FINAL

Noise Study for Modification and Addition of Evers Military Operations Airspace

District of Columbia Air National Guard
113th Wing, Joint Base Andrews, MD

2 April 2020

Guarding America - Defending Freedom

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ACRONYMS AND ABBREVIATIONS

AGL	above ground level
AFI	Air Force Instruction
ANG	Air National Guard
dB	decibels
dBA	A-weighted decibels
DNL	day-night sound level
DOD	Department of Defense
EA	environmental assessment
FAA	Federal Aviation Administration
ft	feet
FL	flight level
IFR	instrument flight rule
%HA	percent highly annoyed
L_{dnmr}	onset-adjusted monthly DNL
L_{eq}	equivalent continuous sound level
L_{max}	maximum sound level
MSL	mean sea level
MOA	military operations area
MTR	military training route
NEPA	National Environmental Policy Act
NGB	National Guard Bureau
NAS	national airspace system
NM	nautical miles
NOTAM	notice to airmen
OSHA	Occupational Safety & Health Administration
SEL	sound exposure level
SUA	special use airspace
USAF	United States Air Force
USEPA	United States Environmental Protection Agency

1.0 INTRODUCTION

This Noise Assessment Report is in support of the Environmental Assessment (EA) for the Modification and Addition of Evers Military Operations Airspace. Specifically, this study includes noise modeling to identify the noise exposure and associated effects from the operations conducted in the SUA complex. This report includes modeling aircraft-generated noise under the proposed SUAs with and without the Proposed Action. It provides existing and future overall noise levels, as well as noise levels for individual overflights.

1.1 LOCATION AND BACKGROUND

The 113th Wing, District of Columbia Air National Guard is located at Joint Base Andrews, Maryland. The 113 WG is the air component of the District of Columbia National Guard and is the only federal National Guard unit. The 113 WG's mission is to maintain a well-trained and well-equipped F-16C squadron available for prompt mobilization during war and to aid Allies during emergencies. The federal mission during peacetime has the combat-ready unit assigned to the Air Combat Command (ACC) to carry out missions compatible with training, mobilization readiness, humanitarian and contingency operations such as Operation Enduring Freedom and Inherent Resolve. The state mission includes defending the National Capital Region, providing support to the District of Columbia and local communities, providing emergency relief support, and providing support for other contingency operations.

The existing Evers MOA is above West Virginia and Virginia (Figure 1-1). Approximately half of the MOA is above Highland County, Virginia and the remainder of the MOA is in Pocahontas and Randolph counties, West Virginia. The airspace begins at 1,000 feet (ft) above ground level (AGL) and continues to 17,999 ft above mean sea level (MSL). The proposed Evers MOA complex would be an expansion and modification of the existing airspace and is described in detail on Chapter 2.

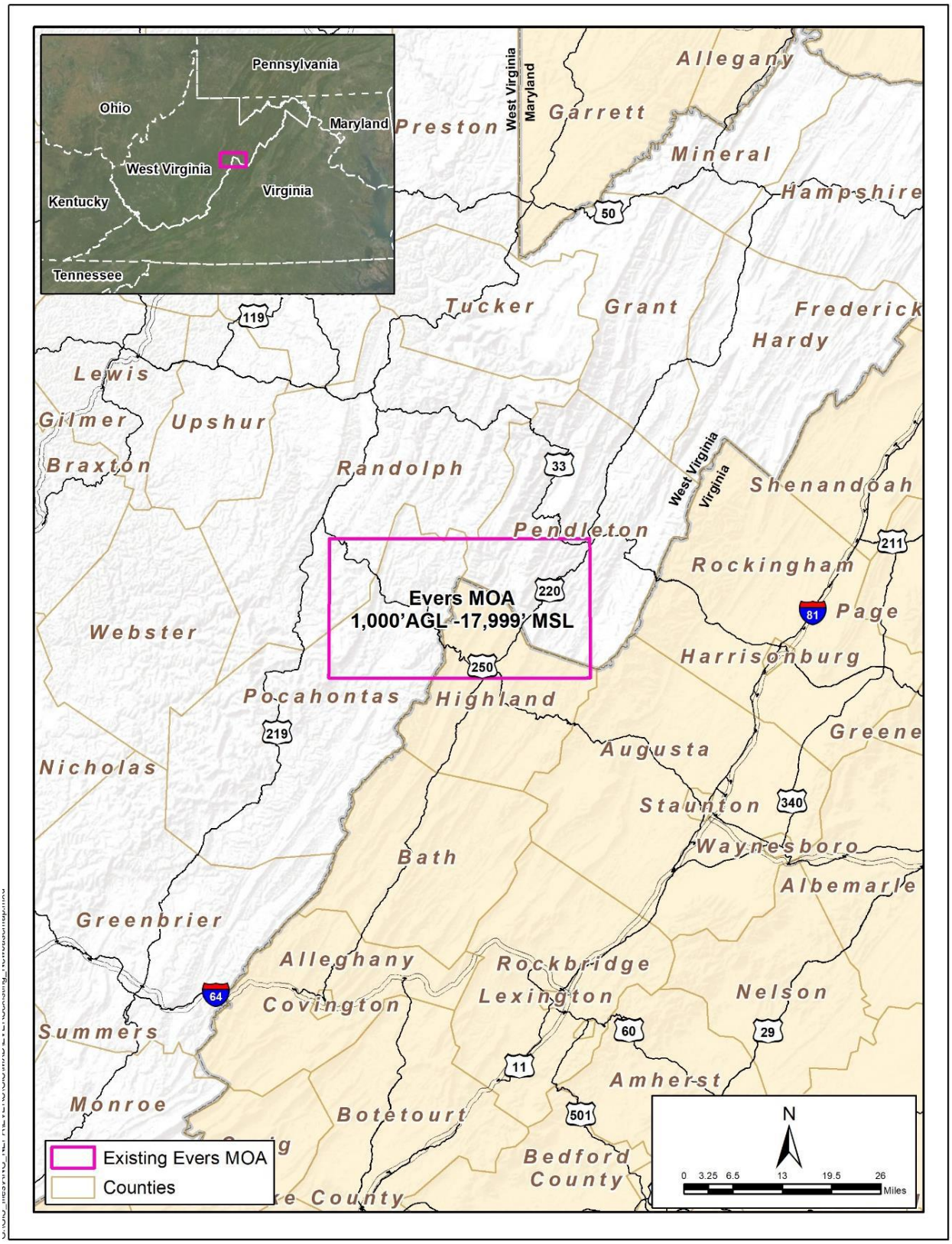


Figure 1-1. Existing Evers MOA

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

This chapter presents a detailed description of the Proposed Action, including the requirement to provide an integrated, year-round, realistic training environment in accordance with F-16C RAP and AFI 11-2F-16V1 training requirements. The details of the Proposed Action form the basis for the analyses of potential environmental effects presented in Chapter 3 of the EA. This chapter includes a discussion of alternatives considered but dismissed from further analysis, as well as the No Action Alternative. No viable alternatives to the Proposed Action were identified.

2.1 SELECTION CRITERIA

The current airspace limitations of the Evers MOA impede efficient military aircraft exercises. To allow for the required exercises, the proposed airspace must be of sufficient, contiguous size and altitude to train and prepare military aircrews for current and future conflicts in a realistic training environment. In addition, the airspace must be and within F-16C average sortie duration range to accomplish 113 WG training requirements. The selection criteria are summarized below.

- Must be within a reasonable distance (200 miles) of the primary end-user
- Must provide an adequate size and shape for both air-to-air and air-to-ground training (i.e. 40 x 80 NM)
- Must have adequate availability to the primary end-user
- Must be controlled by a single ARTCC

Without airspace that meets these selection criteria, exercising units would be severely constrained while trying to achieve their required training goals. Failure to create airspace of suitable dimensions will result in training shortfalls and negatively impact combat readiness and pilot safety.

2.2 PROPOSED ACTION

The proposed Evers MOA expansion and modification is in West Virginia and Virginia (Figures 2-1 and 2-2). The Proposed Action would expand beyond the lateral footprint of the current Evers MOA, subdivide this new airspace volume into five portions that increase Washington ARTCC's ability to accommodate civil operations, and establish three ATCAAs above the MOAs (Figure 2-2). The components of the Proposed Action include:

- Delineate new airspace
    - Evers North, Center and South MOAs (11,000 ft – 17,999 ft above MSL)
    - Evers Low MOA (1,000 ft AGL – 10,999 ft above MSL)
    - Evers East MOA (1,000 ft AGL to 17,999 ft above MSL)
- Create three ATCAAs
    - Diesel North, Center and South ATCAA (Flight Level [FL]180 – FL230 MSL)

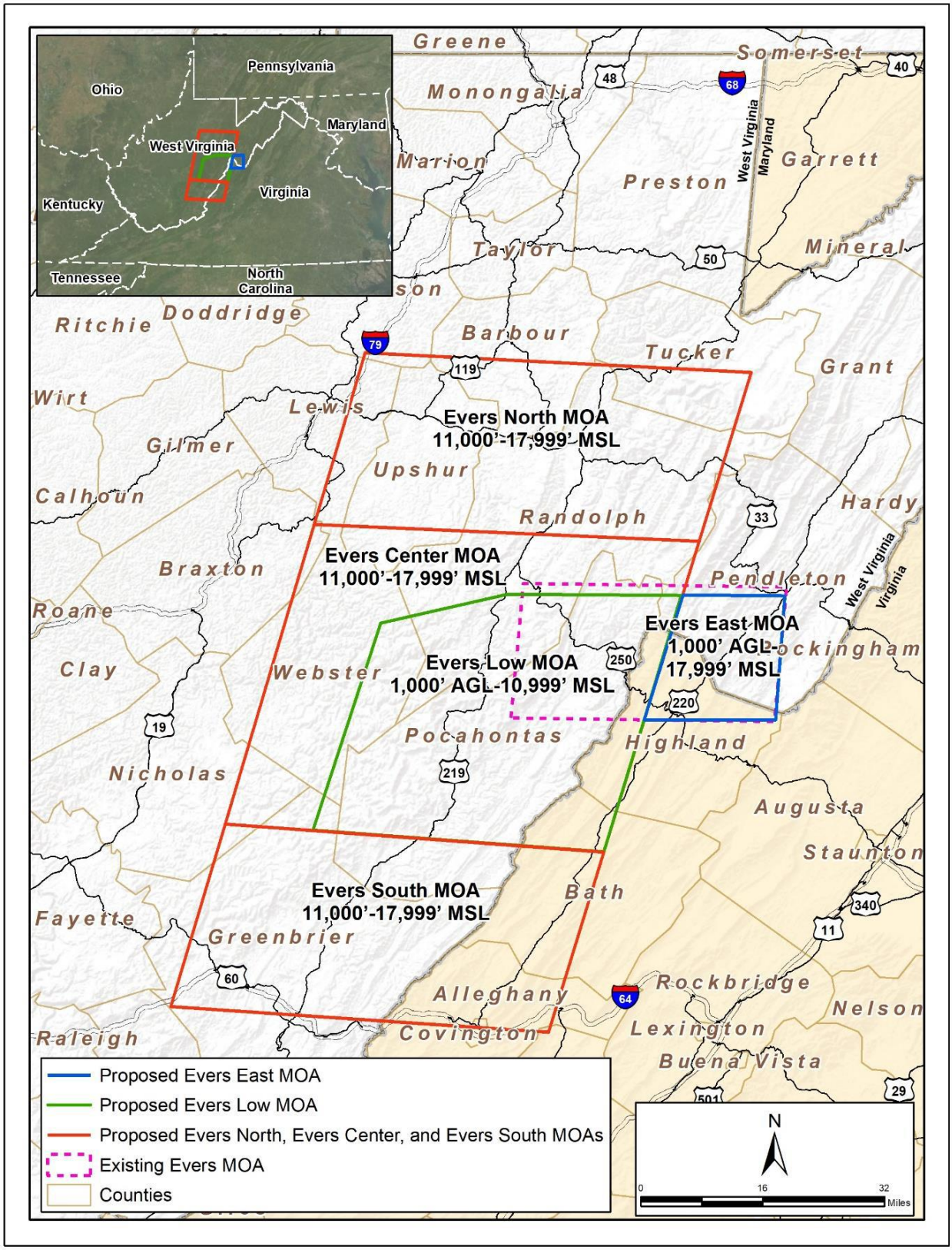


Figure 2-1. Proposed Expansion of the Evers MOA

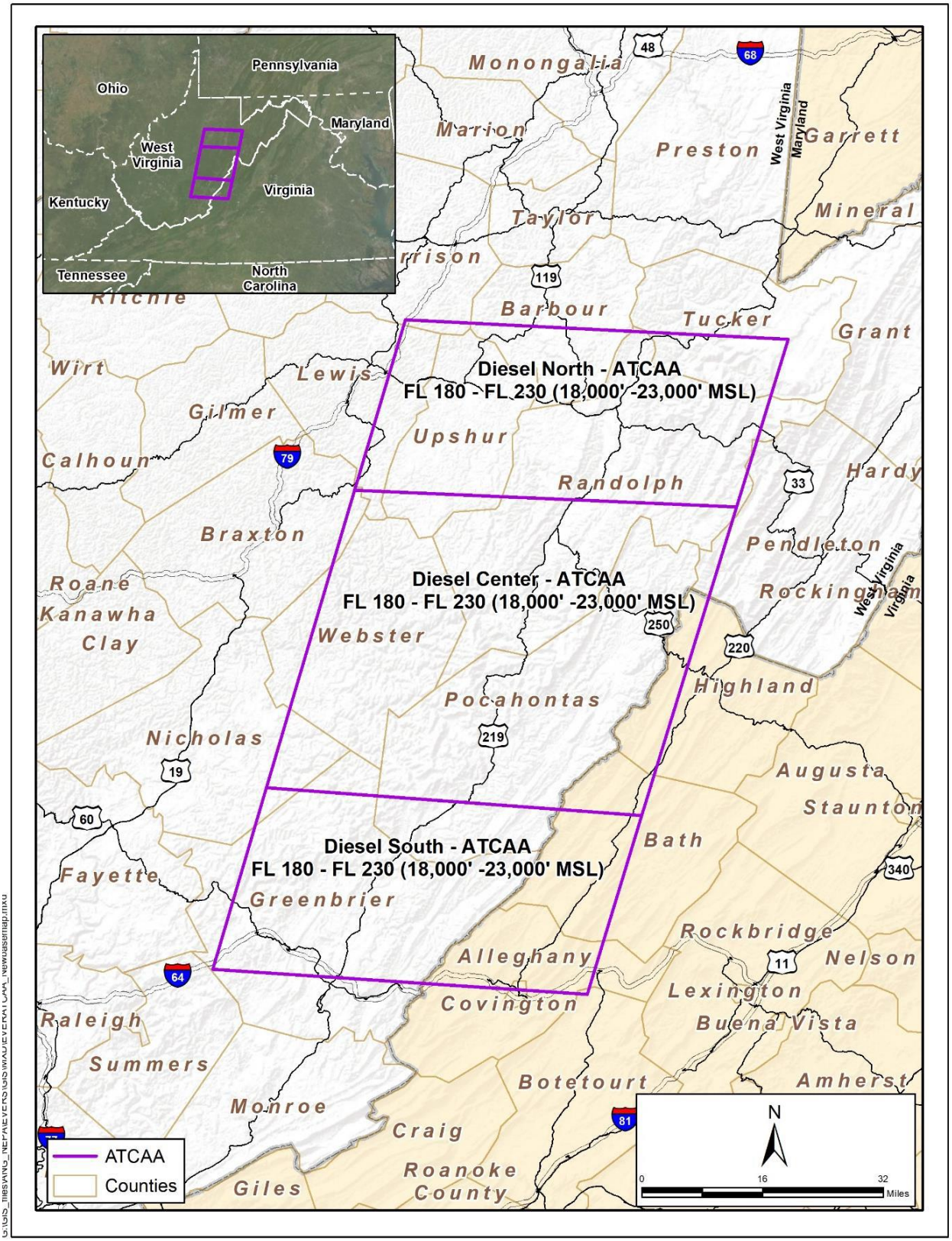


Figure 2-2. Proposed Air Traffic Controlled Assigned Airspaces

The proposed Evers MOA complex would occur over all or parts of the following West Virginia counties: Harrison, Barbour, Tucker, Pendleton, Lewis, Upshur, Randolph, Braxton, Webster, Pocahontas, Nicholas, and Greenbrier. In addition, parts of the following Virginia counties would underlie the proposed expansion and modification: Highland, Alleghany, Bath, and Botetourt. The landscape of West Virginia is rugged, as the Appalachian Mountain system passes from north to south through the state. The elevation within the proposed Evers MOA complex is approximately 2,100 ft above MSL in the lowest valleys to the highest point (Spruce Knob in Pendleton County) in West Virginia at 4,863 ft above MSL. Therefore, the proposed low airspace would rise and fall according to surface elevation to remain at least 1,000 ft AGL (i.e., approximately 3,100 ft above MSL at the lowest point).

The proposed SUA complex is 80 NM north-south and 40 NM east west. The lowest portions of the proposed SUA complex would begin at 1,000 ft AGL and continue to 17,999 ft above MSL. The proposed SUA complex would include three ATCAAs above the proposed MOAs extending up to FL 230 (23,000 ft AGL) (Figure 2-3).

Under the Proposed Action, there would be no infrastructure changes, no ground-disturbing activities, no supersonic flight activities, no release of chaff and flares, no weapons firing, and no ordnance deployment within the proposed airspace.

The proposed expansion and modification of the Evers MOA would create for USAF aircraft a tactically diverse and valuable “over land” training environment on the eastern seaboard. The proposed shape and depth would allow fighter and cargo units to simulate weapons and stores delivery at both low and medium altitudes while targeting and being targeted, at a realistic range, from surface and air threats. The proposed expansion was conceived and built in coordination with FAA representatives to minimize civilian air traffic encroachment and conflict while maintaining the boundaries within a single air traffic controlling center. Through coordination with the Washington ARTCC, the subsections of the proposed MOAs and ATCAAs could be activated or deactivated as needed and distinguishable for aircrew adherence.

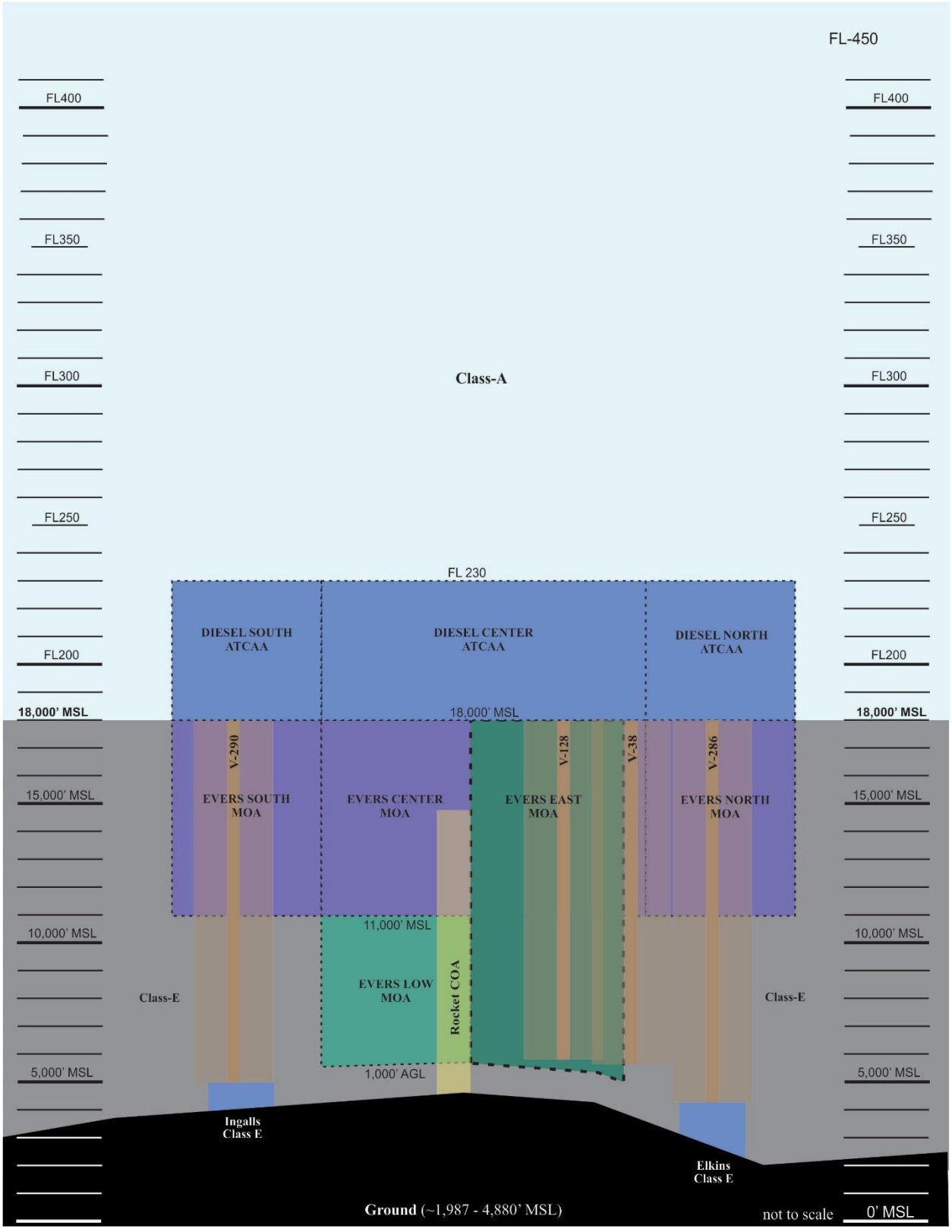


Figure 2-3. Cross-Section of Proposed Modification and Addition of Evers MOA

Table 2-1 provides the vertical limits and the charted times of use of the proposed SUA components. Table 2-2 outlines the lateral coordinates of the proposed airspace.

