1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

The 27th Fighter Wing (27 FW) at Cannon Air Force Base (AFB) is an integral part of the United States Aerospace Expeditionary Force (AEF). The AEF concept integrates fighters, bombers, support aircraft, and tactical airlift into one functional unit that responds rapidly and decisively to potential crises anywhere in the world. Cannon AFB’s F-16 pilots are routinely deployed to the world’s “hot spots” and subjected to hostile radar and anti-aircraft defenses. The increasing sophistication of enemy equipment and tactics requires that the 27 FW pilots be trained to instantly respond to these threats. Continued survival depends on this training.

Defensive training involves the rapid response of pilots to threats from opposing radar, reflexive maneuvering, and dispensing of defensive countermeasures. Defensive countermeasures include chaff that confuses enemy search radars and radar-guided missiles, and flares that decoy heat-seeking missiles and sensors. See section 2.1.1 for a detailed description of chaff and flares.

The 27 FW, the proponent of this action, currently conducts training using chaff and flares, but is limited to the restricted airspace associated with the Melrose Air Force Range (AFR) (R-5104/ 5105). The 27 FW proposes to conduct defensive training using chaff and flares in the existing military airspace designated as Pecos Military Operations Area (MOA)/ Air Traffic Control Assigned Airspace (ATCAA), Sumner ATCAA, and Taiban MOA. Chaff use is also proposed for defensive training in the northern portion of Military Training Routes (MTRs) Visual Routes (VRs)-100/ 125 (see Figure 1-1). Implementation of this proposal would expand defensive training for F-16 pilots of the 27 FW stationed at Cannon AFB and other transient users.

This Defensive Training Initiative (DTI) Environmental Assessment (EA) has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969. It addresses the 27 FW’s Proposed Action and reasonable alternatives to the Proposed Action. If the analyses presented in this EA indicate that implementation of the Proposed Action would not result in significant environmental impacts, then a Finding of No Significant Impact would be issued.

1.2 BACKGROUND

1.2.1 Cannon AFB

Cannon AFB is located approximately 7 miles west of Clovis, New Mexico and 17 miles west of the Texas-New Mexico state line (Figure 1-1). The base comprises approximately 3,500 acres and administers the Melrose AFR, which is located about 30 miles west of Cannon AFB. Melrose AFR encompasses approximately 66,000 acres with an additional 20,896 acres of buffer area (personal communication, McCord 2001).

During the mid 1920s, Portair Field on the current site of Cannon AFB was established as a civilian passenger terminal for transcontinental commercial flights. The airport’s name was changed in the 1930s to Clovis Municipal Airport. After the United States’ entry into World War II, the Army Air Corps took control of the airfield, which became known as Clovis Army Air Base.

Since 1943, the base has trained aircrews with an air-to-ground mission. Initially, the 16th Bombardment Operational Wing trained crews of B-17, B-24, and B-29 heavy bombers. The
base was inactivated in 1947 and reactivated in 1951 as a Tactical Air Command base with the 140th Fighter-Bomber Wing flying F-86 Sabre jet fighters. In 1954, the base became a major training site for F-86 aircrews with the transfer of the 474th Fighter-Bomber Group from Taegu, Korea.

Clovis AFB was renamed Cannon AFB on June 8, 1957, in honor of the late General John K. Cannon, a former commander of Tactical Air Command. The 474th and 312th Fighter-Bomber Groups were also redesignated as Tactical Fighter Wings (TFWs) during 1957, with the 832nd Air Division being activated to oversee their activities. Two years later the 312th was replaced by the 27 TFW, flying F-100 aircraft. In 1969, the 27 FW was re-equipped with the F-111E and, in 1971, with the F-111D. The 27 TFW became the principal United States Air Force (Air Force) unit at Cannon AFB in 1975. In 1995, the current F-16s, with a combined air-to-air and air-to-ground mission, replaced the aging F-111s. In 1998, the 428th Fighter Squadron F-16s were added as part of a cooperative training program among allied nations.

