concrete or sand filled bombs are exposed/vented in any way necessary before bombs are released for sale.

1.4.6.1.4. Conduct initial and annual range safety briefings for anyone performing frequent duties on the range.

1.4.6.1.5. Policy and safety requirements regarding the GTR-18A Simulators (Smokey Sams).

1.4.6.1.5.1. The 27th EOD flight will provide initial certification to authorized agencies on the procedures for handling, maintaining, and inspecting the GTR-18A simulators. Thereafter, the individuals trained by EOD will be qualified to provide routine annual training (IAW AFMAN 91-201, paragraph 2.15.2)

1.4.6.1.5.2. The EOD flight will write and develop an Explosive Safety lesson plan for the using agencies. It will be the responsibility of the using agencies to ensure the lesson plan is up to date, and is reviewed annually by 27th FW Weapons Safety (IAW AFI 91-202 ACC Sup 1 paragraph 10.10.3).

1.4.6.1.5.3. IAW AFI 13-212, Addenda-A, paragraph 3.15.5., there must be a routine cleaning schedule developed to remove spent simulators from the range that can not be collected immediately. Due to the low volume of simulators fired they will be policed from the range during the regularly scheduled cleanup of the Bombing Range.

1.4.6.1.5.4. During the training, using individuals will learn how to recognize a dud/misfire GTR-18A (Smokey Sam). In the event of a dud/misfire EOD will be notified. If the Dud/misfire is located in such an area that it effects normal operations EOD will respond to remove the hazard. If the dud/misfire Smokey Sam is in such an area that daily operations may continue, the item should be marked and EOD will respond as soon as the mission allows.

1.4.6.2. Range Maintenance contractor shall:

1.4.6.2.1. Coordinate all range maintenance operations with the EOD flight involving work in areas contaminated with ordnance except for the strafing targets.

1.4.6.2.2. Clean the low angle strafing hazard area of small arms, 20 mm TP, 27 mm TP, 30 mm TP ammunitions and rocks 3" in diameter or greater and other hazardous debris. Items which cannot be identified as one of the above munitions in the strafing area will be marked and left for EOD personnel to inspect.

1.4.6.2.3. Provide heavy equipment and equipment operators for range clearance operations.

1.4.6.2.4. Designate holding areas for munitions residue being released for resale as scrap metal.

1.4.6.2.5. Not release any munitions residue from the range without approval of the EOD Flight.

1.4.6.2.6. Ensure all personnel assigned to the range complex receive required range safety briefings.

1.4.6.3. Defense Reutilization & Marketing Office (DRMO) shall:

1.4.6.3.1. Furnish guidance and disposition instructions for munitions residue when specific instructions are not issued.

1.4.6.3.2. Monitor contracts for resale of munitions residue as scrap metal and coordinate new contracts for resale of munitions residue with the EOD Flight.

1.4.6.4. The 27 CE/Fire Department shall provide fire fighting equipment and personnel during all range clearance and explosive operations.

1.4.6.5. The 27 FW/Hospital shall ensure emergency medical support is available for dispatch to the range in an emergency.

1.4.6.6. Explosive Limits:

1.4.6.6.1. Minimum: Minimum explosive limits are determined by the operation.

1.4.6.6.2. Maximum: The maximum quantity of explosives allowed on the range is 1,000 pounds class I division I.

1.4.6.7. Personnel Limits:

1.4.6.7.1. Minimum: The minimum number of personnel is two EOD qualified team members. Contract range maintenance personnel must work with EOD or in pairs to maintain safe working conditions.

1.4.6.7.2. Maximum: The maximum number of personnel allowed is determined by the operation. The EOD team leader will use the minimum number of personnel necessary to safely complete the operation.

1.4.6.8. EOD team equipment requirements are determined by the type of operation being performed. As a minimum, the team will have range kits, radios, a first aid kit in each vehicle, and the range book.

1.4.6.9. General Safety Precautions.

1.4.6.9.1. Class A Range operations will be in effect during all decontamination and explosive operations.

1.4.6.9.2. Over flight Procedures. Over flight is not authorized without RCO approval over areas or portions of ranges during maintenance and clearance/ decontamination. This ensures the protection of ground personnel and prevents aircraft damage by fragments from demolition operations. Strict adherence to the procedures outlined below is mandatory.