Table 2-1. Vertical Limits and Charted Times of Use of Proposed Airspace

Airspace	Low-Level (1,000' AGL – 10,999' MSL)	Mid-Level (11,000' – 17,999' MSL)	ATCAA Level (FL180-FL230)	Charted Use
Evers North MOA		•		Sunrise to Sunset Daily Other times by NOTAM
Evers Center MOA		•		
Evers South MOA		•		
Evers Low MOA	•			
Evers East MOA	•	•		
Diesel North ATCAA			•	
Diesel Center ATCAA			•	
Diesel South ATCAA			•	

Table 2-2. Coordinates of the Proposed Airspace

Evers North MOA	**Diesel North ATCAA**
N39^{0}05'00" W80^{0}18'00"	N39^{0}05'00" W80^{0}18'00"
N39^{0}04'00" W79^{0}26'00"	N39^{0}04'00" W79^{0}26'00"
N38^{0}44'27" W79^{0}31'43"	N38^{0}44'27" W79^{0}31'43"
N38^{0}45'29" W80^{0}23'31"	N38^{0}45'29" W80^{0}23'31"
Evers Center MOA	**Diesel Center ATCAA**
N38^{0}45'29" W80^{0}23'31"	N38^{0}45'29" W80^{0}23'31"
N38^{0}44'27" W79^{0}31'43"	N38^{0}44'27" W79^{0}31'43"
N38^{0}05'31" W79^{0}43'15"	N38^{0}05'31" W79^{0}43'15"
N38^{0}06'27" W80^{0}34'28"	N38^{0}06'27" W80^{0}34'28"
Evers South MOA	**Diesel South ATCAA**
N38^{0}06'27" W80^{0}34'28"	N38^{0}06'27" W80^{0}34'28"
N38^{0}05'31" W79^{0}43'15"	N38^{0}05'31" W79^{0}43'15"
N37^{0}46'00" W79^{0}49'00"	N37^{0}46'00" W79^{0}49'00"
N37^{0}47'00" W80^{0}40'00"	N37^{0}47'00" W80^{0}40'00"
Evers Low MOA	**Evers East MOA**
N38º36'06"W80º12'04"	N38º38'43"W79º33'25"
N38º38'34"W79º59'29"	N38º38'48"W79º19'57"
N38º38'43"W79º33'25"	N38º23'58"W79º19'50"
N38^{0}05'31"W79^{0}43'15"	N38^{0}23'34"W79^{0}37'54"
N38^{0}06'10"W80^{0}21'49"	

2.2.1 Evers North MOA and Evers South MOA

Evers North and South MOAs are 25 x 40 NM areas on either side of Evers Center MOA. Each area can be combined with Evers Center to enable a 55 NM intercept range for air-to-air training or used individually as a 25 NM holding/marshalling area (Figure 2-1). The Evers North and South MOAs would begin at 11,000 ft above MSL and extend to 17,999 ft above MSL. The proposed North and South MOAs are deconflicted with the FAA air traffic control routes in a northeasterly-southeasterly direction with 20 NM length x 40 NM width dimensions. The proposed vertical limits, times-of-use, and charted coordinates of the Evers North and Evers South MOA are provided in Tables 2-1 and 2-2.

2.2.2 Evers Center MOA

The Evers Center MOA would have the same northeasterly-southeasterly orientation as the Evers North and South MOAs for contiguous airspace and have the same vertical limits of 11,000 ft above MSL to 17,999 ft above MSL (Figure 2-1). The dimensions would be 40 x 40 NM. The proposed vertical limits, times-of-use, and charted coordinates of the Evers North and Evers Center MOA are provided in Tables 2-1 and 2-2.

2.2.3 Evers Low MOA

The proposed Evers Low MOA would be under the proposed Evers Center MOA, but with reduced north and west boundaries such that north-south and east-west transit corridors remain and allow traffic flow departing or recovering from civilian airfields (Figure 2-1). The Evers Low MOA would be geographically relocated to isolate low altitude training over sparsely populated areas and offset from civilian air traffic. The northern boundary and northeast corner of the proposed Evers Low MOA would be relocated to provide a 3-mile buffer from the southern boundary of the Clarksburg Airport Radar Approach Control area. The buffer would eliminate the need for redundant control coordination between Washington ARTCC and Clarksburg Airport. The proposed vertical limits, times-of-use, and charted coordinates of the Evers Low MOA are provided in Tables 2-1 and 2-2.

2.2.4 Evers East MOA

The proposed Evers East MOA would be approximately half the size in lateral dimensions of the existing Evers MOA (Figure 2-1). Establishment of the Evers East MOA would not in-and-of-itself constitute a change to the vertical or lateral boundaries when compared to the existing Evers MOA. The proposed vertical limits, times-of-use, and charted coordinates of the Evers East MOA are provided in Tables 2-1 and 2-2.

2.2.5 Diesel ATCAAs (North, Center and South)

The proposed Diesel North, Center, and South ATCAAs would overlay the lateral boundaries of the Evers North, Center, and South MOAs (Figure 2-1), beginning at 18,000 ft above MSL and

extending to 23,000 ft above MSL. According to FAA coordination, the proposed ATCAAs would be altitude de-conflicted with terminal arrivals while providing maximum weapon simulations at the designated altitudes. The proposed vertical limits, times-of-use, and charted coordinates of the Diesel ATCAAs are provided in Tables 2-1 and 2-2.

2.2.6 Aircraft Operations

The 121st Fighter Squadron (FS) operates the F-16C which is a multi-role fighter platform currently in service worldwide. The F-16C is responsible for Defensive Counter Air (DCA), Offensive Counter Air – Attack Operations (OCA-AO), Combat Search and Rescue (CSAR), Close Air Support (CAS), Forward Air Control (FAC-A), and Air Interdiction (AI). Operational activities would consist of typical MOA flight operations to include tactical combat maneuvering with abrupt, unpredictable changes in altitude and direction of flight.

2.2.6.1 Other Expected Users

Other expected users of the Evers MOA complex include 104 FS (A-10C), 27 FS (F-22), 71st Fighter Training Squadron (T-38A), 333 FS (F-15E), 167th Airlift Wing (AW, C-17), and 130 AW (C-130). Military (Navy) users would conduct exercises with F-16, A-10C, F-22, T-38A, F-15E, C-17, and C-130 aircraft. Other users may conduct exercises with FA-18 aircraft.

The 104 FS's state mission is to maintain a well-trained and well-equipped A-10C squadron available for prompt mobilization during war and also provide assistance to Allies during emergencies; its federal mission is during peacetime has the combat-ready unit assigned to ACC. The 27 FS's mission is to rapidly deploy combat ready F-22 aircraft and airmen to perform air dominance and air defense missions worldwide in support of all United States operations. The 71st Fighter Training Squadron's mission is to provide professional adversary air (T-38A) support to enhance the 1st Fighter Wing's F-22 combat capability. The 333 FS is one of six F-15E squadrons in the U.S. Air Force, its mission is to be prepared to deploy anywhere in the world on short notice and deliver an array of air-to-ground weapons. The 167 AW operates C-17 Globemaster III aircraft to deliver people and equipment to locations around the globe. The 130 AW's mission is to deploy a force capable of conducting effective and sustained C-130 combat airlift operations in support in support of the United States Air Force and the State of West Virginia.

2.2.6.2 Air Operations

The overall aircraft utilization within the proposed airspace is presented in Table 2-3. The data are grouped into low level (below 11,000 ft above MSL) and mid-level (11,000 to 17,999 ft above MSL) to represent the limits of the MOA. High-level (above 17,999 ft MSL) represents ATCAA use. The Proposed Action would (1) be within 200 miles of the primary end-user, (2) establish a 40 x 80 NM airspace, (3) provide adequate availability to the primary end-user, and (4) be controlled by a single ARTCC. The Proposed Action fully meets the purpose and need; therefore, it has been carried forward for detailed analysis in the EA.

Table 2-3. Air Operations - Existing and Proposed Action

	Annual Usage				Individual Mission Parameters			
						Time at Altitude (minutes/sortie)		
Aircraft	Time in SUA (hours)	Number of Training Missions	Single Aircraft Sorties	Percentage of Operations in Busiest Month	Average Number of Aircraft Per Mission	Low-Altitude	Mid-Altitude	High-Altitude
Existing Operations								
F-16	109	194	485	20%	2.5	16.9	16.9	-
A-10C	40	52	192	37%	2.0	15.0	15.0	-
F-22	40	119	357	20%	3.0	3.0	17.0	-
T-38A	36	63	189	20%	3.0	5.1	28.9	-
F-15E	21	41	82	15%	4.0	15.0	5.0	-
Total/Average	**245**	**469**	**1,305**		**2.5**	**11.0**	**16.6**	**-**
Proposed Operations								
F-16	136	243	606	20%	2.5	10.1	10.1	13.5
A-10C	21	41	82	37%	2.0	11.3	9.4	9.4
F-22	40	119	357	20%	3.0	3.0	12.0	5.0
T-38A	36	63	189	20%	3.0	5.1	20.4	8.5
F-15E	44	120	480	15%	4.0	13.2	13.2	17.6
C-17	25	25	25	8%	1.0	15.0	15.0	30.0
C-130	20	40	80	15%	2.0	22.5	6.0	1.5
Total/Average	**365**	**651**	**1,819**		**2.5**	**11.4**	**12.3**	**12.2**

Low Altitude = 1,000' AGL – 10,999’ MSL. Mid-Altitude = 11,000’ – 17,999' MSL. High Altitude = FL180 – FL230.

3.0 NOISE MODELING

3.1 NOISE OVERVIEW

Sound is a physical phenomenon consisting of vibrations that travel through a medium, such as air, and are sensed by the human ear. Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise intrusive. Human response to noise varies depending on the type and characteristics of the noise, distance between the noise source and the receptor, receptor sensitivity, and time of day. Noise is often generated by activities essential to a community's quality of life, such as aircraft operations, construction, or vehicular traffic.

Sound varies by both intensity and frequency. Sound pressure level, described in decibels (dB), is used to quantify sound intensity. The dB is a logarithmic unit that expresses the ratio of a sound pressure level to a standard reference level. Hertz are used to quantify sound frequency. The human ear responds differently to different frequencies. "A-weighing", measured in A-weighted decibels (dBA), approximates a frequency response expressing the perception of sound by humans. The sound pressure level noise metric describes steady noise levels, although few noises are, in fact, constant; therefore, additional noise metrics have been developed to describe noise including:

- Maximum Sound Level (L_{max}) – L_{max} is the maximum sound level of an acoustic event in decibels (e.g. when an aircraft is directly overhead).

- Equivalent Sound Level (L_{eq}) - L_{eq} is the average sound level in decibels.

- Sound Exposure Level (SEL) – SEL is a measure of the total energy of an acoustic event. It represents the level of a one-second long constant sound that would generate the same energy as the actual time-varying noise event such as an aircraft overflight. SEL provides a measure of the net effect of a single acoustic event, but it does not directly represent the sound level at any given time.

- Day-night Sound Level (DNL) – DNL is the average sound energy in a 24-hour period with penalty added to the nighttime levels. Because of the potential to be particularly intrusive, noise events occurring between 10:00 p.m. and 7:00 a.m. are assessed a 10 dB penalty when calculating DNL. DNL is a useful descriptor for aircraft noise because: (1) it averages ongoing yet intermittent noise, and (2) it measures total sound energy over a 24-hour period. DNL provides a measure of the overall acoustical environment, but as with SEL, it does not directly represent the sound level at any given time.

- Onset-Adjusted Monthly DNL (L_{dnmr}) is the average sound energy in a 24-hour period with a 10 dB penalty added to the nighttime levels, and up-to an additional 11 dB penalty for acoustical events with onset rates greater than 15 dB per second, such as high-speed jets operating near the ground. L_{dnmr} is assessed for the month with the highest number of

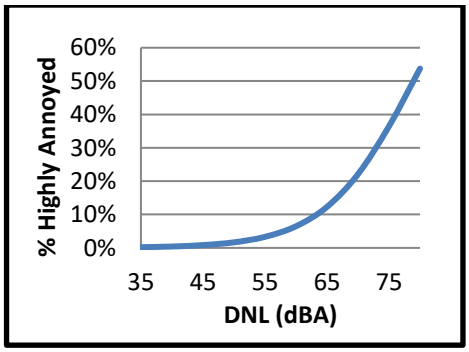
events, and as with DNL and SEL, it does not directly represent the sound level at any given time. Because of the penalties for rapid onset, L_{dnmr} is always equal to or greater than DNL.

- Percent Highly Annoyed (%HA). The concept of long-term annoyance is used to account for all negative aspects of noise, including activity interference, including speech interference and sleep disturbance for nighttime activities, and is the basis for determining impacts due to aircraft noise associated with military and civilian aircraft operations. DNL or L_{dnmr} are highly correlated with and used to determine the %HA (Table 3-1). It is not possible to accurately predict the exact annoyance responses to aircraft noise exposure in any specific community and %HA is not designed to be used to determine exactly how many or which individuals may be annoyed by aircraft noise. Annoyance is reported as the change in the percent of population expected to be highly annoyed, and individuals or populations outlined as highly annoy within this EA are for reference purposes and to determine the potential for effects.

Table 3-1. Relationship Between Annoyance and DNL

DNL/Ldnmr (dBA)	% Highly Annoyed
35	0.2%
40	0.4%
45	0.8%
50	1.7%
55	3.3%
60	6.5%
65	12.3%
70	22.1%
75	36.5%
80	53.7%

Source: USAF 2016



3.2 METHODOLOGY

Baseline data for the Ever SUA Complex was collected during a site visit and personnel interviews in 2018. Air operational data for the proposed SUA Complex was provided by ANG operational personnel and checked for consistency with the traditional use of the existing airspace. The primary users of the proposed Evers SUA Complex would conduct exercises with F-15, A-10, F-16, C-17, C-130 and F-22 aircraft.

This noise analysis uses the MR_NMAP (v3.0) as part of the NoiseMAP computer suite to predict noise levels (DNL) associated with aircraft operations beneath the proposed Bison SUA Complex (USAF 2016a). The parameters considered in the modeling included aircraft type, airspeed, power settings, aircraft operations, vertical training profiles, and the time spent within each airspace block. Notably, MR_NMAP is the FAA- and DoD-Approved noise model for aircraft operations beneath special use airspace (USAF 2016b and FAA 2015).

L_{dnmr} is the accepted noise metric for the ANG when determining noise levels from aircraft operations within SUA; however, DNL is the accepted noise metric for the FAA when determining noise levels from aircraft operations within SUA. MR_NMAP was used to model the overall sound levels with both L_{dnmr} and DNL and both have been carried forwarded for use in this analysis to meet the requirements for both agencies. L_{dnmr} based on average busiest month aircraft operations with rapid onset penalty, whereas DNL is based on actual air operations without rapid onset penalty. Due to the onset penalty and the use of busiest month operations, L_{dnmr} always equals or exceeds DNL.

As the action encompassed an area that is larger than the immediate vicinity of an airport and includes actions above 3,000 feet AGL, the noise analysis includes a discussion on a change-in exposure and examines the change in noise levels as compared to population and demographic information from the U.S. Census blocks. The assessment includes depictions of (1) the population within areas exposed at or above DNL 65 dB, at or above DNL 60 but less than DNL 65 dB, and at or above DNL 45 dB but less than DNL 60 dB has been included in the discussion (FAA 2015)

Since the study encompasses a large geographical area, the effects are of medium intensity over a large area, as opposed to high intensity over a smaller area (e.g., noise near an air installation), change-of-exposure tables were developed to identify where noise will change by 1.5, 3, and 5 dBA (FAA 2015 FAA Order 1050.1F defines the thresholds for “significant” noise impacts and the thresholds for “reportable” noise impacts. To make certain the ANG is meeting FAA requirements, during the release and transmittal of the Draft EA, the ANG will "report" the greater than 5 dBA day-night Sound Level (DNL) increase to interested parties. In addition, the ANG will include a brief discussion to outline that, as described above, changes in overall noise levels would only introduce a minute incremental changes in the percent highly annoyed for areas under the proposed Evers Low MOA, as the noise in such areas would not normally solicit complaints and noise would be "essentially the least important of various factors" in these areas. In addition, the ANG will outline that the change in noise under the Proposed Action would decrease noise levels by 2.6 to 7.8 dBA DNL throughout 634 square miles (SM) and for individuals beneath the existing Evers MOA.

Supplemental Metrics. Both the USAF and the FAA encourage the inclusion of supplemental noise metrics in the assessment of noise from airspace actions (USAF 2016b and FAA 2015). It is understood that the sole use of DNL and land-use compatibility cannot accurately describe the nature and effects from aircraft noise. This is particularly true for airspace actions which have effects of medium intensity over large geographical areas, as opposed to high-intensity effects over a smaller area (e.g., noise near an airport or air installation). MR_NMAP was used to determine the %HA for each SUA to account for all negative aspects of noise, including activity interference, including speech interference, and was used as an additional basis for determining impacts due to aircraft noise associated with the action. MR_NMAP was also used to calculate L_{max} and SEL for individual overflights, and L_{dnmr} levels and the average daily number of events that would exceed 75 dBA (L_{max}) beneath the proposed Bison SUA Complex. These metrics were used to assess the

potential for disturbance to speech and sleep, to determine if individual acoustic events would be loud enough to damage hearing or structures, and to provide the public with a better understanding of the specific effects. (USAF 2016b and FAA 2015)

3.3 AFFECTED ENVIRONMENT

3.3.1 Population

U.S. Census block data was used to determine the population exposed to aircraft noise. Other than visual counts, this is the narrowest available geo-referenced data set available. The SUA complex is vast, covering 4,827 square miles, and the census block data was appropriate for this scale activity. Table 3-2 and Figure 3-1 outline the population under the proposed Evers SUA Complex. There are approximately 130,000 individuals and 72,000 households beneath the proposed SUA complex.

Table 3-2. Estimated Population Beneath the Proposed Evers SUA Complex

Airspace	Population	Households	Area (square miles)
Existing			
Evers Existing	6,990	5,214	634
Proposed			
Evers Low MOA	9,186	9,742	1,270
Evers Center MOA[a]	18,802	10,168	858
Evers South MOA	33,941	18,604	1,260
Evers North MOA	64,180	30,550	1,178
Evers East MOA	3,775	2,549	261
Total[b]	**129,884**	**71,613**	**4,827**

[a] Does not include population or area included under the Evers Low MOA.
[b] Does not include the population or area no longer under any MOA.
Source: U.S. Census 2018.