1.2.2 Current Military Mission

The current mission of Cannon AFB is to develop and maintain a fighter wing capable of day, night, and all-weather combat operations for war-fighting commanders worldwide. The 27 FW F-16 pilots have the same responsibility for combined air-to-air and air-to-ground missions that Cannon AFB aircrews have had for over 50 years. As part of the Air Force's AEF, the Cannon-based 27 FW pilots are routinely deployed for 90 days to overseas airfields, where they participate in United States directed peacekeeping missions. During these deployments, 27 FW pilots are subjected to increasingly sophisticated enemy action with upgraded equipment and enhanced tactics.

In addition to the 27 FW, Cannon AFB hosts cooperative programs designed to standardize flight training among allied nations. The 428 Fighter Squadron is 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.

1.2.3 Training for Military Missions

Pilots assigned to Cannon AFB must be capable of supporting both air-to-air and air-to-ground missions. These missions require training and proficiency in numerous aspects of aerial combat. While individual training requirements may be considered as discrete events, most, if not all training experience is integrated into a cohesive series of activities during an actual combat mission. At any time during a combat mission, a pilot could be exposed to numerous types of threats. These threats could be air-based (opposing aircraft with missiles and guns) or ground-based (varied surface-to-air missiles or anti-aircraft artillery). Cannon AFB manages existing emitters under training airspace to simulate enemy threats. These enemy threats usually incorporate fire control and guidance systems that are based on either radar tracking and guidance or infrared (heat) seekers. To counter these threats, a pilot must rapidly maneuver the aircraft while employing on-board defensive systems. Chaff is used to counter radar-controlled systems; flares are used to counter infrared (heat-seeking) systems.

Defensive training develops the skills to incorporate and integrate maneuvering with the use of the appropriate countermeasure while engaged in other activity. Major training areas requiring proficiency by 27 FW pilots include the following:

In defensive training, chaff is used to counter radar-controlled systems; flares are used to counter infrared (heat-seeking) systems.
• **Basic Weapons Delivery (BWD).** This requires air-to-ground delivery of ordnance, such as training ordnance, on a conventional bombing range.

• **Tactical Weapons Delivery (TWD).** This training presents greater challenges to the pilot than BWD. Multiple attack headings and profiles are used so the pilot is exposed to varying visual cues, shadow patterns, and the overall configuration and appearance of the target. Target acquisition is added to the challenge of bomb release accuracy.

• **Surface Attack Tactics (SAT).** SAT is normally practiced in a block of airspace such as a MOA, Restricted Area, or range that provides room to maneuver. Precise timing during the ingress to the target is practiced, as is target acquisition. Ordnance is only used on approved ranges. Egress from the target area and reforming into a tactical formation are also practiced.

• **Close Air Support (CAS).** CAS training focuses on missions providing direct support to ground forces in close proximity to enemy forces. A Forward Air Controller (FAC) who is in direct radio contact with the flight directs CAS. After coordination with the FAC, and ensuring the precise location of friendly troops, the CAS flight simulates the delivery of ordnance on those enemy positions.

• **Basic Fighter Maneuvering (BFM).** This is the fundamental training of all air-to-air flight maneuvering. This training is conducted with two aircraft practicing individual offensive and defensive maneuvering against each other.

• **Air Combat Maneuvering (ACM).** This training emphasizes intra-flight coordination, survival tactics, and two-ship maneuvering against an adversary. The use of on-board radar is emphasized in this training.

• **Air Combat Tactics (ACT).** This training normally requires three or four aircraft and involves designating friendly and enemy forces that separate as far as possible in the maneuvering airspace to begin tactics training. Then, opposing forces approach each other at different designated altitudes to ensure vertical separation. If training is conducted using the same type of aircraft, it is termed similar air combat tactics; if different types of aircraft are involved, it is termed dissimilar air combat tactics.

• **Intercept Training (IT).** This training begins with the target aircraft and intercept aircraft separated beyond each aircraft’s radar detection capability. The target aircraft attempts to penetrate the area protected by the interceptor. The interceptor must detect the target, maneuver to identify the aircraft, and then position itself to successfully intercept the target.