1.4.6.9.3. Range Operations During EOD/Maintenance Closures. Anytime personnel are on a range and no demolition operations are planned, missions may be scheduled for dry-only operations above 3000 AGL. During demolition operations, missions may be scheduled for dry-only operations above 10,000 AGL. When no personnel are on the range, but the range is closed for EOD/maintenance, missions may be scheduled for dry-only operations with no EOD/maintenance directed minimum altitude restrictions.

1.4.6.9.4. ONLY SIMULATED WEAPONS DELIVERIES, IAW AIRCRAFT SPECIFIC DIRECTIVES, ARE AUTHORIZED DURING EOD/MAINTENANCE OPERATIONS. LASER USE IS NOT AUTHORIZED DURING EOD/MAINTENANCE OPERATIONS. CHAFF AND FLARE USE DURING EOD/MAINTENANCE OPERATIONS IS ONLY AUTHORIZED WITH RCO APPROVAL.

1.4.6.9.5. These restrictions will be clearly identified in the range schedule and reinforced by range operations. In flight, if range operations reports unscheduled personnel on the range, missions will be checked in for dry-only operations above 3000 AGL. In flight, if range operations reports unscheduled demolition operations, missions will be checked in for dry-only operations above 10,000 AGL.

1.4.6.9.6. Demolition operations are conducted IAW 60 series tech data.

1.4.6.9.7. Personnel shall comply with safety precautions listed in the referenced publications.

1.4.6.9.8. Personnel will not work on the range until they receive a safety briefing from EOD.

1.4.6.9.9. At least two EOD qualified personnel will be present during any decontamination work in contaminated areas except strafing pits.

1.4.6.9.10. Ordnance items other than small arms and 20 mm will not be touched or picked up

until they are inspected by EOD personnel.

1.4.6.9.11. When an unusual situation or safety deviation is noted, all work will be stopped and the senior EOD member and RCO will be notified.

1.4.6.9.12. Heavy equipment operators will not run over small ordnance items.

1.4.6.9.13. Areas will be cleared of all ordnance prior to grading or plowing. These areas include access roads that lead in, around, and through hazard areas.

1.4.6.9.14. Range crews and teams will maintain radio communication with the range tower.

1.4.6.9.15. Areas where work is to be performed will be checked by EOD personnel prior to dispatching work crews

1.4.6.9.16. No smoking within 50 ft of demolition operations. The EOD team chief will designate a smoking area (if needed) during his safety briefing.

1.4.6.9.17. All practice bombs will be certified clear before they leave the hazard area. Bombs requiring explosive opening/clearing will be done IAW applicable 60 series tech data.

1.4.6.10. Procedures:

1.4.6.10.1. Specific dates and times for range clearance will be coordinated with 27 OSS/OSR, Fire Department, and the range maintenance contractor.

1.4.6.10.2. Upon arrival at Melrose Bombing, Gunnery and EC Range, the EOD team leader will:

1.4.6.10.2.1. Sign the team in at the range and ensure the range is inactive during target clearance operations. Ensure radio communications are established with the range tower and EOD operations at Cannon AFB.

1.4.6.10.2.2. Brief all personnel on the days operation. The briefing will include safety information, team assignments, and work areas.

1.4.6.10.2.3. Dispatch work teams.

1.4.6.10.3. Target clearance procedures:.

1.4.6.10.3.1. Practice bombs which are confirmed to be fired or clear of explosives will be stacked and marked for transport to the holding area.

1.4.6.10.3.2. Practice bombs which cannot be probed or are confirmed duds will be placed in the bucket of a front end loader and moved to a demolition area for clearance IAW 60 series tech data. These practice bombs will not be transported to the holding area until they are cleared of explosives.

1.4.6.10.3.3. Mark 80 series practice bombs will be inspected to determine the bomb filler. If inert, the bomb will be transported to the demolition area where it will be opened to expose the filler. In the event live high explosive filled ordnance is encountered, it will be blown in place.