3.3.2 Background Noise Levels

Background noise levels (L_{eq} and DNL) were estimated for the areas below the proposed SUA complex using the techniques specified in the *American National Standard Institute - Quantities and Procedures for Description and Measurement of Environmental Sound Part 3: Short-term measurements* with an observer present (ANSI 2013). Table 3-3 outlines the overall sound levels (i.e. DNL) beneath the proposed Evers SUA Complex without any aircraft activities. Most of the land beneath the proposed SUA Complex is rural; however, there are several small towns and villages. These towns would be relatively quiet, and background sound levels without aircraft would not normally exceed 52 dBA L_{eq} in the daytime, or 44 dBA L_{eq} at night. Background levels would be less than this in rural areas, and appreciably less in remote areas.

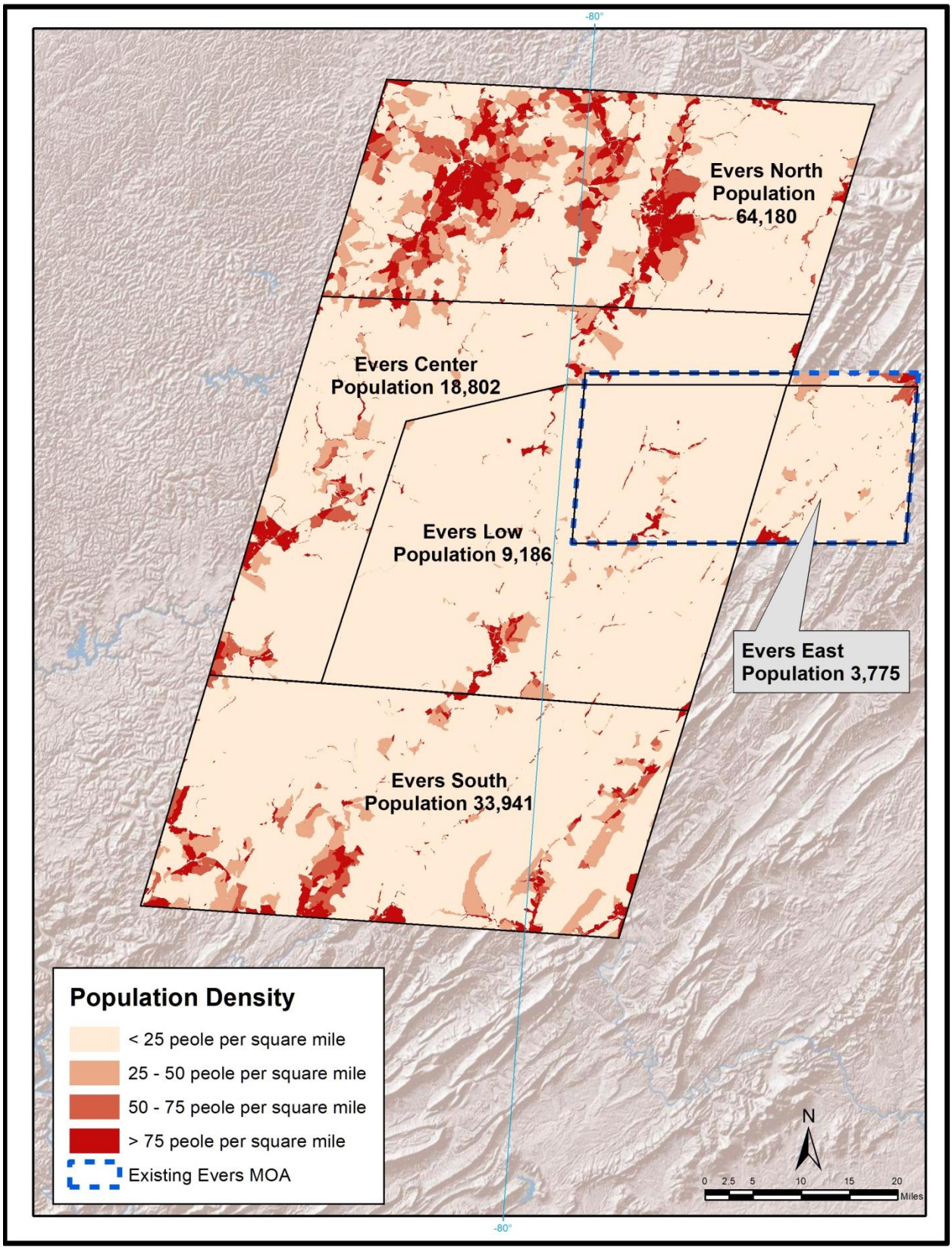


Figure 3-1. Population Density

Table 3-3. Estimated Background Sound Levels

Land Use Category	DNL [dBA]	L_{eq}[dBA] Daytime	L_{eq}[dBA] Nighttime
Normal suburban residential	52	50	44
Quiet suburban residential	47	45	39
Rural residential	42	40	34
Rural/Remote	<42	<40	<34

Source: ANSI 2013.

3.3.3 Existing Overall Aircraft Noise

Table 3-4 outlines the existing overall sound levels (i.e. DNL/L_{dnmr}) beneath the Evers SUA Complex without the Proposed Action. Figure 3-2 outlines the overall sound levels (i.e. L_{dnmr}) beneath the existing Evers MOA with aircraft activities and the remainder of the proposed SUA Complex without any aircraft activities. The estimated DNL ranges from less than 42.0 dBA DNL in rural areas beyond the boundaries of the existing MOA to 49.8 dBA DNL in areas beneath the existing Evers MOA. The estimated Ldnmr ranges from less than 42.0 dBA DNL in rural areas beyond the boundaries of the existing MOA to 54.2 dBA DNL in areas beneath the existing Evers MOA. The overall noise from aircraft operations is distinctly higher than background levels beneath the existing Evers MOA .

Table 3-4. Overall Sound Levels and Percent Highly Annoyed - Existing Conditions

Airspace	Population	DNL (dBA)	Ldnmr (dBA)	%Highly Annoyed
Evers MOA	6,990	49.8	54.2	2.9%

Source: USAF 2016a and U.S. Census 2018.
[a] DNL based on actual air operations without rapid onset penalty.
[b] L_{dnmr} based on average busiest month aircraft operations with rapid onset penalty.

Noise from existing aircraft operations does not exceed 65 dBA DNL, and is fully compatible with all land uses. In general, the aircraft operations are spread out throughout the 634 square miles beneath the existing Evers MOA. Although, the overall noise from aircraft is fully compatible with all land uses, an estimated 2.9% of the population are highly annoyed by the existing aircraft noise under the Evers MOA. Generally speaking, 0.6% of individuals are highly annoyed by other sources of noise in rural and remote areas that are void of aircraft operations. These sources are primarily vehicle traffic, but also include industrial sources, construction activities, and lawn equipment.

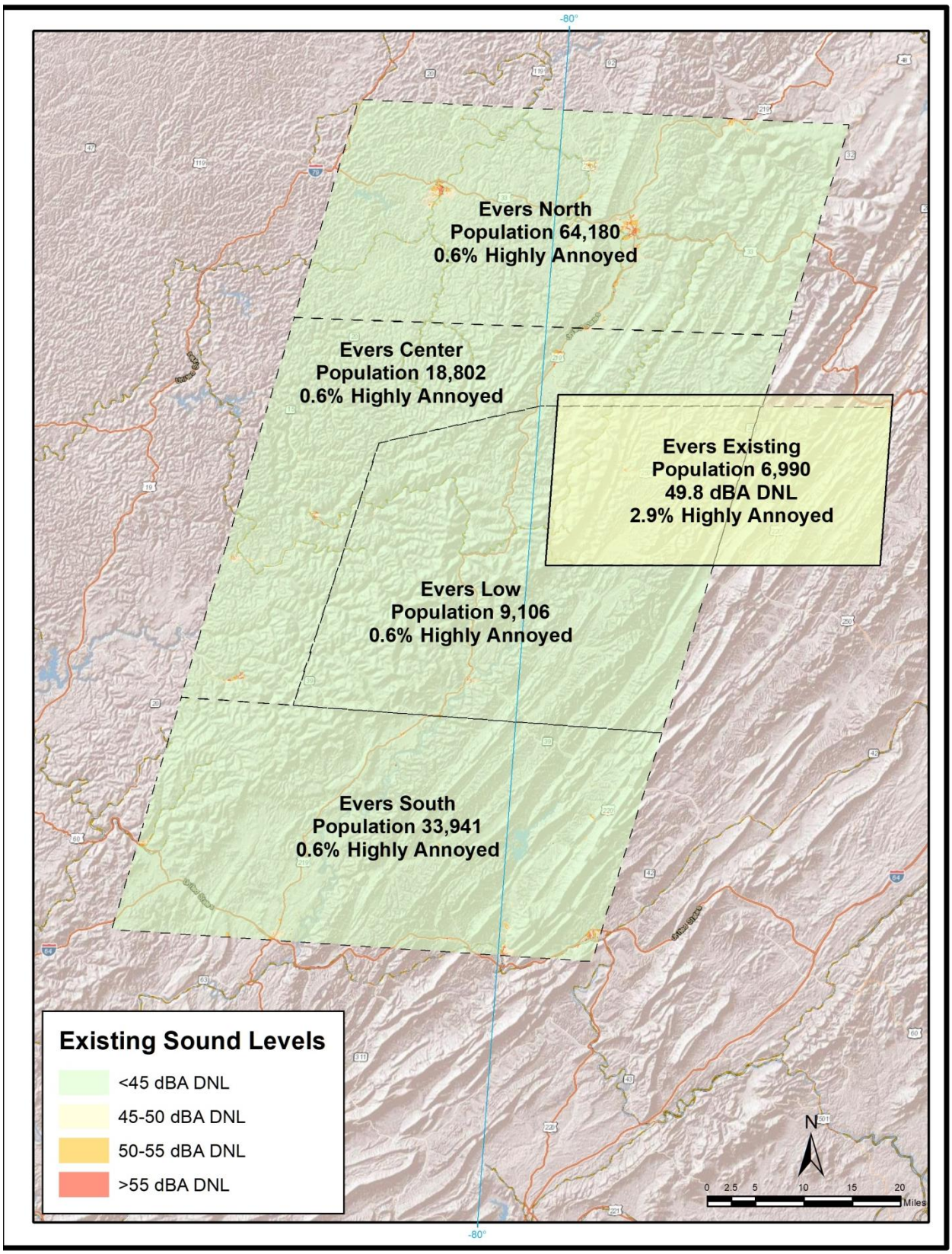


Figure 3-2. Overall Sound Levels and Percent Highly Annoyed - Existing

3.3.4 Existing Individual Overflight Noise

Although operational noise levels are too low to result in incompatibility with existing land uses, noise from individual overflights generate distinct acoustical events. Table 3-5 outlines the L_{max} and SEL for individual aircraft overflights for the primary users of the existing Evers MOA. Mid- to low-altitude overflights are similar to, but substantially louder than high altitude commercial aircraft overflights. Overflights conducted in the mid-level airspaces are clearly audible, sometimes loud, to individuals who are outdoors, and clearly perceptible inside nearby buildings. Effects from mid-level overflights are distributed throughout areas below and adjacent to the existing MOA. Overflights conducted in the low-level airspaces are loud, sometimes very loud, to individuals who are outdoors, and clearly audible, sometimes loud inside nearby buildings. These overflights are brief, intermittent, distributed though the MOA, and normally do not occur repeatedly at any one location. Individual overflights would be neither loud enough or frequent enough to highly annoy appreciable percentage of the population or to generate areas of incompatible land-use underneath the existing Evers MOA.

Table 3-5. Estimated Sound Levels for Individual Overflights

Altitude (ft AGL)	L_{max} (dBA)[a]				SEL (dBA)[b]			
	A-10[c]	F-15[d]	F-16[e]	F-22[f]	A-10[c]	F-15[d]	F-16[e]	F-22[f]
1,000	94.8	96.7	100.4	112.4	98.4	103.5	104.9	118.7
5,000	75.6	77.7	80.3	93.0	83.4	88.7	89.0	103.5
10,000	63.9	67.6	69.8	82.9	73.5	80.4	80.3	95.2
20,000	49.2	55.5	57.6	70.9	60.6	70.1	69.8	85.0

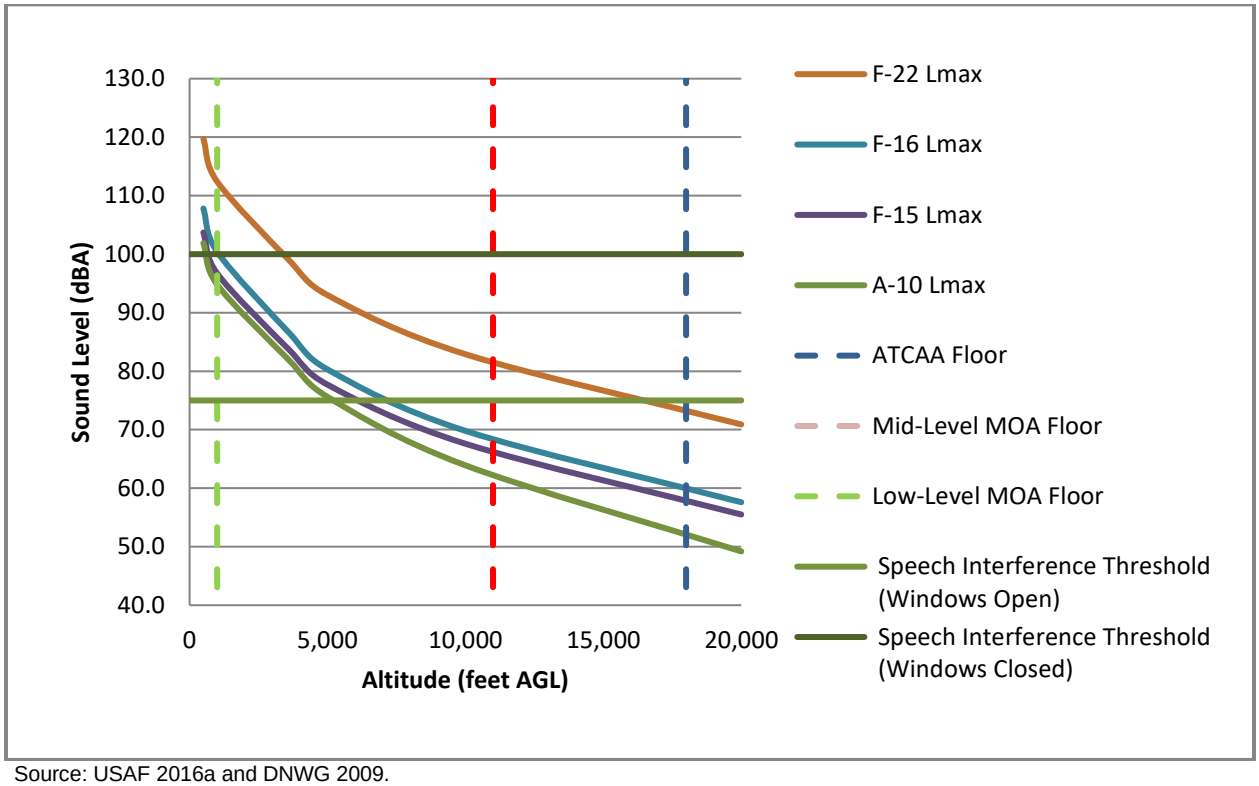
Source: USAF 2016A.
Notes:
[a] L_{max} is the maximum sound level during an individual overflight.
[b] SEL is the sound level if the entire overflight was compressed into one second and does not represent the actual noise at any given time.
[c] A-10A operating at 97% Engine Core RPM (NC) at 350 knots.
[d] F-15E operating at 85%NC at 300 knots.
[e] F-16C operating at 90% NC at 450 knots.
[f] F-22 operating at 100% Engine Thrust Ratio (ETR) at 300 knots.

Speech Interference. In general, low- to mid-altitude aircraft overflights can interfere with communication on the ground, and in homes, schools or other buildings directly under their flight path. The disruption of routine activities in the home, such as radio or television listening, telephone use, or family conversation, can give 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. The threshold at which aircraft noise may begin to interfere with speech and communication is 75 dBA (DNWG 2009). This level is consistent with, and more conservative than, the thresholds outlined in the American National Standards Institute's *Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools* (ANSI 2010).

Figure 3-3 depicts the L_{max} for individual aircraft overflights for the primary users of the existing Evers MOA. L_{max} for at 1,000 ft AGL are 94.8 dBA for an A-10, 96.7 dBA for an F-15, 100.4 dBA for an F-16, and 118.7 for an F-22 (Table 3-5). These sound levels are appreciably louder than the

threshold for speech interference, and single A-10, F-15, F-16 or F-22 aircraft operating in the low-level MOAs would interfere with communication for individuals on the ground under their flight path. L_{max} for at 10,000 ft AGL are 63.9 dBA for an A-10, 67.6 dBA for an F-15, 69.8 dBA for an F-16, and 82.9 for an F-22 (Table 3-5), and only F-22 overflights would the threshold for speech interference when operating in the midlevel MOAs. These effects are distributed throughout areas below and adjacent to the areas under the existing Evers MOA.

Table 3-6 outlines the estimated critical distance required for an individual aircraft to interfere with speech, and the lateral distance on the ground from flight track where aircraft interfere with speech. An F-22 operating in the mid- or low-altitude portions of the existing Evers MOA interferes with speech for all individuals within approximately 3.0 miles of the flight track directly below the aircraft. An F-16 operating in the low-altitude portion of the existing Evers MOA interferes with speech for all individuals within approximately 0.9 to 1.3 miles of the flight track directly below the aircraft. An F-15 operating in the low-altitude portion of the existing Evers MOA interferes with speech for all individuals within approximately 0.7 to 1.2 miles of the flight track directly below the aircraft. An A-10 operating in the low-altitude portion of the existing Evers MOA interferes with speech for all individuals within approximately 0.7 to 0.9 miles of the flight track directly below the aircraft. It is possible that some locations experience these events more often others; however, louder events at these locations are offset with a one-to-one reduction in overflights at other locations.



Source: USAF 2016a and DNWG 2009.
Notes: L_{max} is the maximum sound level during the overflight.

Figure 3-3. Estimated Lmax for Individual Overflights

Table 3-6. Lateral Distance from Flight Track for Speech Interference

Aircraft	Slant Distance (ft) to Speech Interference Threshold	Overflight Altitude (ft AGL)			
		500	1,000	3,600	5,000
		Lateral Distance from Flight Track for Speech Interference [ft (miles)]			
F-22	16,000	15,992 (3.0)	15,969 (3.0)	15,590 (3.0)	15,199 (2.9)
F-16	7,000	6,982 (1.3)	6,928 (1.3)	6,003 (1.1)	4,899 (0.9)
F-15	6,300	6,280 (1.2)	6,220 (1.2)	5,170 (1.0)	3,833 (0.7)
A-10	5,000	4,975 (0.9)	4,899 (0.9)	3,470 (0.7)	

Source: USAF 2016a.

Damage to Hearing. Noise-related hearing loss due to long-term exposure (many years) to continuous noise in the work place has been studied extensively, but there has been little research on the potential for noise induced hearing loss on members of the community from exposure to aircraft noise. Unlike workplace noise, community exposure to aircraft overflights is not continuous, but consists of individual events where the sound level exceeds the background level for a limited time. Over 40 years, an individual would need to be exposed to average sound level of 75 dBA, 8 hours per day for 40 years to experience hearing loss (USEPA 1974 and CHABA 1977), as such Occupational Safety & Health Administration (OSHA) and the NGB have adopted a threshold of 80 dBA for 8 hours per day as the threshold for hearing protection (USAF 2013). As aircraft overflights are intermittent and not continuous, no individuals are exposed to sound levels exceeding 75 dBA for 8 hours per day beneath the Evers MOA. In addition, OSHA and the NGB have adopted a threshold of 140 dB instantaneous noise level as a threshold for short-term exposure that may induce hearing loss. As individual aircraft overflights within the Evers MOA are not supersonic, and do not generate sonic booms above 140 dB, no individuals beneath the SUA complex are exposed to instantaneous sound levels exceeding 140 dB.

Damage to Structures. Noise from low-level aircraft overflights can cause buildings under their flight path to vibrate, which the occupants experience as shaking of the structure and rattling of the windows. However, based on experimental data and models, noise and vibrations from subsonic aircraft overflights do not cause structural damage to buildings. An impact noise (i.e., blast noise or sonic boom) above 140 dB is required to generate sufficient energy to damage structures (USAF 2016b, Siskind 1989, and Bureau of Mines 1980). Individual overflights within the Evers MOA are not supersonic, and do not generate sonic booms above 140 dB; therefore, there is no potential for damage to structures.