• **Low-Altitude Navigation and Targeting Infrared for Night (LANTIRN).** During the day, pilots use the LANTIRN system to assist in navigation and weapons delivery at various altitudes. During the night, pilots must use the LANTIRN system above minimum safe altitudes for navigation and weapons delivery.

• **Suppression of Enemy Air Defenses (SEAD).** SEAD is a highly specialized mission requiring specific ordnance and avionics. The objective of this mission is to neutralize or destroy ground-based anti-aircraft systems.
### 1.2.4 Training Airspace

Several types of military training airspace are managed by Cannon AFB. These airspace elements provide training support for Cannon-based pilots. Each type of airspace is briefly defined below.

- **Restricted Areas** are blocks of airspace within which the flight of non-participating aircraft, while not wholly prohibited, is subject to restriction. Restricted Areas are designated when it is necessary to segregate activities that may be hazardous to non-participating aircraft. Use of the Melrose AFR is an example of an activity that would be encompassed by a restricted area. The only areas currently approved for 27 FW defensive training using chaff and flares are R-5104 and R-5105, the Restricted Areas associated with Melrose AFR.

- **Military Operations Areas** are blocks of airspace with defined vertical and lateral boundaries below 18,000 feet mean sea level (MSL) in which certain non-hazardous military flight activities are conducted. Because of the varied types of flight activities conducted in a MOA, altitudes and flight paths are random and may vary considerably. The Pecos MOA and Taiban MOAs are used by the 27 FW for training.

- **Air Traffic Control Assigned Airspace** is military training airspace from 18,000 feet MSL upward to an assigned altitude to accommodate higher altitude training requirements, often overlying a MOA. The description and use of ATCAAs are agreed upon by the military and the controlling Federal Aviation Administration (FAA) facility in a Letter of Agreement. The Pecos and Sumner ATCAAs are airspace used by the 27 FW for training.

- **Military Training Routes** are flight corridors of varying widths, lengths, and vertical altitudes that are used for low-altitude navigation and training in excess of 250 knots airspeed. An MTR can be visualized as a “highway in the sky.” There are two types of MTRs: routes flown under Instrument Flight Rules (IFR), and routes flown under Visual Flight Rules (VFR). While instrument routes (IRs) may be flown under either VFR or IFR conditions, VRs are flown strictly under VFR conditions. VRs-100/125 are MTRs flown under VFR conditions by the 27 FW.

### 1.2.5 Other Training Assets

In order to add further realism to training, the 27 FW has deployed ground-based electronic threat emitters in areas underlying the regional military training airspace. These units provide electronic signatures that simulate ground-based “enemy” radar systems, threaten pilots during training, and require pilots to take defensive actions for self-protection. The 27 FW has ten emitter sites deployed under the MOAs, the northern portion of VRs-100/125, and the Melrose AFR restricted airspace.

### 1.2.6 An Example of Combat Training

Specific training events are interrelated and require specific types of military training airspace for support. As an example, the following “combat training event” (Figure 1-2) illustrates the linkage between training events and training airspace that supports the events. These training elements are depicted in the following seven events:
(1) F-16 aircraft are loaded with chaff and flares at Cannon AFB for defensive training. An aircraft could potentially carry 120 chaff bundles or 120 flares but on a typical training mission would carry a mix of 30 chaff bundles and 30 flares.

(2) Aircraft take off from Cannon AFB and enter the MTR to perform low altitude, high-speed navigation training.

(3) Within the MTR, a ground-based threat emitter simulating a radar-guided missile requires rapid defensive action using chaff and maneuvers to avoid the threat.

(4) Near the end of the MTR, the pilot makes a low-altitude, high-speed entry into a Restricted Area (which contains an air-to-ground range), and performs training in tactical weapons delivery and surface attack tactics. While performing these tactics, the pilot is threatened by surface threat emitters and must deploy defensive chaff and flares.

(5) Upon departing the target area, the aircraft enters a MOA with its associated ATCAA. There, opposing aircraft “attack” and participate in air combat tactics training, which incorporates chaff, flares, and all air-to-air combat skills.

(6) Upon completion of this combat training mission, the aircraft returns to base.

(7) Unused chaff and flares are off-loaded and stored at Cannon AFB.