1.4.6.10.3.4. Coordinate all demolition shots with the RCO prior to initiating the shot.

1.4.6.10.4. Reclamation Operations. Reclamation operations are for clearing old piles of practice ordnance stacked in the range holding areas. Explosive items have been recovered from ordnance items in the area. The EOD flight will inspect all items held in the holding area before it is released from the range as scrap.

1.4.6.10.5. When the operation is finished, the team will call the RCO to get clearance off the range.

1.4.6.11. Emergency procedures:

1.4.6.11.1. Cease all operations immediately. Request medical and fire fighting support as necessary. Notify EOD flight operations and request additional assistance as required. Relay specific details to the 27th Fighter Wing Command Post.

1.4.6.11.2. Personal injury and Evacuation. Administer Self Aid and Buddy Care and request assistance from range firefighters. Request an ambulance if the emergency is beyond the training of the team members.

1.4.6.11.3. Range fires. Notify RCO and the range Fire Department.

ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
µg/m^3	micrograms per cubic meter
1 SOW	1st Special Operations Wing
6 SOS	6th Special Operations Squadron
27 OSS	27th Operations Support Squadron
27 FW	27th Fighter Wing
140 FBW	140th Fighter Bomber Wing
150 FW	150th Fighter Wing
A/D	Approaches and Departures
AADT	Average Annual Daily Traffic
ACAM	Air Conformity Applicability Model
ACC	Air Combat Command
ACEC	Area of Critical Environmental Concern
ACM	Asbestos-Containing Material
AEF	Aerospace Expeditionary Force
AFB	Air Force Base
AFCEE	Air Force Center for Environmental Excellence
AFI	Air Force Instruction
AFR	Air Force Range
AFSOC	Air Force Special Operations Command
AGE	Aerospace Ground Equipment
AGL	Above Ground Level
AHAS	Avian Hazard Advisory System
AICUZ	Air Installation Compatible Use Zone
Air Force	United States Air Force
AMU	Aircraft Maintenance Unit
AOC	Area of Concern
AOI	Airfield Operating Instruction
APZ	Accident Potential Zone
AQCR	Air Quality Control Region
AR	Aerial Refueling
ARTCC	Air Route Traffic Control Center
AST	aboveground storage tank
ATC	Air Traffic Control
ATCAA	Air Traffic Control Assigned Airspace
AU	Animal Unit
BAI	Backup Aircraft Inventory
BASH	Bird-Aircraft Strike Hazard
BMP	Best Management Practice
BP	Before Present
BRAC	Base Realignment and Closure
CAA	Clean Air Act
CDNL	C-Weighted Day-Night Sound Level
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CO	carbon monoxide
COA	Certificate of Waiver or Authorization
CP	Closed Pattern
CRMP	Cultural Resources Management Plan
CSAR	Combat Search and Rescue
CWA	Clean Water Act
CZ	Clear Zone
dB	Decibel
dBA	A-weighted decibel
dBC	C-weighted decibel
DD	Decision Document
DEAD	Destruction of Enemy Air Defense
DERA	Defense Environmental Restoration Act
DoD	Department of Defense
DRMO	Defense Reutilization and Marketing Office
DTI	Defensive Training Initiative
DZ	Drop Zone
EA	Environmental Assessment
EC	Electronic Combat
EIS	Environmental Impact Statement
EMNRD	Energy, Minerals, and Natural Resources Department
EO	Executive Order
EOD	Explosive Ordnance Disposal
EPCRA	Emergency Planning and Community Right-to-Know Act
ERP	Environmental Restoration Program
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FAM	Forward Area Manifold
FID	Foreign Internal Defense
FL	Flight Level
FS	Feasibility Study
FY	Fiscal Year
FYDP	Future Years Defense Program
GCS	Ground Control Station
GPS	Global Positioning System
HAP	High Accident Potential
HAZMART	Hazardous Materials Pharmacy
HE	high explosive
HLZ	Helicopter Landing Zone
IAP	Initial Accumulation Point
IFR	Instrument Flight Rule
IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
IFR	Instrument Flight Rule
INRMP	Integrated Natural Resources Management Plan
IR	Instrument Route
IRSSS	Improved Remote Strafe Scoring System
KIAS	Knots Indicated Airspeed
LANTIRN	Low Altitude Navigation and Targeting Infrared for Night
L_{dn}	Day-Night Average Sound Level
L_{dnmr}	Onset-Rate Adjusted Monthly Day-Night Average Sound Level
L_{max}	Maximum Sound Level
LOA	Letter of Agreement
LOS	Level of Service
LRGCS	Launch and Recovery Ground Control Station
LSV	low speed vehicle
LZ	Landing Zone
MAJCOM	Major Command
MBTA	Migratory Bird Treaty Act
MGD	million gallons per day
MILCON	military construction
MLRA	Major Land Resource Area
mm	Millimeter
MOA	Military Operations Area
MOGAS	motor gasoline
MOU	Memoranda of Understanding
mph	miles per hour
MR_NMAP	Military Operating Area and Range Noise Model
MSL	Mean Sea Level
MTR	Military Training Route
NA NSR	Nonattainment Area New Source Review
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NFA	No Further Action
NFPA	National Fire Protection Association
NHPA	National Historic Preservation Act
nm	Nautical Mile
NMAAQS	New Mexico Ambient Air Quality Standards
NMAC	New Mexico Administrative Code
NMANG	New Mexico Air National Guard
NMAQB	New Mexico Air Quality Bureau
NMARNG	New Mexico Army National Guard
NMDGF	New Mexico Department of Game and Fish
NMED	New Mexico Environment Department
NMNHP	New Mexico Natural Heritage Program
NMRPTC	New Mexico Rare Plant Technical Council
NMTRI	New Mexico Training Range Initiative
NMWQCC	New Mexico Water Quality Control Commission