3.4 SIGNIFICANCE THRESHOLD

Effects to noise would be less than significant unless the Proposed Action would (1) increase noise levels by more than 1.5 dBA DNL in a noise sensitive area exposed to noise above 65 dBA DNL; (2) increase noise levels by greater than 5 dBA DNL over large geographic areas or populations and is determined to be environmentally controversial; or (3) generate individual acoustic events loud enough to damage hearing or structures.

3.5 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

The Proposed Action would have the potential for long-term minor adverse effects on the noise environment. Effects would be due to noise from the introduction of low- to mid-altitude military overflights in areas beneath the proposed Evers Low MOA. The Proposed Action would not increase noise levels by more than 1.5 dBA DNL in a noise sensitive area that is exposed to noise above 65 dBA DNL, or generate individual acoustic events loud enough to damage hearing or structures. The Proposed Action would increase noise levels by 5.2 dBA DNL and percent highly annoyed by 0.8% beneath the proposed Evers Low MOA in areas not currently within the existing Evers MOA. There would be appreciable decreases (4.3 to 10.8 dBA DNL) in noise and corresponding decrease in the percent highly annoyed under the existing Evers MOA. Overall, there would be no change in the total number of individuals highly annoyed by aircraft. Regardless of any decreases in noise in the existing MOA, individuals experiencing a higher noise levels within the proposed low would still be affected by the Proposed Action.

3.5.1 Overall Aircraft Noise

Table 3-7, Figures 3-4, and Figure 3-5 summarize the overall noise levels (i.e. DNL) beneath the Evers SUA Complex with the implementation of the Proposed Action and their change when compared to existing conditions. To meet both ANG and FAA criteria, noise modeling was performed to determine both L_{dnmr} and DNL. The estimated DNL (I.e., average annual noise) would range from 42.9 dBA in areas beneath mid-altitude MOAs to 47.2 dBA in the low-altitude training areas. The estimated Ldnmr (i.e., busiest month noise) would range from 43.8 dBA in areas beneath mid-altitude MOAs to 49.6 dBA in the low-altitude training areas. The overall noise environment would be similar to but slightly greater than background levels in most areas beneath the existing and proposed SUAs.

Table 3-7. Overall Sound Levels and Percent Highly Annoyed - Proposed Action

	Existing			Proposed			Change from Existing		
Airspace	**DNL (dBA)**	**L_{dnmr} (dBA)**	**%Highly Annoyed**	**DNL (dBA)**	**L_{dnmr} (dBA)**	**%Highly Annoyed**	**DNL (dBA)**	**L_{dnmr} (dBA)**	**%Highly Annoyed**
Evers Low MOA **(under existing MOA)**	49.8	54.2	2.9%	47.2	49.5	1.4%	-2.6	-4.6	-1.5%
Evers Low MOA **(not under existing MOA)**	42.0	42.0	0.6%	47.2	49.5	1.4%	5.2	7.5	0.8%
Evers Center MOA **(under existing MOA)**	49.8	54.2	2.9%	42.9	43.8	0.6%	-6.9	-10.4	-2.3%
Evers Center MOA **(not under existing MOA)**	42.0	42.0	0.6%	42.9	43.8	0.6%	0.9	1.8	0.0%
Evers South MOA	42.0	42.0	0.6%	43.0	43.9	0.6%	1.0	1.9	0.0%
Evers North MOA	42.0	42.0	0.6%	43.0	43.9	0.6%	1.0	1.9	0.0%
Evers East MOA	49.8	54.2	2.9%	47.2	49.6	1.6%	-2.6	-4.6	-1.3%
Areas no longer under MOA	49.8	54.2	2.9%	42.0	42.0	0.6%	-7.8	-12.2	-2.3%
		Total	1.1%		Total	0.7%		Total	-0.4%

Source: US Census 2018 and USAF 2016a.
[a] DNL based on actual aircraft operations without rapid onset penalty.
[b] L_{dnmr} based on average busiest month aircraft operations with rapid onset penalty.

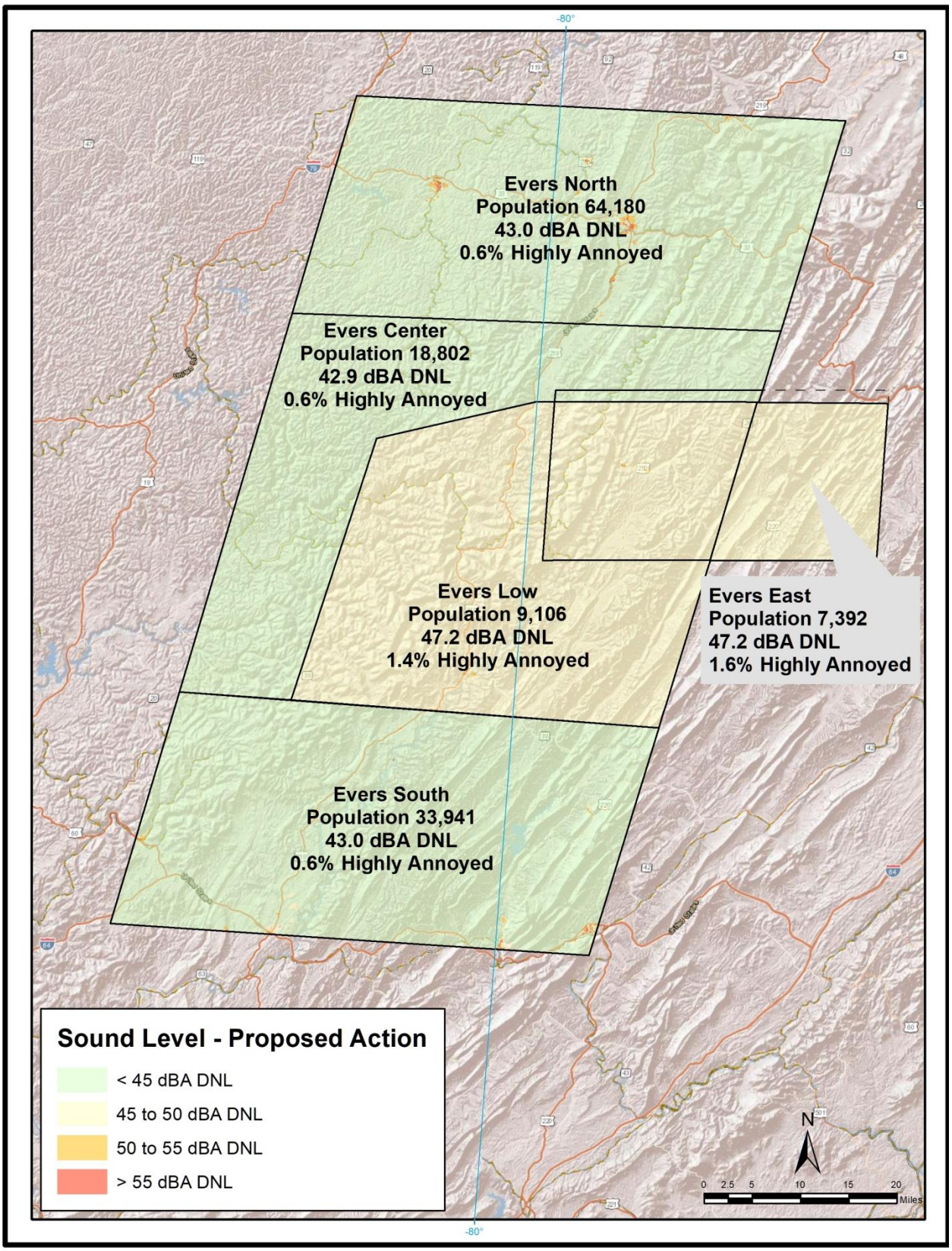


Figure 3-4. Overall Sound Levels and Percent Highly Annoyed - Proposed Action

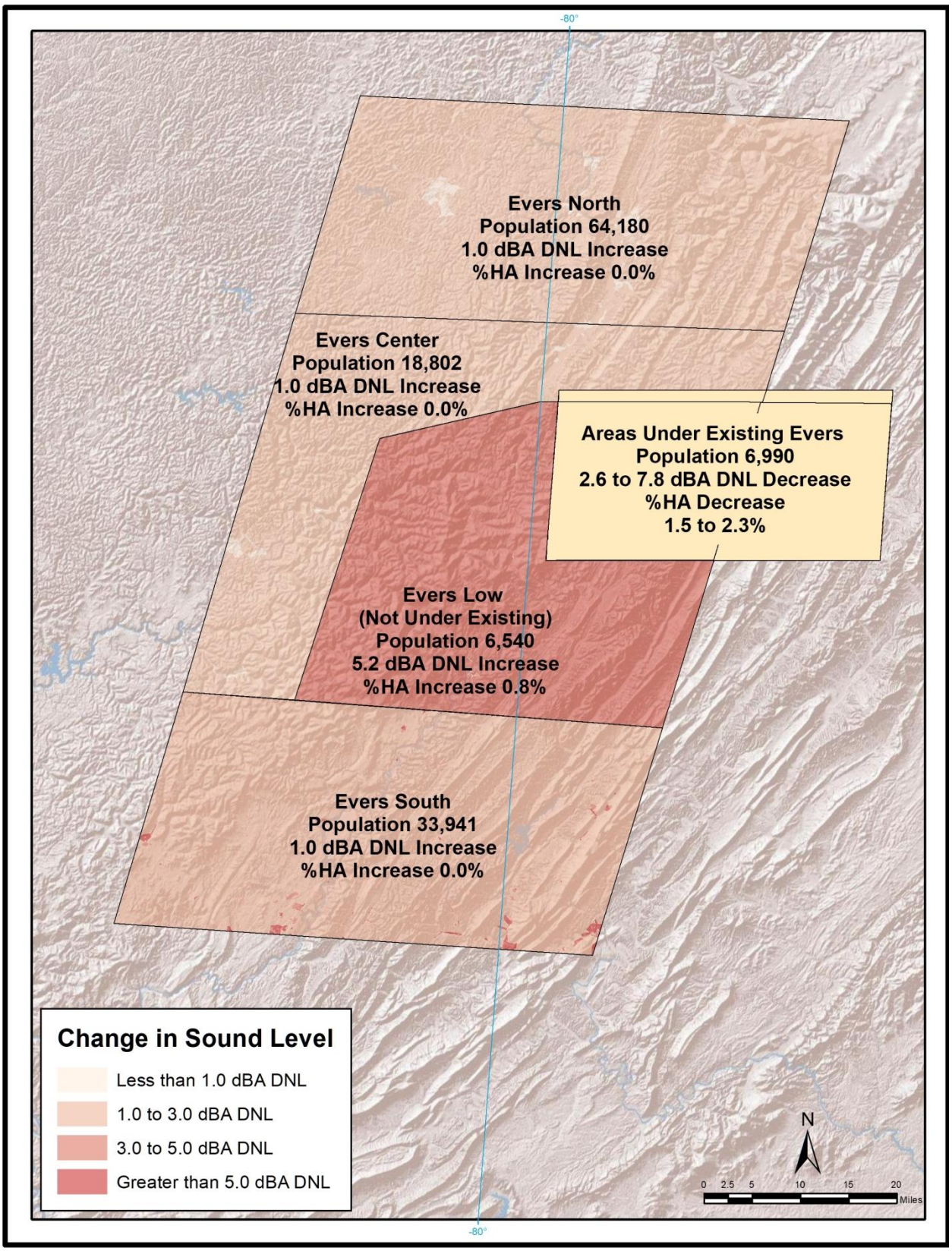


Figure 3-5. Change in Overall Sound Levels - Proposed Action vs. Existing

Land Use Compatibility. Noise from aircraft operations under the Proposed Action would not exceed 65 dBA DNL, and would be fully compatible with all land uses. These effects would be less than significant (USAF 2016b and FAA 2015). This includes being compatible with all wilderness areas, residential areas, churches, schools, recreational areas underneath the proposed airspace. Detailed guidelines for the compatibility of various land uses with noise exposure levels are included in Appendix B. These effects would be less than significant.

Change in Overall Noise. The overall noise from aircraft operations would (1) blend naturally with background levels beneath the proposed Evers South, Evers Center, and Evers North MOAs; (2) would be lower than existing levels in areas beneath the existing Evers MOA; and (3) be higher than existing levels in areas beneath the proposed Evers Low MOA in areas not currently within the existing Evers MOA. The Proposed Action would increase noise levels by 5.2 dBA DNL throughout 943 square miles and for 6,540 individuals beneath the proposed Evers Low MOA in areas not currently within the existing Evers MOA. The Proposed Action would decrease noise levels by 4.6 to 12.2 dBA DNL throughout 634 square miles and for 6,990 individuals beneath the existing Evers MOA.

Effects of Noise on Individuals. Although, the overall noise from aircraft is fully compatible with all land uses, the %HA under the Proposed Action would range from 0.6% to 1.4% for areas beneath the proposed MOAs. Due to the redistribution of aircraft operations, there would be a slight reduction (0.4% reduction) in the overall %HA of for all areas under the Evers SUA Complex when compared to existing conditions. Generally speaking, 0.6% of individuals are highly annoyed by other sources of noise in rural and remote areas that are void of aircraft operations.

The %HA, when compared to existing conditions would range from a decrease of 1.5 to 2.5 percent beneath the existing Evers MOA to an increase of 0.8% in areas beneath the proposed Evers Low MOA in areas that are not currently within the existing Evers MOA. This minute level of increase is expected, as at levels below 55 dBA, it takes very large changes in overall noise levels to annoy additional individuals. This is consistent with the 1974 EPA's *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with and Adequate Margin of Safety* (i.e., The Levels Document) which outlines that community response to changes in noise below 55 dBA would be marginal at best, as the noise in such areas would not normally solicit complaints and noise would be "essentially the least important of various factors" (USEPA 1974). These effects would be less than significant.

Since the study encompasses a large geographical area, the effects are of medium intensity over a large area, as opposed to high intensity over a smaller area (e.g., noise near an air installation), change-of-exposure tables were developed to identify where noise will change by 1.5, 3, and 5 dBA (FAA 2015 FAA Order 1050.1F defines the thresholds for “significant” noise impacts (Exhibit 4-1) and the thresholds for “reportable” noise impacts. To make certain the ANG is meeting FAA requirements, during the release and transmittal of the Draft EA, the ANG will

"report" the greater than 5 dBA day-night Sound Level (DNL) increase to interested parties. In addition, the ANG will include a brief discussion to outline that, as described above, changes in overall noise levels would only introduce a minute incremental changes in the percent highly annoyed for areas under the proposed Evers Low MOA, as the noise in such areas would not normally solicit complaints and noise would be "essentially the least important of various factors" in these areas. In addition, the ANG will outline that the change in noise under the Proposed Action would decrease noise levels by 2.6 to 7.8 dBA DNL throughout 634 square miles (SM) and for individuals beneath the existing Evers MOA.

The nature and overall levels of noise from individual overflights would be similar to existing conditions. However, under the Proposed Action these effects would extend to all newly proposed SUAs, including the Evers North, Evers Center, Evers Low, Evers South, and Evers East. Areas beneath the Evers Low MOA would intermittently experience aircraft overflights that would range from loud to very loud exceeding 75 dBA L_{max} at any given point on the ground (Table 3-5 and Figures 3-3). Overflights aircraft within the proposed low-level MOAs would interfere with communication for individuals within approximately one to three miles of the aircraft's flight path. These overflights would be brief, intermittent, distributed though the MOA, and normally would not occur repeatedly at any one location. In general, individual overflights would be neither loud enough nor frequent enough to highly annoy an appreciable amount of individuals underneath the existing or proposed MOAs. Some locations would experience these events more often; however, events would be offset with a one-to-one reduction in overflights at other locations.

Damage to Hearing or Structures. As with existing conditions, and for similar reasons, aircraft overflights would not generate individual acoustic events loud enough to damage hearing or structures. These effects would be less than significant.

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5.0 LIST OF PREPARERS

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M.S., Civil and Environmental Engineering
B.S., Mechanical Engineering
Years of Experience: 30

APPENDIX A - AIR OPERATIONAL DATA

***** MOA RANGE NOISEMAP *****
Version 3.0
Release Date 2/7/2013

CASE INFORMATION
Case Name:Evers SUA Complex 2019 - Existing - LDNMR Scenario
Site Name:Evers

SETUP PARAMETERS
Number of MOAs and Ranges = 9 Number of tracks = 0
Lower Left Corner of Grid in feet (X Y pair) = -372500., -372500.
Upper Right Corner of Grid in feet (X Y pair) = 372500., 372500.
Grid spacing = 5000. feet Number of events above an SEL of 75.0 dB
Temperature = 59 F Humidity = 70 Flying days per month = 30

MOA SPECIFICATIONS

MOA name DIESEL CENTER ATCAA

Lat (deg)	Long (deg)
38.19320	-80.63750
38.78720	-80.48041
38.75401	-79.54699
38.13700	-79.72040
38.19320	-80.63750

Floor = 15000 feet AGL Ceiling = 20000 feet AGL

MOA name DIESEL NORTH ATCAA

Lat (deg)	Long (deg)
38.78720	-80.48041
39.12821	-80.39030
39.08871	-79.45249
38.75401	-79.54699
38.78720	-80.48041

Floor = 15000 feet AGL Ceiling = 20000 feet AGL

MOA name DIESEL SOUTH ATCAA

Lat (deg)	Long (deg)
38.13700	-79.72040
37.78029	-79.82050
37.83079	-80.73381
38.19320	-80.63750
38.13700	-79.72040

Floor = 15000 feet AGL Ceiling = 20000 feet AGL

MOA name EVERS CENTER MOA

Lat (deg)	Long (deg)
38.19320	-80.63750
38.78720	-80.48041
38.75401	-79.54699

38.13700 -79.72040
38.19320 -80.63750
Floor = 8000 feet AGL Ceiling = 15000 feet AGL

MOA name EVERS EAST MOA

Lat (deg)	Long (deg)
38.64750	-79.33029
38.40000	-79.33029
38.40000	-79.64570
38.64750	-79.57169
38.64750	-79.33029

Floor = 1000 feet AGL Ceiling = 15000 feet AGL

MOA name EVERS EXISTING

Lat (deg)	Long (deg)
38.66690	-79.96640
38.66690	-79.33029
38.40000	-79.33029
38.40000	-79.96640
38.66690	-79.96640

Floor = 1000 feet AGL Ceiling = 15000 feet AGL

MOA name EVERS LOW MOA

Lat (deg)	Long (deg)
38.64750	-79.57809
38.13700	-79.72040
38.18020	-80.42490
38.58360	-80.30110
38.64750	-80.00000
38.64750	-79.57169
38.64750	-79.57809

Floor = 1000 feet AGL Ceiling = 8000 feet AGL

MOA name EVERS NORTH MOA

Lat (deg)	Long (deg)
38.78720	-80.48041
39.12821	-80.39030
39.08871	-79.45249
38.75401	-79.54699
38.78720	-80.48041

Floor = 8000 feet AGL Ceiling = 15000 feet AGL

MOA name EVERS SOUTH MOA

Lat (deg)	Long (deg)
38.13700	-79.72040
37.78029	-79.82050
37.83079	-80.73381
38.19320	-80.63750
38.13700	-79.72040

Floor = 8000 feet AGL Ceiling = 15000 feet AGL

SPECIFIC POINT SPECIFICATION

Number of Specific points = 6

Latitude	Longitude	Name
38.55200	-79.47399	EVERS EAST
38.52000	-79.66900	EVERS EXISTING
38.42500	-80.01200	EVERS LOW
38.68800	-80.38600	EVERS-DIESEL CENTER
38.92901	-79.98800	EVERS-DIESEL NORTH
37.98100	-80.23300	EVERS-DIESEL SOUTH

MISSION DATA

Mission name = E-A-10-E

Aircraft code =FM0090100 Speed = 300 kias Power = 85.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	50.0
8000	15000	50.0

Mission name = E-F-15-E

Aircraft code =FM0430400 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	75.0
8000	15000	25.0

Mission name = E-F-16-E

Aircraft code =FM0440300 Speed = 450 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	50.0
8000	15000	50.0

Mission name = E-F-22-E

Aircraft code =FM0850100 Speed = 450 kias Power = 92.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	15.0
8000	15000	85.0

Mission name = E-T-38-E

Aircraft code =FM0680100 Speed = 350 kias Power = 85.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	15.0
8000	15000	85.0

MOA OPERATION DATA

MOA name = EVERS EXISTING

Mission Name	Daily Day OPS	Daily Night OPS	Monthly Day OPS	Monthly Night OPS	Yearly Day OPS	Yearly Night OPS	Time On Range (minutes)
E-A-10-E	1.000	0.000	30.00	0.00	360.	0.	30.
E-F-15-E	0.961	0.000	28.83	0.00	346.	0.	20.
E-F-16-E	8.333	0.000	250.00	0.00	3000.	0.	34.
E-F-22-E	1.786	0.000	53.58	0.00	643.	0.	20.
E-T-38-E	0.944	0.000	28.33	0.00	340.	0.	34.