The pilots in this example encountered threats similar to enemy threats encountered in actual combat. The pilots had to take defensive action against an air-based threat in the MOA and ground-based threats in the MTR, MOA, and Restricted Area. Defensive training to avoid the ground-based and air-based threats is essential for survival in real-world combat missions.

1.3 PURPOSE AND NEED FOR THE ACTION

The purpose of the proposed action is to enable the Air Force to implement initiatives that will improve, enhance, and provide simulated combat-condition defensive training for pilots using...
Cannon AFB managed airspace. The pilots include those from the four F-16 squadrons at Cannon AFB, one F-16 squadron of the New Mexico Air National Guard, and other occasional users of the airspace. Allowing pilots to dispense training chaff and/or flares in applicable airspace in response to threats encountered in training will better prepare them to respond to actual threats encountered in combat. The example described in section 1.2.6 includes the use of defensive countermeasures. At present, the only airspace in which defensive countermeasures can be employed is over Melrose AFR.

Defensive training is needed to adequately prepare pilots for combat by enabling them to “train like they fight.” With increasingly sophisticated equipment and tactics being deployed by adversaries and potential adversaries, the need for combat-condition training has increased. Survival in combat conditions demands instantaneous and intuitive defensive responses. These defensive responses integrate maneuvering, properly employing the correct countermeasure actions at the best time, and dispensing the amount of chaff or flares required to successfully counter the threat, all while performing the requirements of the mission. These responses are learned skills that must become instinctive to the pilot. These defensive skills must be developed and honed in the training environment to survive in actual combat. Currently, only approximately 10 to 20 percent of the 27 FW training in Cannon AFB airspace can be performed under simulated combat conditions using defensive countermeasures.

The need to enhance defensive training to combat sophisticated threats fits the 27 FW assignments as part of the AEF. In today’s environment, a key tool used by the United States to project the military instrument of national power is the AEF. This integrated force of fighters, bombers, support aircraft, and tactical airlift is interdependent, and derives its synergy from its multifunctional components. To be effective, the 27 FW F-16s must be fully prepared to accomplish their assigned role in the AEF. In order to fully prepare 27 FW pilots for this integrated role, combat conditions must be replicated to the greatest extent possible in training. The proposed action would permit 27 FW pilots to perform 40 to 50 percent of their training under simulated combat conditions that require the use defensive countermeasures.

1.4 REGULATORY REQUIREMENTS AND OTHER DIRECTION

This EA has been prepared in accordance with the requirements of NEPA, Council on Environmental Quality (CEQ) regulations, Air Force Instruction (AFI) 32-7061 as promulgated in Title 32 of the Code of Federal Regulations Part 989, and the Department of Defense (DoD) Directive 6050.1.

In addition, other environmental laws and policies also apply to this EA. These laws deal with biological resources, cultural resources, Native Americans, environmental justice, land use, and materials management (see Appendix D).

1.5 PUBLIC INVOLVEMENT

In the case of the DTI EIAP, the Air Force informed agencies and the public of the proposed action and the intent to prepare an EA through newspapers and media beginning on March 16, 2001. During a 45-day public comment period, five public scoping meetings were held to solicit agency and public input for this EA. The purpose of the scoping process and meetings was to solicit public input regarding the proposal. This input helps public officials make informed decisions.
decisions based on public concerns and factual analyses of potential environmental consequences of the proposed action and alternatives.

During the scoping process, input received from federal, state, and local agencies; elected officials; Native American tribal governments; and the general public assisted in the identification of pertinent environmental issues addressed in this EA. The scoping process began with the preparation and mailing of the Interagency and Intergovernmental Coordination for Environmental Planning letters and continued through the end of the comment period on May 10, 2001.

This EA is a result of public and agency review and comments received on the Draft EA during the public and agency comment period. This 30-day comment period, from August 1 through August 31, allowed Federal, state and local agencies, as well as the general public an opportunity to evaluate the proposal and the analysis contained within the Draft EA. At the end of this document (Appendix G), are the comments received during the public comment period and responses to these comments. These comments, where possible, are incorporated into this EA.