NO_2	nitrogen dioxide
NOA	Notice of Availability
NOI	Notice of Intent
NOTAM	Notice to Airmen
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSA	Non-Standard Aircraft
NSPS	New Source Performance Standards
NSR	New Source Review
NVG	Night Vision Goggles
NWR	National Wildlife Refuge
O_3	ozone
O&M	Operations and Maintenance
OSHA	Occupational Safety and Health Administration
P.L.	Public Law
P/CG	Pilot Controller Glossary
P2 Program Plan	Pollution Prevention Program Plan
PAI	Primary Aircraft Inventory
Pb	lead
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
ppm	parts per million
PPSL	Predator Primary Satellite Link
PSD	Prevention of Significant Deterioration
PVC	polyvinyl chloride
QD	quantity-distance
RCO	Range Control Officer
RCRA	Resource Conservation and Recovery Act
RFI	Resource Conservation and Recovery Act Facility Investigation
RI	Remedial Investigation
RMP	Resource Management Plan
ROD	Record of Decision
ROI	Region of Influence
SAR	synthetic aperture radar
SCS	Soil Conservation Service
SCUBA	Self-Contained Underwater Breathing Apparatus
SEAD	Suppression of Enemy Air Defenses
SECDEF	Secretary of Defense
SEL	Sound Exposure Level
SERE	Survival, Evasion, Resistance, and Escape
SF	square feet
SHPO	State Historic Preservation Office
SI	Sampling Investigation
SID	Standard Instrument Departure
SIP	State Implementation Plan
SO_2	sulfur dioxide
SOF	Special Operations Forces
SOW	Special Operations Wing
SO_x	sulfur oxides
SPCC	Spill Prevention Control and Countermeasures
SR	Slow Route
SRCP	State Register of Cultural Properties
SRMA	Special Recreation Management Area
SSL	soil screening levels
STS	Special Tactics Squadron
SUA	Special Use Airspace
SVOC	Semivolatile Organic Compound
SWMU	Solid Waste Management Unit
SWPPP	Storm Water Pollution Prevention Plan
TAC	Tactical Air Command
TPY	tons per year
U.S.	United States
UAS	Unmanned Aerial System
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USSOCOM	United States Special Operations Command
UST	underground storage tank
UTBNI	Up To But Not Including
UXO	unexploded ordnance
VFR	Visual Flight Rule
VOC	Volatile Organic Compound
VORTAC	Very High Frequency Omni-directional Radio Range and Tactical Navigation Aid
VR	Visual Route
WINDO	Wing Infrastructure Development Outlook
WISS	Weapons Impact Scoring System
WRCC	Western Regional Climate Center