****

Warning: Grid points spaced greater than 1000 feet apart may not provide the necessary grid resolution, in some cases, to compute noise contours with high accuracy. For low-altitude track operations, the recommended grid spacing is less than 1000 feet.

****

***** MOA RANGE NOISEMAP *****
RESULTS

The noise metric is Ldnmr.

MOA RESULTS

MOA Name	MOA Area (sq statute miles)	Uniform Distributed Sound Level (dB)	Number of Daily Events Above SEL of 75.0 dB
DIESEL CENTER ATCAA	2123.1	No operations on this MOA!	
DIESEL NORTH ATCAA	1187.1	No operations on this MOA!	
DIESEL SOUTH ATCAA	1258.7	No operations on this MOA!	
EVERS CENTER MOA	2123.1	No operations on this MOA!	
EVERS EAST MOA	257.5	No operations on this MOA!	
EVERS EXISTING	634.4	53.9	0.0
EVERS LOW MOA	1265.6	No operations on this MOA!	
EVERS NORTH MOA	1187.1	No operations on this MOA!	
EVERS SOUTH MOA	1258.7	No operations on this MOA!	

***** MOA RANGE NOISEMAP *****
RESULTS

SPECIFIC POINT RESULTS

Specific Point: EVERS EAST
Top 20 contributors to this level:

< Airspace	> Mission	Aircraft	Sound Level (dB)	HA(%)
EVERS EXISTING	E-F-16-E	F-16C	51.7	2.1
EVERS EXISTING	E-F-22-E	F-22	47.4	1.2
EVERS EXISTING	E-F-15-E	F-15E	46.5	1.0
EVERS EXISTING	E-A-10-E	A-10A	< 35.0	
EVERS EXISTING	E-T-38-E	T-38A	< 35.0	

Total Level 53.9 2.9

Specific Point: EVERS EXISTING
Top 20 contributors to this level:

< Airspace	> Mission	Aircraft	Sound Level (dB)	HA(%)
EVERS EXISTING	E-F-16-E	F-16C	51.7	2.1
EVERS EXISTING	E-F-22-E	F-22	47.4	1.2
EVERS EXISTING	E-F-15-E	F-15E	46.5	1.0
EVERS EXISTING	E-A-10-E	A-10A	< 35.0	
EVERS EXISTING	E-T-38-E	T-38A	< 35.0	

Total Level 53.9 2.9

Specific Point: EVERS LOW
Top 20 contributors to this level:

< Airspace	> Mission	Aircraft	Sound Level (dB)	HA(%)
EVERS EXISTING	E-F-16-E	F-16C	< 35.0	
EVERS EXISTING	E-F-22-E	F-22	< 35.0	
EVERS EXISTING	E-F-15-E	F-15E	< 35.0	
EVERS EXISTING	E-A-10-E	A-10A	< 35.0	
EVERS EXISTING	E-T-38-E	T-38A	< 35.0	

Total Level ..... < 35.0

Specific Point: EVERS-DIESEL CENTER
Top 20 contributors to this level:

< Airspace	> Mission	Aircraft	Sound Level (dB)	HA(%)

EVERS EXISTING	E-F-16-E	F-16C	< 35.0
EVERS EXISTING	E-F-22-E	F-22	< 35.0
EVERS EXISTING	E-F-15-E	F-15E	< 35.0
EVERS EXISTING	E-A-10-E	A-10A	< 35.0
EVERS EXISTING	E-T-38-E	T-38A	< 35.0

Total Level ..... < 35.0

Specific Point: EVERS-DIESEL NORTH
Top 20 contributors to this level:

< Airspace	> Mission	Aircraft	Sound Level (dB)	HA(%)
EVERS EXISTING	E-F-16-E	F-16C	< 35.0	
EVERS EXISTING	E-F-22-E	F-22	< 35.0	
EVERS EXISTING	E-F-15-E	F-15E	< 35.0	
EVERS EXISTING	E-A-10-E	A-10A	< 35.0	
EVERS EXISTING	E-T-38-E	T-38A	< 35.0	

Total Level ..... < 35.0

Specific Point: EVERS-DIESEL SOUTH
Top 20 contributors to this level:

< Airspace	> Mission	Aircraft	Sound Level (dB)	HA(%)
EVERS EXISTING	E-F-16-E	F-16C	< 35.0	
EVERS EXISTING	E-F-22-E	F-22	< 35.0	
EVERS EXISTING	E-F-15-E	F-15E	< 35.0	
EVERS EXISTING	E-A-10-E	A-10A	< 35.0	
EVERS EXISTING	E-T-38-E	T-38A	< 35.0	

Total Level ..... < 35.0

<Run Log>
Date: 11/15/2019
Start Time: 16: 7:28
Stop Time: 16: 7:41
Total Running Time: 0 minutes and 14 seconds.

***** MOA RANGE NOISEMAP *****
Version 3.0
Release Date 2/7/2013

CASE INFORMATION
Case Name:Evers SUA Complex 2019 - Proposed - LDNMR Scenario
Site Name:Evers

SETUP PARAMETERS
Number of MOAs and Ranges = 9 Number of tracks = 0
Lower Left Corner of Grid in feet (X Y pair) = -372500., -372500.
Upper Right Corner of Grid in feet (X Y pair) = 372500., 372500.
Grid spacing = 5000. feet Number of events above an SEL of 75.0 dB
Temperature = 59 F Humidity = 70 Flying days per month = 30

MOA SPECIFICATIONS

MOA name DIESEL CENTER ATCAA

Lat (deg)	Long (deg)
38.19320	-80.63750
38.78720	-80.48041
38.75401	-79.54699
38.13700	-79.72040
38.19320	-80.63750

Floor = 15000 feet AGL Ceiling = 20000 feet AGL

MOA name DIESEL NORTH ATCAA

Lat (deg)	Long (deg)
38.78720	-80.48041
39.12821	-80.39030
39.08871	-79.45249
38.75401	-79.54699
38.78720	-80.48041

Floor = 15000 feet AGL Ceiling = 20000 feet AGL

MOA name DIESEL SOUTH ATCAA

Lat (deg)	Long (deg)
38.13700	-79.72040
37.78029	-79.82050
37.83079	-80.73381
38.19320	-80.63750
38.13700	-79.72040

Floor = 15000 feet AGL Ceiling = 20000 feet AGL

MOA name EVERS CENTER MOA

Lat (deg)	Long (deg)
38.19320	-80.63750
38.78720	-80.48041
38.75401	-79.54699
38.13700	-79.72040
38.19320	-80.63750

Floor = 8000 feet AGL Ceiling = 15000 feet AGL

MOA name EVERS EAST MOA

Lat (deg)	Long (deg)
38.64750	-79.33029
38.40000	-79.33029
38.40000	-79.64570
38.64750	-79.57169
38.64750	-79.33029

Floor = 1000 feet AGL Ceiling = 15000 feet AGL

MOA name EVERS EXISTING

Lat (deg)	Long (deg)
38.66690	-79.96640
38.66690	-79.33029
38.40000	-79.33029
38.40000	-79.96640
38.66690	-79.96640

Floor = 1000 feet AGL Ceiling = 15000 feet AGL

MOA name EVERS LOW MOA

Lat (deg)	Long (deg)
38.64750	-79.57809
38.13700	-79.72040
38.18020	-80.42490
38.58360	-80.30110
38.64750	-80.00000
38.64750	-79.57169
38.64750	-79.57809

Floor = 1000 feet AGL Ceiling = 8000 feet AGL

MOA name EVERS NORTH MOA

Lat (deg)	Long (deg)
38.78720	-80.48041
39.12821	-80.39030
39.08871	-79.45249
38.75401	-79.54699
38.78720	-80.48041

Floor = 8000 feet AGL Ceiling = 15000 feet AGL

MOA name EVERS SOUTH MOA

Lat (deg)	Long (deg)
38.13700	-79.72040
37.78029	-79.82050
37.83079	-80.73381
38.19320	-80.63750
38.13700	-79.72040

Floor = 8000 feet AGL Ceiling = 15000 feet AGL

SPECIFIC POINT SPECIFICATION

Number of Specific points = 6

Latitude	Longitude	Name
38.55200	-79.47399	EVERS EAST
38.52000	-79.66900	EVERS EXISTING
38.42500	-80.01200	EVERS LOW
38.68800	-80.38600	EVERS-DIESEL CENTER
38.92901	-79.98800	EVERS-DIESEL NORTH
37.98100	-80.23300	EVERS-DIESEL SOUTH

MISSION DATA

Mission name = P-A-10-DC
Aircraft code =FM0090100 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-A-10-DN
Aircraft code =FM0090100 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-A-10-DS
Aircraft code =FM0090100 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-A-10-EC
Aircraft code =FM0090100 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-A-10-EE
Aircraft code =FM0090100 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	71.0
8000	15000	29.0

Mission name = P-A-10-EL
Aircraft code =FM0090100 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt	Upper Alt	Percent

(feet AGL) (feet AGL) Utilization
1000 8000 100.0

Mission name = P-A-10-EN
Aircraft code =FM0090100 Speed = 350 kias Power = 90.0
Altitude Distribution
Lower Alt Upper Alt Percent
(feet AGL) (feet AGL) Utilization
1000 8000 100.0

Mission name = P-A-10-ES
Aircraft code =FM0090100 Speed = 350 kias Power = 90.0
Altitude Distribution
Lower Alt Upper Alt Percent
(feet AGL) (feet AGL) Utilization
1000 8000 100.0

Mission name = P-C-17-DC
Aircraft code =FM0200100 Speed = 350 kias Power = 75.0
Altitude Distribution
Lower Alt Upper Alt Percent
(feet AGL) (feet AGL) Utilization
15000 20000 100.0

Mission name = P-C-17-DN
Aircraft code =FM0200100 Speed = 350 kias Power = 75.0
Altitude Distribution
Lower Alt Upper Alt Percent
(feet AGL) (feet AGL) Utilization
15000 20000 100.0

Mission name = P-C-17-DS
Aircraft code =FM0200100 Speed = 350 kias Power = 75.0
Altitude Distribution
Lower Alt Upper Alt Percent
(feet AGL) (feet AGL) Utilization
15000 20000 100.0

Mission name = P-C-17-EC
Aircraft code =FM0200100 Speed = 350 kias Power = 75.0
Altitude Distribution
Lower Alt Upper Alt Percent
(feet AGL) (feet AGL) Utilization
1000 8000 100.0

Mission name = P-C-17-EE
Aircraft code =FM0200100 Speed = 350 kias Power = 75.0
Altitude Distribution
Lower Alt Upper Alt Percent

(feet AGL)	(feet AGL)	Utilization
1000	8000	67.0
8000	15000	33.0

Mission name = P-C-17-EL
Aircraft code =FM0200100 Speed = 350 kias Power = 75.0
Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-C-17-EN
Aircraft code =FM0200100 Speed = 350 kias Power = 75.0
Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-C-17-ES
Aircraft code =FM0200100 Speed = 350 kias Power = 75.0
Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-C-130-DN
Aircraft code =FM0290100 Speed = 350 kias Power = 700.0
Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-C-130-DS
Aircraft code =FM0290100 Speed = 350 kias Power = 700.0
Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-C-130-EC
Aircraft code =FM0290100 Speed = 350 kias Power = 700.0
Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-C-130-EE
Aircraft code =FM0290100 Speed = 350 kias Power = 700.0
Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	88.0
8000	15000	12.0

Mission name = P-C-130-EL
Aircraft code =FM0290100 Speed = 350 kias Power = 700.0
Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-C-130-EN
Aircraft code =FM0290100 Speed = 350 kias Power = 700.0
Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-C-130-ES
Aircraft code =FM0290100 Speed = 350 kias Power = 700.0
Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-F-15-DC
Aircraft code =FM0430400 Speed = 350 kias Power = 90.0
Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-F-15-DN
Aircraft code =FM0430400 Speed = 350 kias Power = 90.0
Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-F-15-DS
Aircraft code =FM0430400 Speed = 350 kias Power = 90.0
Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-F-15-EC
Aircraft code =FM0430400 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-F-15-EE
Aircraft code =FM0430400 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	67.0
8000	15000	33.0

Mission name = P-F-15-EL
Aircraft code =FM0430400 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-F-15-EN
Aircraft code =FM0430400 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-F-15-ES
Aircraft code =FM0430400 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-F-16-DC
Aircraft code =FM0440300 Speed = 450 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-F-16-DN
Aircraft code =FM0440300 Speed = 450 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-F-16-DS

Aircraft code =FM0440300 Speed = 450 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-F-16-EC

Aircraft code =FM0440300 Speed = 450 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-F-16-EE

Aircraft code =FM0440300 Speed = 450 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	67.0
8000	15000	33.0

Mission name = P-F-16-EL

Aircraft code =FM0440300 Speed = 450 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-F-16-EN

Aircraft code =FM0440300 Speed = 450 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-F-16-ES

Aircraft code =FM0440300 Speed = 450 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-F-22-DC

Aircraft code =FM0850100 Speed = 450 kias Power = 92.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-F-22-DN
Aircraft code =FM0850100 Speed = 450 kias Power = 92.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-F-22-DS
Aircraft code =FM0850100 Speed = 450 kias Power = 92.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-F-22-EC
Aircraft code =FM0850100 Speed = 450 kias Power = 92.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	3000	50.0
3000	8000	50.0

Mission name = P-F-22-EE
Aircraft code =FM0850100 Speed = 450 kias Power = 92.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	3000	5.0
3000	8000	28.0
8000	15000	67.0

Mission name = P-F-22-EL
Aircraft code =FM0850100 Speed = 450 kias Power = 92.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	3000	10.0
3000	8000	90.0

Mission name = P-F-22-EN
Aircraft code =FM0850100 Speed = 450 kias Power = 92.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	3000	10.0
3000	8000	90.0

Mission name = P-F-22-ES
Aircraft code =FM0850100 Speed = 450 kias Power = 92.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	3000	10.0
3000	8000	90.0

Mission name = P-T-38-DC
Aircraft code =FM0680100 Speed = 350 kias Power = 85.0
Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-T-38-DN
Aircraft code =FM0680100 Speed = 350 kias Power = 85.0
Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-T-38-DS
Aircraft code =FM0680100 Speed = 350 kias Power = 85.0
Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-T-38-EC
Aircraft code =FM0680100 Speed = 350 kias Power = 85.0
Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-T-38-EE
Aircraft code =FM0680100 Speed = 350 kias Power = 85.0
Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	33.0
8000	15000	67.0

Mission name = P-T-38-EL
Aircraft code =FM0680100 Speed = 350 kias Power = 85.0
Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-T-38-EN

Aircraft code =FM0680100 Speed = 350 kias Power = 85.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-T-38-ES

Aircraft code =FM0680100 Speed = 350 kias Power = 85.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

MOA OPERATION DATA

MOA name = DIESEL CENTER ATCAA

Mission Name	Daily Day OPS	Daily Night OPS	Monthly Day OPS	Monthly Night OPS	Yearly Day OPS	Yearly Night OPS	Time On Range (minutes)
P-A-10-DC	1.000	0.000	30.00	0.00	360.	0.	4.
P-C-17-DC	0.069	0.000	2.08	0.00	25.	0.	12.
P-F-15-DC	2.400	0.000	72.00	0.00	864.	0.	7.
P-F-16-DC	4.042	0.000	121.25	0.00	1455.	0.	5.
P-F-22-DC	2.381	0.000	71.42	0.00	857.	0.	2.
P-T-38-DC	1.261	0.000	37.83	0.00	454.	0.	3.

MOA name = DIESEL NORTH ATCAA

Mission Name	Daily Day OPS	Daily Night OPS	Monthly Day OPS	Monthly Night OPS	Yearly Day OPS	Yearly Night OPS	Time On Range (minutes)
P-A-10-DN	1.000	0.000	30.00	0.00	360.	0.	3.
P-C-17-DN	0.069	0.000	2.08	0.00	25.	0.	9.
P-C-130-DN	0.400	0.000	12.00	0.00	144.	0.	0.
P-F-15-DN	2.400	0.000	72.00	0.00	864.	0.	5.
P-F-16-DN	4.042	0.000	121.25	0.00	1455.	0.	4.
P-F-22-DN	2.381	0.000	71.42	0.00	857.	0.	2.
P-T-38-DN	1.261	0.000	37.83	0.00	454.	0.	3.

MOA name = DIESEL SOUTH ATCAA

Mission Name	Daily Day OPS	Daily Night OPS	Monthly Day OPS	Monthly Night OPS	Yearly Day OPS	Yearly Night OPS	Time On Range (minutes)
P-A-10-DS	1.000	0.000	30.00	0.00	360.	0.	3.
P-C-17-DS	0.069	0.000	2.08	0.00	25.	0.	9.
P-C-130-DS	0.400	0.000	12.00	0.00	144.	0.	0.
P-F-15-DS	2.400	0.000	72.00	0.00	864.	0.	5.
P-F-16-DS	4.042	0.000	121.25	0.00	1455.	0.	4.
P-F-22-DS	2.381	0.000	71.42	0.00	857.	0.	2.
P-T-38-DS	1.261	0.000	37.83	0.00	454.	0.	3.

MOA name = EVERS CENTER MOA

Mission Name	Daily Day OPS	Daily Night OPS	Monthly Day OPS	Monthly Night OPS	Yearly Day OPS	Yearly Night OPS	Time On Range (minutes)
P-A-10-EC	1.000	0.000	30.00	0.00	360.	0.	4.
P-C-17-EC	0.069	0.000	2.08	0.00	25.	0.	6.
P-C-130-EC	0.400	0.000	12.00	0.00	144.	0.	2.
P-F-15-EC	2.400	0.000	72.00	0.00	864.	0.	5.
P-F-16-EC	4.042	0.000	121.25	0.00	1455.	0.	4.
P-F-22-EC	2.381	0.000	71.42	0.00	857.	0.	5.
P-T-38-EC	1.261	0.000	37.83	0.00	454.	0.	8.

MOA name = EVERS EAST MOA

Mission Name	Daily Day OPS	Daily Night OPS	Monthly Day OPS	Monthly Night OPS	Yearly Day OPS	Yearly Night OPS	Time On Range (minutes)
P-A-10-EE	1.000	0.000	30.00	0.00	360.	0.	3.
P-C-17-EE	0.069	0.000	2.08	0.00	25.	0.	4.
P-C-130-EE	0.400	0.000	12.00	0.00	144.	0.	5.
P-F-15-EE	2.400	0.000	72.00	0.00	864.	0.	4.
P-F-16-EE	4.042	0.000	121.25	0.00	1455.	0.	3.
P-F-22-EE	2.381	0.000	71.42	0.00	857.	0.	2.
P-T-38-EE	1.261	0.000	37.83	0.00	454.	0.	3.

MOA name = EVERS LOW MOA

Mission Name	Daily Day OPS	Daily Night OPS	Monthly Day OPS	Monthly Night OPS	Yearly Day OPS	Yearly Night OPS	Time On Range (minutes)
P-A-10-EL	1.000	0.000	30.00	0.00	360.	0.	9.
P-C-17-EL	0.069	0.000	2.08	0.00	25.	0.	12.
P-C-130-EL	0.400	0.000	12.00	0.00	144.	0.	18.
P-F-15-EL	2.400	0.000	72.00	0.00	864.	0.	11.
P-F-16-EL	4.042	0.000	121.25	0.00	1455.	0.	8.
P-F-22-EL	2.381	0.000	71.42	0.00	857.	0.	2.
P-T-38-EL	1.261	0.000	37.83	0.00	454.	0.	4.

MOA name = EVERS NORTH MOA

Mission Name	Daily Day OPS	Daily Night OPS	Monthly Day OPS	Monthly Night OPS	Yearly Day OPS	Yearly Night OPS	Time On Range (minutes)
P-A-10-EN	1.000	0.000	30.00	0.00	360.	0.	2.
P-C-17-EN	0.069	0.000	2.08	0.00	25.	0.	4.
P-C-130-EN	0.400	0.000	12.00	0.00	144.	0.	2.
P-F-15-EN	2.400	0.000	72.00	0.00	864.	0.	3.
P-F-16-EN	4.042	0.000	121.25	0.00	1455.	0.	3.
P-F-22-EN	2.381	0.000	71.42	0.00	857.	0.	3.
P-T-38-EN	1.261	0.000	37.83	0.00	454.	0.	5.

MOA name = EVERS SOUTH MOA

Mission Name	Daily Day OPS	Daily Night OPS	Monthly Day OPS	Monthly Night OPS	Yearly Day OPS	Yearly Night OPS	Time On Range (minutes)

P-A-10-ES	1.000	0.000	30.00	0.00	360.	0.	2.
P-C-17-ES	0.069	0.000	2.08	0.00	25.	0.	4.
P-C-130-ES	0.400	0.000	12.00	0.00	144.	0.	2.
P-F-15-ES	2.400	0.000	72.00	0.00	864.	0.	3.
P-F-16-ES	4.042	0.000	121.25	0.00	1455.	0.	3.
P-F-22-ES	2.381	0.000	71.42	0.00	857.	0.	3.
P-T-38-ES	1.261	0.000	37.83	0.00	454.	0.	5.

****
Warning: Grid points spaced greater than 1000 feet
apart may not provide the necessary grid resolution,
in some cases, to compute noise contours with
high accuracy. For low-altitude track operations,
the recommended grid spacing is less than 1000 feet.
****

***** MOA RANGE NOISEMAP *****
RESULTS

The noise metric is Ldnmr.

MOA RESULTS

MOA Name	MOA Area (sq statute miles)	Uniform Distributed Sound Level (dB)	Number of Daily Events Above SEL of 75.0 dB
DIESEL CENTER ATCAA	2123.1	35.0	0.0
DIESEL NORTH ATCAA	1187.1	35.0	0.0
DIESEL SOUTH ATCAA	1258.7	35.0	0.0
EVERS CENTER MOA	2123.1	38.5	0.5
EVERS EAST MOA	257.5	49.6	0.0
EVERS EXISTING	634.4	No operations on this MOA!	
EVERS LOW MOA	1265.6	48.2	0.0
EVERS NORTH MOA	1187.1	38.9	0.5
EVERS SOUTH MOA	1258.7	38.8	0.5

***** MOA RANGE NOISEMAP *****
RESULTS

SPECIFIC POINT RESULTS

Specific Point: EVERS EAST

Top 20 contributors to this level:

< Airspace	> Mission	Aircraft	Sound Level (dB)	HA(%)
EVERS EAST MOA	P-F-15-EE	F-15E	47.0	1.1
EVERS EAST MOA	P-F-22-EE	F-22	43.4	0.7
EVERS EAST MOA	P-F-16-EE	F-16C	43.0	0.6
EVERS EAST MOA	P-A-10-EE	A-10A	< 35.0	
EVERS EAST MOA	P-C-130-EE	C-130A&D	< 35.0	
EVERS EAST MOA	P-T-38-EE	T-38A	< 35.0	
EVERS EAST MOA	P-C-17-EE	C-17	< 35.0	
EVERS LOW MOA	P-F-15-EL	F-15E	< 35.0	
EVERS LOW MOA	P-F-16-EL	F-16C	< 35.0	
EVERS LOW MOA	P-F-22-EL	F-22	< 35.0	
EVERS NORTH MOA	P-F-22-EN	F-22	< 35.0	
EVERS SOUTH MOA	P-F-22-ES	F-22	< 35.0	
EVERS CENTER MOA	P-F-22-EC	F-22	< 35.0	
EVERS NORTH MOA	P-F-15-EN	F-15E	< 35.0	
EVERS SOUTH MOA	P-F-15-ES	F-15E	< 35.0	
EVERS CENTER MOA	P-F-15-EC	F-15E	< 35.0	
EVERS NORTH MOA	P-F-16-EN	F-16C	< 35.0	
EVERS SOUTH MOA	P-F-16-ES	F-16C	< 35.0	
EVERS CENTER MOA	P-F-16-EC	F-16C	< 35.0	
DIESEL NORTH ATCAA	P-F-15-DN	F-15E	< 35.0	
	Total Level		49.6	1.6

Specific Point: EVERS EXISTING
Top 20 contributors to this level:

< Airspace	> Mission	Aircraft	Sound Level (dB)	HA(%)
EVERS LOW MOA	P-F-15-EL	F-15E	45.8	0.9
EVERS LOW MOA	P-F-16-EL	F-16C	41.9	0.5
EVERS LOW MOA	P-F-22-EL	F-22	40.9	0.5
EVERS CENTER MOA	P-F-22-EC	F-22	36.1	0.2
EVERS CENTER MOA	P-F-15-EC	F-15E	< 35.0	
EVERS CENTER MOA	P-F-16-EC	F-16C	< 35.0	
DIESEL CENTER ATCAA	P-F-15-DC	F-15E	< 35.0	
DIESEL CENTER ATCAA	P-F-22-DC	F-22	< 35.0	
DIESEL CENTER ATCAA	P-F-16-DC	F-16C	< 35.0	
EVERS LOW MOA	P-A-10-EL	A-10A	< 35.0	
EVERS LOW MOA	P-C-130-EL	C-130A&D	< 35.0	
EVERS LOW MOA	P-T-38-EL	T-38A	< 35.0	
EVERS LOW MOA	P-C-17-EL	C-17	< 35.0	
EVERS CENTER MOA	P-A-10-EC	A-10A	< 35.0	
EVERS CENTER MOA	P-T-38-EC	T-38A	< 35.0	
EVERS CENTER MOA	P-C-130-EC	C-130A&D	< 35.0	
DIESEL CENTER ATCAA	P-A-10-DC	A-10A	< 35.0	
EVERS CENTER MOA	P-C-17-EC	C-17	< 35.0	
DIESEL CENTER ATCAA	P-C-17-DC	C-17	< 35.0	
DIESEL CENTER ATCAA	P-T-38-DC	T-38A	< 35.0	
	Total Level		48.7	1.4

Specific Point: EVERS LOW
Top 20 contributors to this level:

< Airspace	> Mission	Aircraft	Sound Level (dB)	HA(%)
EVERS LOW MOA	P-F-15-EL	F-15E	45.8	0.9
EVERS LOW MOA	P-F-16-EL	F-16C	41.9	0.5
EVERS LOW MOA	P-F-22-EL	F-22	40.9	0.5
EVERS CENTER MOA	P-F-22-EC	F-22	36.2	0.2
EVERS CENTER MOA	P-F-15-EC	F-15E	< 35.0	
EVERS CENTER MOA	P-F-16-EC	F-16C	< 35.0	
DIESEL CENTER ATCAA	P-F-15-DC	F-15E	< 35.0	
DIESEL CENTER ATCAA	P-F-22-DC	F-22	< 35.0	
DIESEL CENTER ATCAA	P-F-16-DC	F-16C	< 35.0	
EVERS LOW MOA	P-A-10-EL	A-10A	< 35.0	
EVERS LOW MOA	P-C-130-EL	C-130A&D	< 35.0	
EVERS LOW MOA	P-T-38-EL	T-38A	< 35.0	
EVERS LOW MOA	P-C-17-EL	C-17	< 35.0	
EVERS CENTER MOA	P-A-10-EC	A-10A	< 35.0	
EVERS CENTER MOA	P-T-38-EC	T-38A	< 35.0	
EVERS CENTER MOA	P-C-130-EC	C-130A&D	< 35.0	
DIESEL CENTER ATCAA	P-A-10-DC	A-10A	< 35.0	
EVERS CENTER MOA	P-C-17-EC	C-17	< 35.0	
DIESEL CENTER ATCAA	P-C-17-DC	C-17	< 35.0	
DIESEL CENTER ATCAA	P-T-38-DC	T-38A	< 35.0	
	Total Level		48.7	1.4

Specific Point: EVERS-DIESEL CENTER
Top 20 contributors to this level:

< Airspace	> Mission	Aircraft	Sound Level (dB)	HA(%)
EVERS CENTER MOA	P-F-22-EC	F-22	36.1	0.2
EVERS CENTER MOA	P-F-15-EC	F-15E	< 35.0	
EVERS CENTER MOA	P-F-16-EC	F-16C	< 35.0	
DIESEL CENTER ATCAA	P-F-15-DC	F-15E	< 35.0	
DIESEL CENTER ATCAA	P-F-22-DC	F-22	< 35.0	
DIESEL CENTER ATCAA	P-F-16-DC	F-16C	< 35.0	
EVERS CENTER MOA	P-A-10-EC	A-10A	< 35.0	
EVERS CENTER MOA	P-T-38-EC	T-38A	< 35.0	
EVERS CENTER MOA	P-C-130-EC	C-130A&D	< 35.0	
DIESEL CENTER ATCAA	P-A-10-DC	A-10A	< 35.0	
EVERS CENTER MOA	P-C-17-EC	C-17	< 35.0	
DIESEL CENTER ATCAA	P-C-17-DC	C-17	< 35.0	
DIESEL CENTER ATCAA	P-T-38-DC	T-38A	< 35.0	
EVERS EAST MOA	P-F-15-EE	F-15E	< 35.0	
EVERS LOW MOA	P-F-15-EL	F-15E	< 35.0	
EVERS EAST MOA	P-F-22-EE	F-22	< 35.0	
EVERS EAST MOA	P-F-16-EE	F-16C	< 35.0	
EVERS LOW MOA	P-F-16-EL	F-16C	< 35.0	

EVERS LOW MOA	P-F-22-EL	F-22	< 35.0	
EVERS NORTH MOA	P-F-22-EN	F-22	< 35.0	
	Total Level	39.0	0.4	

Specific Point: EVERS-DIESEL NORTH
Top 20 contributors to this level:

< Airspace	> Mission	Aircraft	Sound Level (dB)	HA(%)
EVERS NORTH MOA	P-F-22-EN	F-22	36.6	0.3
EVERS NORTH MOA	P-F-15-EN	F-15E	< 35.0	
EVERS NORTH MOA	P-F-16-EN	F-16C	< 35.0	
DIESEL NORTH ATCAA	P-F-15-DN	F-15E	< 35.0	
DIESEL NORTH ATCAA	P-F-22-DN	F-22	< 35.0	
DIESEL NORTH ATCAA	P-F-16-DN	F-16C	< 35.0	
EVERS NORTH MOA	P-A-10-EN	A-10A	< 35.0	
EVERS NORTH MOA	P-T-38-EN	T-38A	< 35.0	
EVERS NORTH MOA	P-C-130-EN	C-130A&D	< 35.0	
DIESEL NORTH ATCAA	P-A-10-DN	A-10A	< 35.0	
EVERS NORTH MOA	P-C-17-EN	C-17	< 35.0	
DIESEL NORTH ATCAA	P-C-17-DN	C-17	< 35.0	
DIESEL NORTH ATCAA	P-T-38-DN	T-38A	< 35.0	
DIESEL NORTH ATCAA	P-C-130-DN	C-130A&D	< 35.0	
EVERS EAST MOA	P-F-15-EE	F-15E	< 35.0	
EVERS LOW MOA	P-F-15-EL	F-15E	< 35.0	
EVERS EAST MOA	P-F-22-EE	F-22	< 35.0	
EVERS EAST MOA	P-F-16-EE	F-16C	< 35.0	
EVERS LOW MOA	P-F-16-EL	F-16C	< 35.0	
EVERS LOW MOA	P-F-22-EL	F-22	< 35.0	
	Total Level	39.6	0.4	

Specific Point: EVERS-DIESEL SOUTH
Top 20 contributors to this level:

< Airspace	> Mission	Aircraft	Sound Level (dB)	HA(%)
EVERS SOUTH MOA	P-F-22-ES	F-22	36.5	0.3
EVERS SOUTH MOA	P-F-15-ES	F-15E	< 35.0	
EVERS SOUTH MOA	P-F-16-ES	F-16C	< 35.0	
DIESEL SOUTH ATCAA	P-F-15-DS	F-15E	< 35.0	
DIESEL SOUTH ATCAA	P-F-22-DS	F-22	< 35.0	
DIESEL SOUTH ATCAA	P-F-16-DS	F-16C	< 35.0	
EVERS SOUTH MOA	P-A-10-ES	A-10A	< 35.0	
EVERS SOUTH MOA	P-T-38-ES	T-38A	< 35.0	
EVERS SOUTH MOA	P-C-130-ES	C-130A&D	< 35.0	
DIESEL SOUTH ATCAA	P-A-10-DS	A-10A	< 35.0	
EVERS SOUTH MOA	P-C-17-ES	C-17	< 35.0	
DIESEL SOUTH ATCAA	P-C-17-DS	C-17	< 35.0	
DIESEL SOUTH ATCAA	P-T-38-DS	T-38A	< 35.0	
DIESEL SOUTH ATCAA	P-C-130-DS	C-130A&D	< 35.0	

EVERS EAST MOA	P-F-15-EE	F-15E	< 35.0
EVERS LOW MOA	P-F-15-EL	F-15E	< 35.0
EVERS EAST MOA	P-F-22-EE	F-22	< 35.0
EVERS EAST MOA	P-F-16-EE	F-16C	< 35.0
EVERS LOW MOA	P-F-16-EL	F-16C	< 35.0
EVERS LOW MOA	P-F-22-EL	F-22	< 35.0

Total Level 39.4 0.4

<Run Log>
Date: 11/15/2019
Start Time: 16: 7:42
Stop Time: 16: 8:23
Total Running Time: 0 minutes and 42 seconds.

***** MOA RANGE NOISEMAP *****
Version 3.0
Release Date 2/7/2013

CASE INFORMATION
Case Name:Evers SUA Complex 2019 - Proposed - DNL Scenario
Site Name:Evers

SETUP PARAMETERS
Number of MOAs and Ranges = 9 Number of tracks = 0
Lower Left Corner of Grid in feet (X Y pair) = -372500., -372500.
Upper Right Corner of Grid in feet (X Y pair) = 372500., 372500.
Grid spacing = 5000. feet Number of events above an SEL of 75.0 dB
Temperature = 59 F Humidity = 70 Flying days per month = 30

MOA SPECIFICATIONS

MOA name DIESEL CENTER ATCAA

Lat (deg)	Long (deg)
38.19320	-80.63750
38.78720	-80.48041
38.75401	-79.54699
38.13700	-79.72040
38.19320	-80.63750

Floor = 15000 feet AGL Ceiling = 20000 feet AGL

MOA name DIESEL NORTH ATCAA

Lat (deg)	Long (deg)
38.78720	-80.48041
39.12821	-80.39030
39.08871	-79.45249
38.75401	-79.54699
38.78720	-80.48041

Floor = 15000 feet AGL Ceiling = 20000 feet AGL

MOA name DIESEL SOUTH ATCAA

Lat (deg)	Long (deg)
38.13700	-79.72040
37.78029	-79.82050
37.83079	-80.73381
38.19320	-80.63750
38.13700	-79.72040

Floor = 15000 feet AGL Ceiling = 20000 feet AGL

MOA name EVERS CENTER MOA

Lat (deg)	Long (deg)
38.19320	-80.63750
38.78720	-80.48041
38.75401	-79.54699
38.13700	-79.72040
38.19320	-80.63750

Floor = 8000 feet AGL Ceiling = 15000 feet AGL

MOA name EVERS EAST MOA

Lat (deg)	Long (deg)
38.64750	-79.33029
38.40000	-79.33029
38.40000	-79.64570
38.64750	-79.57169
38.64750	-79.33029

Floor = 1000 feet AGL Ceiling = 15000 feet AGL

MOA name EVERS EXISTING

Lat (deg)	Long (deg)
38.66690	-79.96640
38.66690	-79.33029
38.40000	-79.33029
38.40000	-79.96640
38.66690	-79.96640

Floor = 1000 feet AGL Ceiling = 15000 feet AGL

MOA name EVERS LOW MOA

Lat (deg)	Long (deg)
38.64750	-79.57809
38.13700	-79.72040
38.18020	-80.42490
38.58360	-80.30110
38.64750	-80.00000
38.64750	-79.57169
38.64750	-79.57809

Floor = 1000 feet AGL Ceiling = 8000 feet AGL

MOA name EVERS NORTH MOA

Lat (deg)	Long (deg)
38.78720	-80.48041
39.12821	-80.39030
39.08871	-79.45249
38.75401	-79.54699
38.78720	-80.48041

Floor = 8000 feet AGL Ceiling = 15000 feet AGL

MOA name EVERS SOUTH MOA

Lat (deg)	Long (deg)
38.13700	-79.72040
37.78029	-79.82050
37.83079	-80.73381
38.19320	-80.63750
38.13700	-79.72040

Floor = 8000 feet AGL Ceiling = 15000 feet AGL

SPECIFIC POINT SPECIFICATION

Number of Specific points = 6

Latitude	Longitude	Name
38.55200	-79.47399	EVERS EAST
38.52000	-79.66900	EVERS EXISTING
38.42500	-80.01200	EVERS LOW
38.68800	-80.38600	EVERS-DIESEL CENTER
38.92901	-79.98800	EVERS-DIESEL NORTH
37.98100	-80.23300	EVERS-DIESEL SOUTH

MISSION DATA

Mission name = P-A-10-DC_2
Aircraft code =FM0090100 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-A-10-DN_2
Aircraft code =FM0090100 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-A-10-DS_2
Aircraft code =FM0090100 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-A-10-EC_2
Aircraft code =FM0090100 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-A-10-EE_2
Aircraft code =FM0090100 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	71.0
8000	15000	29.0

Mission name = P-A-10-EL_2
Aircraft code =FM0090100 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt	Upper Alt	Percent

(feet AGL) (feet AGL) Utilization
1000 8000 100.0

Mission name = P-A-10-EN_2
Aircraft code =FM0090100 Speed = 350 kias Power = 90.0
Altitude Distribution
Lower Alt Upper Alt Percent
(feet AGL) (feet AGL) Utilization
1000 8000 100.0

Mission name = P-A-10-ES_2
Aircraft code =FM0090100 Speed = 350 kias Power = 90.0
Altitude Distribution
Lower Alt Upper Alt Percent
(feet AGL) (feet AGL) Utilization
1000 8000 100.0

Mission name = P-C-17-DC_2
Aircraft code =FM0200100 Speed = 350 kias Power = 75.0
Altitude Distribution
Lower Alt Upper Alt Percent
(feet AGL) (feet AGL) Utilization
15000 20000 100.0

Mission name = P-C-17-DN_2
Aircraft code =FM0200100 Speed = 350 kias Power = 75.0
Altitude Distribution
Lower Alt Upper Alt Percent
(feet AGL) (feet AGL) Utilization
15000 20000 100.0

Mission name = P-C-17-DS_2
Aircraft code =FM0200100 Speed = 350 kias Power = 75.0
Altitude Distribution
Lower Alt Upper Alt Percent
(feet AGL) (feet AGL) Utilization
15000 20000 100.0

Mission name = P-C-17-EC_2
Aircraft code =FM0200100 Speed = 350 kias Power = 75.0
Altitude Distribution
Lower Alt Upper Alt Percent
(feet AGL) (feet AGL) Utilization
1000 8000 100.0

Mission name = P-C-17-EE_2
Aircraft code =FM0200100 Speed = 350 kias Power = 75.0
Altitude Distribution
Lower Alt Upper Alt Percent

(feet AGL)	(feet AGL)	Utilization
1000	8000	67.0
8000	15000	33.0

Mission name = P-C-17-EL_2
Aircraft code =FM0200100 Speed = 350 kias Power = 75.0
Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-C-17-EN_2
Aircraft code =FM0200100 Speed = 350 kias Power = 75.0
Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-C-17-ES_2
Aircraft code =FM0200100 Speed = 350 kias Power = 75.0
Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-C-130-DC_2
Aircraft code =FM0290100 Speed = 350 kias Power = 700.0
Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-C-130-DC_2_2
Aircraft code =FM0290100 Speed = 350 kias Power = 700.0
Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-C-130-DN_2
Aircraft code =FM0290100 Speed = 350 kias Power = 700.0
Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-C-130-DS_2
Aircraft code =FM0290100 Speed = 350 kias Power = 700.0
Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-C-130-EC_2
Aircraft code =FM0290100 Speed = 350 kias Power = 700.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-C-130-EE_2
Aircraft code =FM0290100 Speed = 350 kias Power = 700.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	88.0
8000	15000	12.0

Mission name = P-C-130-EL_2
Aircraft code =FM0290100 Speed = 350 kias Power = 700.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-C-130-EN_2
Aircraft code =FM0290100 Speed = 350 kias Power = 700.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-C-130-ES_2
Aircraft code =FM0290100 Speed = 350 kias Power = 700.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-F-15-DC_2
Aircraft code =FM0430400 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-F-15-DN_2
Aircraft code =FM0430400 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-F-15-DS_2
Aircraft code =FM0430400 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-F-15-EC_2
Aircraft code =FM0430400 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-F-15-EE_2
Aircraft code =FM0430400 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	67.0
8000	15000	33.0

Mission name = P-F-15-EL_2
Aircraft code =FM0430400 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-F-15-EN_2
Aircraft code =FM0430400 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-F-15-ES_2
Aircraft code =FM0430400 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-F-16-DC_2

Aircraft code =FM0440300 Speed = 450 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-F-16-DN_2

Aircraft code =FM0440300 Speed = 450 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-F-16-DS_2

Aircraft code =FM0440300 Speed = 450 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-F-16-EC_2

Aircraft code =FM0440300 Speed = 450 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-F-16-EE_2

Aircraft code =FM0440300 Speed = 450 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	67.0
8000	15000	33.0

Mission name = P-F-16-EL_2

Aircraft code =FM0440300 Speed = 450 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-F-16-EN_2

Aircraft code =FM0440300 Speed = 450 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-F-16-ES_2
Aircraft code =FM0440300 Speed = 450 kias Power = 90.0

Altitude Distribution		
Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-F-22-DC_2
Aircraft code =FM0850100 Speed = 450 kias Power = 92.0

Altitude Distribution		
Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-F-22-DN_2
Aircraft code =FM0850100 Speed = 450 kias Power = 92.0

Altitude Distribution		
Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-F-22-DS_2
Aircraft code =FM0850100 Speed = 450 kias Power = 92.0

Altitude Distribution		
Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-F-22-EC_2
Aircraft code =FM0850100 Speed = 450 kias Power = 92.0

Altitude Distribution		
Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	3000	50.0
3000	8000	50.0

Mission name = P-F-22-EE_2
Aircraft code =FM0850100 Speed = 450 kias Power = 92.0

Altitude Distribution		
Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	3000	5.0
3000	8000	28.0
8000	15000	67.0

Mission name = P-F-22-EL_2
Aircraft code =FM0850100 Speed = 450 kias Power = 92.0

Altitude Distribution		
Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization

1000	3000	10.0
3000	8000	90.0

Mission name = P-F-22-EN_2
Aircraft code =FM0850100 Speed = 450 kias Power = 92.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	3000	10.0
3000	8000	90.0

Mission name = P-F-22-ES_2
Aircraft code =FM0850100 Speed = 450 kias Power = 92.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	3000	10.0
3000	8000	90.0

Mission name = P-T-38-DC_2
Aircraft code =FM0680100 Speed = 350 kias Power = 85.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-T-38-DN_2
Aircraft code =FM0680100 Speed = 350 kias Power = 85.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-T-38-DS_2
Aircraft code =FM0680100 Speed = 350 kias Power = 85.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
15000	20000	100.0

Mission name = P-T-38-EC_2
Aircraft code =FM0680100 Speed = 350 kias Power = 85.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-T-38-EE_2
Aircraft code =FM0680100 Speed = 350 kias Power = 85.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	33.0
8000	15000	67.0

Mission name = P-T-38-EL_2
Aircraft code =FM0680100 Speed = 350 kias Power = 85.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-T-38-EN_2
Aircraft code =FM0680100 Speed = 350 kias Power = 85.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

Mission name = P-T-38-ES_2
Aircraft code =FM0680100 Speed = 350 kias Power = 85.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	100.0

MOA OPERATION DATA

MOA name = DIESEL CENTER ATCAA

Mission Name	Daily Day OPS	Daily Night OPS	Monthly Day OPS	Monthly Night OPS	Yearly Day OPS	Yearly Night OPS	Time On Range (minutes)
P-A-10-DC_2	0.228	0.000	6.83	0.00	82.	0.	4.
P-C-17-DC_2	0.069	0.000	2.08	0.00	25.	0.	12.
P-C-130-DC_2	0.222	0.000	6.67	0.00	80.	0.	1.
P-C-130-DC_2_2	0.222	0.000	6.67	0.00	80.	0.	1.
P-F-15-DC_2	1.333	0.000	40.00	0.00	480.	0.	7.
P-F-16-DC_2	1.683	0.000	50.50	0.00	606.	0.	5.
P-F-22-DC_2	0.992	0.000	29.75	0.00	357.	0.	2.
P-T-38-DC_2	0.525	0.000	15.75	0.00	189.	0.	3.

MOA name = DIESEL NORTH ATCAA

Mission Name	Daily Day OPS	Daily Night OPS	Monthly Day OPS	Monthly Night OPS	Yearly Day OPS	Yearly Night OPS	Time On Range (minutes)
P-A-10-DN_2	0.228	0.000	6.83	0.00	82.	0.	3.
P-C-17-DN_2	0.069	0.000	2.08	0.00	25.	0.	9.
P-C-130-DN_2	0.222	0.000	6.67	0.00	80.	0.	0.
P-F-15-DN_2	1.333	0.000	40.00	0.00	480.	0.	5.

P-F-16-DN_2	1.683	0.000	50.50	0.00	606.	0.	4.
P-F-22-DN_2	0.992	0.000	29.75	0.00	357.	0.	2.
P-T-38-DN_2	0.525	0.000	15.75	0.00	189.	0.	3.

MOA name = DIESEL SOUTH ATCAA

	Daily		Monthly		Yearly		
Mission Name	Day OPS	Night OPS	Day OPS	Night OPS	Day OPS	Night OPS	Time On Range (minutes)
P-A-10-DS_2	0.228	0.000	6.83	0.00	82.	0.	3.
P-C-17-DS_2	0.069	0.000	2.08	0.00	25.	0.	9.
P-C-130-DS_2	0.400	0.000	12.00	0.00	144.	0.	0.
P-F-15-DS_2	1.333	0.000	40.00	0.00	480.	0.	5.
P-F-16-DS_2	1.683	0.000	50.50	0.00	606.	0.	4.
P-F-22-DS_2	0.992	0.000	29.75	0.00	357.	0.	2.
P-T-38-DS_2	0.525	0.000	15.75	0.00	189.	0.	3.

MOA name = EVERS CENTER MOA

	Daily		Monthly		Yearly		
Mission Name	Day OPS	Night OPS	Day OPS	Night OPS	Day OPS	Night OPS	Time On Range (minutes)
P-A-10-EC_2	0.228	0.000	6.83	0.00	82.	0.	4.
P-C-17-EC_2	0.069	0.000	2.08	0.00	25.	0.	6.
P-C-130-EC_2	0.222	0.000	6.67	0.00	80.	0.	2.
P-F-15-EC_2	1.333	0.000	40.00	0.00	480.	0.	5.
P-F-16-EC_2	1.683	0.000	50.50	0.00	606.	0.	4.
P-F-22-EC_2	0.992	0.000	29.75	0.00	357.	0.	5.
P-T-38-EC_2	0.525	0.000	15.75	0.00	189.	0.	8.

MOA name = EVERS EAST MOA

	Daily		Monthly		Yearly		
Mission Name	Day OPS	Night OPS	Day OPS	Night OPS	Day OPS	Night OPS	Time On Range (minutes)
P-A-10-EE_2	0.228	0.000	6.83	0.00	82.	0.	3.
P-C-17-EE_2	0.069	0.000	2.08	0.00	25.	0.	4.
P-C-130-EE_2	0.222	0.000	6.67	0.00	80.	0.	5.
P-F-15-EE_2	1.333	0.000	40.00	0.00	480.	0.	4.
P-F-16-EE_2	1.683	0.000	50.50	0.00	606.	0.	3.
P-F-22-EE_2	0.992	0.000	29.75	0.00	357.	0.	2.
P-T-38-EE_2	0.525	0.000	15.75	0.00	189.	0.	3.

MOA name = EVERS LOW MOA

	Daily		Monthly		Yearly		
Mission Name	Day OPS	Night OPS	Day OPS	Night OPS	Day OPS	Night OPS	Time On Range (minutes)
P-A-10-EL_2	0.228	0.000	6.83	0.00	82.	0.	9.
P-C-17-EL_2	0.069	0.000	2.08	0.00	25.	0.	12.
P-C-130-EL_2	0.222	0.000	6.67	0.00	80.	0.	18.
P-F-15-EL_2	1.333	0.000	40.00	0.00	480.	0.	11.
P-F-16-EL_2	1.683	0.000	50.50	0.00	606.	0.	8.
P-F-22-EL_2	0.992	0.000	29.75	0.00	357.	0.	2.
P-T-38-EL_2	0.525	0.000	15.75	0.00	189.	0.	4.

MOA name = EVERS NORTH MOA

Mission Name	Daily Day OPS	Daily Night OPS	Monthly Day OPS	Monthly Night OPS	Yearly Day OPS	Yearly Night OPS	Time On Range (minutes)
P-A-10-EN_2	0.228	0.000	6.83	0.00	82.	0.	2.
P-C-17-EN_2	0.069	0.000	2.08	0.00	25.	0.	4.
P-C-130-EN_2	0.222	0.000	6.67	0.00	80.	0.	2.
P-F-15-EN_2	1.333	0.000	40.00	0.00	480.	0.	3.
P-F-16-EN_2	1.683	0.000	50.50	0.00	606.	0.	3.
P-F-22-EN_2	0.992	0.000	29.75	0.00	357.	0.	3.
P-T-38-EN_2	0.525	0.000	15.75	0.00	189.	0.	5.

MOA name = EVERS SOUTH MOA

Mission Name	Daily Day OPS	Daily Night OPS	Monthly Day OPS	Monthly Night OPS	Yearly Day OPS	Yearly Night OPS	Time On Range (minutes)
P-A-10-ES_2	0.228	0.000	6.83	0.00	82.	0.	2.
P-C-17-ES_2	0.069	0.000	2.08	0.00	25.	0.	4.
P-C-130-ES_2	0.222	0.000	6.67	0.00	80.	0.	2.
P-F-15-ES_2	1.333	0.000	40.00	0.00	480.	0.	3.
P-F-16-ES_2	1.683	0.000	50.50	0.00	606.	0.	3.
P-F-22-ES_2	0.992	0.000	29.75	0.00	357.	0.	3.
P-T-38-ES_2	0.525	0.000	15.75	0.00	189.	0.	5.

****

Warning: Grid points spaced greater than 1000 feet
apart may not provide the necessary grid resolution,
in some cases, to compute noise contours with
high accuracy. For low-altitude track operations,
the recommended grid spacing is less than 1000 feet.

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***** MOA RANGE NOISEMAP *****
RESULTS

The noise metric is Ldn.

MOA RESULTS

MOA Name	MOA Area (sq statute miles)	Uniform Distributed Sound Level (dB)	Number of Daily Events Above SEL of 75.0 dB
DIESEL CENTER ATCAA	2123.1	35.0	0.0
DIESEL NORTH ATCAA	1187.1	35.0	0.0
DIESEL SOUTH ATCAA	1258.7	35.0	0.0
EVERS CENTER MOA	2123.1	35.1	0.2
EVERS EAST MOA	257.5	46.5	0.0

EVERS EXISTING	634.4	No operations on this MOA!	
EVERS LOW MOA	1265.6	45.1	0.0
EVERS NORTH MOA	1187.1	35.5	0.2
EVERS SOUTH MOA	1258.7	35.4	0.2

***** MOA RANGE NOISEMAP *****
RESULTS

SPECIFIC POINT RESULTS

Specific Point: EVERS EAST
Top 20 contributors to this level:

< Airspace	> Mission	Aircraft	Sound Level (dB)
EVERS EAST MOA	P-F-15-EE_2	F-15E	44.4
EVERS EAST MOA	P-F-22-EE_2	F-22	39.6
EVERS EAST MOA	P-F-16-EE_2	F-16C	39.2
EVERS EAST MOA	P-A-10-EE_2	A-10A	< 35.0
EVERS EAST MOA	P-C-130-EE_2	C-130A&D	< 35.0
EVERS EAST MOA	P-C-17-EE_2	C-17	< 35.0
EVERS EAST MOA	P-T-38-EE_2	T-38A	< 35.0
EVERS LOW MOA	P-F-15-EL_2	F-15E	< 35.0
EVERS LOW MOA	P-F-16-EL_2	F-16C	< 35.0
EVERS LOW MOA	P-F-22-EL_2	F-22	< 35.0
EVERS NORTH MOA	P-F-22-EN_2	F-22	< 35.0
EVERS SOUTH MOA	P-F-22-ES_2	F-22	< 35.0
EVERS CENTER MOA	P-F-22-EC_2	F-22	< 35.0
EVERS NORTH MOA	P-F-15-EN_2	F-15E	< 35.0
EVERS SOUTH MOA	P-F-15-ES_2	F-15E	< 35.0
EVERS CENTER MOA	P-F-15-EC_2	F-15E	< 35.0
EVERS NORTH MOA	P-F-16-EN_2	F-16C	< 35.0
EVERS SOUTH MOA	P-F-16-ES_2	F-16C	< 35.0
EVERS CENTER MOA	P-F-16-EC_2	F-16C	< 35.0
DIESEL NORTH ATCAA	P-F-15-DN_2	F-15E	< 35.0

Total Level 46.5

Specific Point: EVERS EXISTING
Top 20 contributors to this level:

< Airspace	> Mission	Aircraft	Sound Level (dB)
EVERS LOW MOA	P-F-15-EL_2	F-15E	43.2
EVERS LOW MOA	P-F-16-EL_2	F-16C	38.1
EVERS LOW MOA	P-F-22-EL_2	F-22	37.1
EVERS CENTER MOA	P-F-22-EC_2	F-22	< 35.0

EVERS CENTER MOA	P-F-15-EC_2	F-15E	< 35.0
EVERS CENTER MOA	P-F-16-EC_2	F-16C	< 35.0
DIESEL CENTER ATCAA	P-F-15-DC_2	F-15E	< 35.0
DIESEL CENTER ATCAA	P-F-22-DC_2	F-22	< 35.0
DIESEL CENTER ATCAA	P-F-16-DC_2	F-16C	< 35.0
EVERS LOW MOA	P-A-10-EL_2	A-10A	< 35.0
EVERS LOW MOA	P-C-130-EL_2	C-130A&D	< 35.0
EVERS LOW MOA	P-C-17-EL_2	C-17	< 35.0
EVERS LOW MOA	P-T-38-EL_2	T-38A	< 35.0
EVERS CENTER MOA	P-A-10-EC_2	A-10A	< 35.0
EVERS CENTER MOA	P-T-38-EC_2	T-38A	< 35.0
EVERS CENTER MOA	P-C-130-EC_2	C-130A&D	< 35.0
EVERS CENTER MOA	P-C-17-EC_2	C-17	< 35.0
DIESEL CENTER ATCAA	P-A-10-DC_2	A-10A	< 35.0
DIESEL CENTER ATCAA	P-C-17-DC_2	C-17	< 35.0
DIESEL CENTER ATCAA	P-C-130-DC_2_2	C-130A&D	< 35.0

Total Level 45.6

Specific Point: EVERS LOW
Top 20 contributors to this level:

< Airspace	> Mission	Aircraft	Sound Level (dB)
EVERS LOW MOA	P-F-15-EL_2	F-15E	43.2
EVERS LOW MOA	P-F-16-EL_2	F-16C	38.1
EVERS LOW MOA	P-F-22-EL_2	F-22	37.1
EVERS CENTER MOA	P-F-22-EC_2	F-22	< 35.0
EVERS CENTER MOA	P-F-15-EC_2	F-15E	< 35.0
EVERS CENTER MOA	P-F-16-EC_2	F-16C	< 35.0
DIESEL CENTER ATCAA	P-F-15-DC_2	F-15E	< 35.0
DIESEL CENTER ATCAA	P-F-22-DC_2	F-22	< 35.0
DIESEL CENTER ATCAA	P-F-16-DC_2	F-16C	< 35.0
EVERS LOW MOA	P-A-10-EL_2	A-10A	< 35.0
EVERS LOW MOA	P-C-130-EL_2	C-130A&D	< 35.0
EVERS LOW MOA	P-C-17-EL_2	C-17	< 35.0
EVERS LOW MOA	P-T-38-EL_2	T-38A	< 35.0
EVERS CENTER MOA	P-A-10-EC_2	A-10A	< 35.0
EVERS CENTER MOA	P-T-38-EC_2	T-38A	< 35.0
EVERS CENTER MOA	P-C-130-EC_2	C-130A&D	< 35.0
EVERS CENTER MOA	P-C-17-EC_2	C-17	< 35.0
DIESEL CENTER ATCAA	P-A-10-DC_2	A-10A	< 35.0
DIESEL CENTER ATCAA	P-C-17-DC_2	C-17	< 35.0
DIESEL CENTER ATCAA	P-C-130-DC_2_2	C-130A&D	< 35.0

Total Level 45.6

Specific Point: EVERS-DIESEL CENTER
Top 20 contributors to this level:

< Airspace	> Mission	Aircraft	Sound Level (dB)

EVERS CENTER MOA	P-F-22-EC_2	F-22 < 35.0
EVERS CENTER MOA	P-F-15-EC_2	F-15E < 35.0
EVERS CENTER MOA	P-F-16-EC_2	F-16C < 35.0
DIESEL CENTER ATCAA	P-F-15-DC_2	F-15E < 35.0
DIESEL CENTER ATCAA	P-F-22-DC_2	F-22 < 35.0
DIESEL CENTER ATCAA	P-F-16-DC_2	F-16C < 35.0
EVERS CENTER MOA	P-A-10-EC_2	A-10A < 35.0
EVERS CENTER MOA	P-T-38-EC_2	T-38A < 35.0
EVERS CENTER MOA	P-C-130-EC_2	C-130A&D < 35.0
EVERS CENTER MOA	P-C-17-EC_2	C-17 < 35.0
DIESEL CENTER ATCAA	P-A-10-DC_2	A-10A < 35.0
DIESEL CENTER ATCAA	P-C-17-DC_2	C-17 < 35.0
DIESEL CENTER ATCAA	P-C-130-DC_2	C-130A&D < 35.0
DIESEL CENTER ATCAA	P-C-130-DC_2_2	C-130A&D < 35.0
DIESEL CENTER ATCAA	P-T-38-DC_2	T-38A < 35.0
EVERS EAST MOA	P-F-15-EE_2	F-15E < 35.0
EVERS LOW MOA	P-F-15-EL_2	F-15E < 35.0
EVERS EAST MOA	P-F-22-EE_2	F-22 < 35.0
EVERS EAST MOA	P-F-16-EE_2	F-16C < 35.0
EVERS LOW MOA	P-F-16-EL_2	F-16C < 35.0

Total Level 35.6

Specific Point: EVERS-DIESEL NORTH
Top 20 contributors to this level:

< Airspace	> Mission	Aircraft	Sound Level (dB)
EVERS NORTH MOA	P-F-22-EN_2	F-22	< 35.0
EVERS NORTH MOA	P-F-15-EN_2	F-15E	< 35.0
EVERS NORTH MOA	P-F-16-EN_2	F-16C	< 35.0
DIESEL NORTH ATCAA	P-F-15-DN_2	F-15E	< 35.0
DIESEL NORTH ATCAA	P-F-22-DN_2	F-22	< 35.0
DIESEL NORTH ATCAA	P-F-16-DN_2	F-16C	< 35.0
EVERS NORTH MOA	P-A-10-EN_2	A-10A	< 35.0
EVERS NORTH MOA	P-T-38-EN_2	T-38A	< 35.0
EVERS NORTH MOA	P-C-130-EN_2	C-130A&D	< 35.0
EVERS NORTH MOA	P-C-17-EN_2	C-17	< 35.0
DIESEL NORTH ATCAA	P-A-10-DN_2	A-10A	< 35.0
DIESEL NORTH ATCAA	P-C-17-DN_2	C-17	< 35.0
DIESEL NORTH ATCAA	P-C-130-DN_2	C-130A&D	< 35.0
DIESEL NORTH ATCAA	P-T-38-DN_2	T-38A	< 35.0
EVERS EAST MOA	P-F-15-EE_2	F-15E	< 35.0
EVERS LOW MOA	P-F-15-EL_2	F-15E	< 35.0
EVERS EAST MOA	P-F-22-EE_2	F-22	< 35.0
EVERS EAST MOA	P-F-16-EE_2	F-16C	< 35.0
EVERS LOW MOA	P-F-16-EL_2	F-16C	< 35.0
EVERS LOW MOA	P-F-22-EL_2	F-22	< 35.0

Total Level 36.2

Specific Point: EVERS-DIESEL SOUTH

Top 20 contributors to this level:

< Airspace	> Mission	Aircraft	Sound Level (dB)
EVERS SOUTH MOA	P-F-22-ES_2	F-22	< 35.0
EVERS SOUTH MOA	P-F-15-ES_2	F-15E	< 35.0
EVERS SOUTH MOA	P-F-16-ES_2	F-16C	< 35.0
DIESEL SOUTH ATCAA	P-F-15-DS_2	F-15E	< 35.0
DIESEL SOUTH ATCAA	P-F-22-DS_2	F-22	< 35.0
DIESEL SOUTH ATCAA	P-F-16-DS_2	F-16C	< 35.0
EVERS SOUTH MOA	P-A-10-ES_2	A-10A	< 35.0
EVERS SOUTH MOA	P-T-38-ES_2	T-38A	< 35.0
EVERS SOUTH MOA	P-C-130-ES_2	C-130A&D	< 35.0
EVERS SOUTH MOA	P-C-17-ES_2	C-17	< 35.0
DIESEL SOUTH ATCAA	P-A-10-DS_2	A-10A	< 35.0
DIESEL SOUTH ATCAA	P-C-17-DS_2	C-17	< 35.0
DIESEL SOUTH ATCAA	P-C-130-DS_2	C-130A&D	< 35.0
DIESEL SOUTH ATCAA	P-T-38-DS_2	T-38A	< 35.0
EVERS EAST MOA	P-F-15-EE_2	F-15E	< 35.0
EVERS LOW MOA	P-F-15-EL_2	F-15E	< 35.0
EVERS EAST MOA	P-F-22-EE_2	F-22	< 35.0
EVERS EAST MOA	P-F-16-EE_2	F-16C	< 35.0
EVERS LOW MOA	P-F-16-EL_2	F-16C	< 35.0
EVERS LOW MOA	P-F-22-EL_2	F-22	< 35.0

Total Level 36.1

<Run Log>
Date: 11/15/2019
Start Time: 19:55:17
Stop Time: 19:56: 1
Total Running Time: 0 minutes and 45 seconds.

***** MOA RANGE NOISEMAP *****
Version 3.0
Release Date 2/7/2013

CASE INFORMATION
Case Name:Evers SUA Complex 2019 - Existing - DNL Scenario
Site Name:Evers

SETUP PARAMETERS
Number of MOAs and Ranges = 9 Number of tracks = 0
Lower Left Corner of Grid in feet (X Y pair) = -372500., -372500.
Upper Right Corner of Grid in feet (X Y pair) = 372500., 372500.
Grid spacing = 5000. feet Number of events above an SEL of 75.0 dB
Temperature = 59 F Humidity = 70 Flying days per month = 30

MOA SPECIFICATIONS

MOA name DIESEL CENTER ATCAA

Lat (deg)	Long (deg)
38.19320	-80.63750
38.78720	-80.48041
38.75401	-79.54699
38.13700	-79.72040
38.19320	-80.63750

Floor = 15000 feet AGL Ceiling = 20000 feet AGL

MOA name DIESEL NORTH ATCAA

Lat (deg)	Long (deg)
38.78720	-80.48041
39.12821	-80.39030
39.08871	-79.45249
38.75401	-79.54699
38.78720	-80.48041

Floor = 15000 feet AGL Ceiling = 20000 feet AGL

MOA name DIESEL SOUTH ATCAA

Lat (deg)	Long (deg)
38.13700	-79.72040
37.78029	-79.82050
37.83079	-80.73381
38.19320	-80.63750
38.13700	-79.72040

Floor = 15000 feet AGL Ceiling = 20000 feet AGL

MOA name EVERS CENTER MOA

Lat (deg)	Long (deg)
38.19320	-80.63750
38.78720	-80.48041
38.75401	-79.54699
38.13700	-79.72040
38.19320	-80.63750

Floor = 8000 feet AGL Ceiling = 15000 feet AGL

MOA name EVERS EAST MOA

Lat (deg)	Long (deg)
38.64750	-79.33029
38.40000	-79.33029
38.40000	-79.64570
38.64750	-79.57169
38.64750	-79.33029

Floor = 1000 feet AGL Ceiling = 15000 feet AGL

MOA name EVERS EXISTING

Lat (deg)	Long (deg)
38.66690	-79.96640
38.66690	-79.33029
38.40000	-79.33029
38.40000	-79.96640
38.66690	-79.96640

Floor = 1000 feet AGL Ceiling = 15000 feet AGL

MOA name EVERS LOW MOA

Lat (deg)	Long (deg)
38.64750	-79.57809
38.13700	-79.72040
38.18020	-80.42490
38.58360	-80.30110
38.64750	-80.00000
38.64750	-79.57169
38.64750	-79.57809

Floor = 1000 feet AGL Ceiling = 8000 feet AGL

MOA name EVERS NORTH MOA

Lat (deg)	Long (deg)
38.78720	-80.48041
39.12821	-80.39030
39.08871	-79.45249
38.75401	-79.54699
38.78720	-80.48041

Floor = 8000 feet AGL Ceiling = 15000 feet AGL

MOA name EVERS SOUTH MOA

Lat (deg)	Long (deg)
38.13700	-79.72040
37.78029	-79.82050
37.83079	-80.73381
38.19320	-80.63750
38.13700	-79.72040

Floor = 8000 feet AGL Ceiling = 15000 feet AGL

SPECIFIC POINT SPECIFICATION

Number of Specific points = 6

Latitude	Longitude	Name
38.55200	-79.47399	EVERS EAST
38.52000	-79.66900	EVERS EXISTING
38.42500	-80.01200	EVERS LOW
38.68800	-80.38600	EVERS-DIESEL CENTER
38.92901	-79.98800	EVERS-DIESEL NORTH
37.98100	-80.23300	EVERS-DIESEL SOUTH

MISSION DATA

Mission name = E-A-10-E_2
Aircraft code =FM0090100 Speed = 300 kias Power = 85.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	50.0
8000	15000	50.0

Mission name = E-F-15-E_2
Aircraft code =FM0430400 Speed = 350 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	75.0
8000	15000	25.0

Mission name = E-F-16-E_2
Aircraft code =FM0440300 Speed = 450 kias Power = 90.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	50.0
8000	15000	50.0

Mission name = E-F-22-E_2
Aircraft code =FM0850100 Speed = 450 kias Power = 92.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	15.0
8000	15000	85.0

Mission name = E-T-38-E_2
Aircraft code =FM0680100 Speed = 350 kias Power = 85.0

Altitude Distribution

Lower Alt (feet AGL)	Upper Alt (feet AGL)	Percent Utilization
1000	8000	15.0
8000	15000	85.0

MOA OPERATION DATA

MOA name = EVERS EXISTING

Mission Name	Daily Day OPS	Daily Night OPS	Monthly Day OPS	Monthly Night OPS	Yearly Day OPS	Yearly Night OPS	Time On Range (minutes)
E-A-10-E_2	0.228	0.000	6.83	0.00	82.	0.	30.
E-F-15-E_2	0.533	0.000	16.00	0.00	192.	0.	20.
E-F-16-E_2	1.347	0.000	40.42	0.00	485.	0.	34.
E-F-22-E_2	0.992	0.000	29.75	0.00	357.	0.	20.
E-T-38-E_2	0.525	0.000	15.75	0.00	189.	0.	34.

****

Warning: Grid points spaced greater than 1000 feet
apart may not provide the necessary grid resolution,
in some cases, to compute noise contours with
high accuracy. For low-altitude track operations,
the recommended grid spacing is less than 1000 feet.

****

***** MOA RANGE NOISEMAP *****
RESULTS

The noise metric is Ldn.

MOA RESULTS

MOA Name	MOA Area (sq statute miles)	Uniform Distributed Sound Level (dB)	Number of Daily Events Above SEL of 75.0 dB
DIESEL CENTER ATCAA	2123.1		No operations on this MOA!
DIESEL NORTH ATCAA	1187.1		No operations on this MOA!
DIESEL SOUTH ATCAA	1258.7		No operations on this MOA!
EVERS CENTER MOA	2123.1		No operations on this MOA!
EVERS EAST MOA	257.5		No operations on this MOA!
EVERS EXISTING	634.4	49.0	0.0
EVERS LOW MOA	1265.6		No operations on this MOA!
EVERS NORTH MOA	1187.1		No operations on this MOA!
EVERS SOUTH MOA	1258.7		No operations on this MOA!

***** MOA RANGE NOISEMAP *****
RESULTS

SPECIFIC POINT RESULTS

Specific Point: EVERS EAST
Top 20 contributors to this level:

< Airspace	> Mission	Aircraft	Sound Level (dB)
EVERS EXISTING	E-F-22-E_2	F-22	44.9
EVERS EXISTING	E-F-15-E_2	F-15E	44.0
EVERS EXISTING	E-F-16-E_2	F-16C	43.8
EVERS EXISTING	E-A-10-E_2	A-10A	< 35.0
EVERS EXISTING	E-T-38-E_2	T-38A	< 35.0

Total Level 49.0

Specific Point: EVERS EXISTING
Top 20 contributors to this level:

< Airspace	> Mission	Aircraft	Sound Level (dB)
EVERS EXISTING	E-F-22-E_2	F-22	44.9
EVERS EXISTING	E-F-15-E_2	F-15E	44.0
EVERS EXISTING	E-F-16-E_2	F-16C	43.8
EVERS EXISTING	E-A-10-E_2	A-10A	< 35.0
EVERS EXISTING	E-T-38-E_2	T-38A	< 35.0

Total Level 49.0

Specific Point: EVERS LOW
Top 20 contributors to this level:

< Airspace	> Mission	Aircraft	Sound Level (dB)
EVERS EXISTING	E-F-22-E_2	F-22	< 35.0
EVERS EXISTING	E-F-15-E_2	F-15E	< 35.0
EVERS EXISTING	E-F-16-E_2	F-16C	< 35.0
EVERS EXISTING	E-A-10-E_2	A-10A	< 35.0
EVERS EXISTING	E-T-38-E_2	T-38A	< 35.0

Total Level ..... < 35.0

Specific Point: EVERS-DIESEL CENTER
Top 20 contributors to this level:

< Airspace	> Mission	Aircraft	Sound Level (dB)
EVERS EXISTING	E-F-22-E_2	F-22	< 35.0
EVERS EXISTING	E-F-15-E_2	F-15E	< 35.0

EVERS EXISTING	E-F-16-E_2	F-16C	< 35.0
EVERS EXISTING	E-A-10-E_2	A-10A	< 35.0
EVERS EXISTING	E-T-38-E_2	T-38A	< 35.0

Total Level ..... < 35.0

Specific Point: EVERS-DIESEL NORTH
Top 20 contributors to this level:

< Airspace	> Mission	Aircraft	Sound Level (dB)
EVERS EXISTING	E-F-22-E_2	F-22	< 35.0
EVERS EXISTING	E-F-15-E_2	F-15E	< 35.0
EVERS EXISTING	E-F-16-E_2	F-16C	< 35.0
EVERS EXISTING	E-A-10-E_2	A-10A	< 35.0
EVERS EXISTING	E-T-38-E_2	T-38A	< 35.0

Total Level ..... < 35.0

Specific Point: EVERS-DIESEL SOUTH
Top 20 contributors to this level:

< Airspace	> Mission	Aircraft	Sound Level (dB)
EVERS EXISTING	E-F-22-E_2	F-22	< 35.0
EVERS EXISTING	E-F-15-E_2	F-15E	< 35.0
EVERS EXISTING	E-F-16-E_2	F-16C	< 35.0
EVERS EXISTING	E-A-10-E_2	A-10A	< 35.0
EVERS EXISTING	E-T-38-E_2	T-38A	< 35.0

Total Level ..... < 35.0

<Run Log>
Date: 11/15/2019
Start Time: 16:21:47
Stop Time: 16:22: 1
Total Running Time: 0 minutes and 15 seconds.

APPENDIX B - US AIR FORCE LAND USE COMPATIBILITY GUIDELINES

The USAF guidelines for land use compatibility in aircraft noise zones is shown in the table below and are extracted from Appendix A of AFI 32-7063 dated 15 July 2015. These land use compatibility guidelines have been included for reference purposes (Table C-1).

Table 1. Land Use Compatibility Guidelines

SLUCM NO.	LAND USE NAME	DNL 65-69	DNL 70-74	DNL 75-79	DNL 80-84	DNL 85+
10	Residential					
11	Household units	N1	N1	N	N	N
11.11	Single units: detached	N1	N1	N	N	N
11.12	Single units: semidetached	N1	N1	N	N	N
11.13	Single units: attached row	N1	N1	N	N	N
11.21	Two units: side-by-side	N1	N1	N	N	N
11.22	Two units: one above the other	N1	N1	N	N	N
11.31	Apartments: walk-up	N1	N1	N	N	N
11.32	Apartment: elevator	N1	N1	N	N	N
12	Group quarters	N1	N1	N	N	N
13	Residential hotels	N1	N1	N	N	N
14	Mobile home parks or courts	N	N	N	N	N
15	Transient lodgings	N1	N1	N1	N	N
16	Other residential	N1	N1	N	N	N
20	Manufacturing					
21	Food and kindred products; manufacturing	Y	Y2	Y3	Y4	N
22	Textile mill products; manufacturing	Y	Y2	Y3	Y4	N
23	Apparel and other finished products; products made from fabrics, leather, and similar materials; manufacturing	Y	Y2	Y3	Y4	N
24	Lumber and wood products (except furniture); manufacturing	Y	Y2	Y3	Y4	N
25	Furniture and fixtures; manufacturing	Y	Y2	Y3	Y4	N
26	Paper and allied products; manufacturing	Y	Y2	Y3	Y4	N
27	Printing, publishing, and allied industries	Y	Y2	Y3	Y4	N
28	Chemicals and allied	Y	Y2	Y3	Y4	N
29	Petroleum refining and related industries	Y	Y2	Y3	Y4	N
30	Manufacturing (continued)					
31	Rubber and misc. plastic products; manufacturing	Y	Y2	Y3	Y4	N
32	Stone, clay and glass products; manufacturing	Y	Y2	Y3	Y4	N
33	Primary metal products; manufacturing	Y	Y2	Y3	Y4	N
34	Fabricated metal products; manufacturing	Y	Y2	Y3	Y4	N
35	Professional scientific, and controlling instruments; photographic and optical goods; watches and clocks	Y	25	30	N	N
39	Miscellaneous manufacturing	Y	Y2	Y3	Y4	N
40	Transportation, communication and utilities					
41	Railroad, rapid rail transit, and street railway transportation	Y	Y2	Y3	Y4	N
42	Motor vehicle transportation	Y	Y2	Y 3	Y4	N
43	Aircraft transportation	Y	Y2	Y3	Y4	N
44	Marine craft transportation	Y	Y2	Y3	Y4	N
45	Highway and street right-of-way	Y	Y	Y	Y	N
46	Automobile parking	Y	Y	Y	Y	N
47	Communication	Y	255	305	N	N

48	Utilities	Y	Y2	Y3	Y4	N
49	Other transportation, communication and utilities	Y	255	305	N	N
50	Trade					
51	Wholesale trade	Y	Y2	Y3	Y4	N
52	Retail trade – building materials, hardware and farm equipment	Y	25	30	Y4	N
53	Retail trade – including shopping centers, discount clubs, home improvement stores, electronics superstores, etc.	Y	25	30	N	N
54	Retail trade – food	Y	25	30	N	N
55	Retail trade – automotive, marine craft, aircraft and accessories	Y	25	30	N	N
56	Retail trade – apparel and accessories	Y	25	30	N	N
57	Retail trade – furniture, home,	Y	25	30	N	N
58	Retail trade – eating and drinking establishments	Y	25	30	N	N
59	Other retail trade	Y	25	30	N	N
60	Services					
61	Finance, insurance and real estate services	Y	25	30	N	N
62	Personal services	Y	25	30	N	N
62.4	Cemeteries	Y	Y2	Y3	Y4,11	Y6,11
63	Business services	Y	25	30	N	N
63.7	Warehousing and storage	Y	Y2	Y3	Y4	N
64	Repair services	Y	Y2	Y3	Y4	N
65	Professional services	Y	25	30	N	N
65.1	Hospitals, other medical facilities	25	30	N	N	N
65.16	Nursing homes	N1	N1	N	N	N
66	Contract construction services	Y	25	30	N	N
67	Government services	Y1	25	30	N	N
68	Educational services	25	30	N	N	N
68.1	Child care services, child development centers, and nurseries	25	30	N	N	N
69	Miscellaneous Services	Y	25	30	N	N
69.1	Religious activities (including places of worship)	Y	25	30	N	N
70	Cultural, entertainment and recreational					
71	Cultural activities	25	30	N	N	N
71.2	Nature exhibits	Y1	N	N	N	N
72	Public assembly	Y	N	N	N	N
72.1	Auditoriums, concert halls	25	30	N	N	N
72.11	Outdoor music shells, amphitheaters	N	N	N	N	N
72.2	Outdoor sports arenas, spectator sports	Y	Y	N	N	N
73	Amusements	Y	Y	N	N	N
74	Recreational activities	Y	25	30	N	N
75	Resorts and group camps	Y	25	N	N	N
76	Parks	Y	25	N	N	N
79	Other cultural, entertainment and recreation	Y	25	N	N	N
80	Resource production and extraction					
81	Agriculture (except live- stock)	Y8	Y9	Y10	Y10,11	Y10,11
81.5-81.7	Agriculture-Livestock farming including grazing and feedlots	Y8	Y9	N	N	N
82	Agriculture related activities	Y8	Y9	Y10	Y10,11	Y10,11
83	Forestry activities	Y8	Y9	Y10	Y10,11	Y10,11
84	Fishing activities	Y	Y	Y	Y	Y

85	Mining activities	Y	Y	Y	Y	Y
89	Other resource production or extraction	Y	Y	Y	Y	Y

KEY:
SLUCM – Standard Land Use Coding Manual, U.S. Department of Transportation
Y (Yes) – Land use and related structures compatible without restrictions.
N (No) – Land use and related structures are not compatible and should be prohibited.
Yx – Yes with restrictions. The land use and related structures generally are compatible. However, see note(s) indicated by the superscript.
Nx – No with exceptions. The land use and related structures are generally incompatible. However, see note(s) indicated by the superscript.
25, 30, or 35 – The numbers refer to noise level reduction (NLR) levels. NLR (outdoor to indoor) is achieved through the incorporation of noise attenuation into the design and construction of a structure. Land use and related structures are generally compatible; however, measures to achieve NLR of 25, 30, or 35 must be incorporated into design and construction of structures. However, measures to achieve an overall noise reduction do not necessarily solve noise difficulties outside the structure and additional evaluation is warranted. Also, see notes indicated by superscripts where they appear with one of these numbers.
DNL – Day-Night Average Sound Level.
CNEL – Community Noise Equivalent Level (normally within a very small decibel difference of DNL)
Ldn – Mathematical symbol for DNL.

NOTES:
1. General
a. Although local conditions regarding the need for housing may require residential use in these zones, residential use is discouraged in DNL 65-69 and strongly discouraged in DNL 70-74. The absence of viable alternative development options should be determined and an evaluation should be conducted locally prior to local approvals indicating that a demonstrated community need for the residential use would not be met if development were prohibited in these zones. Existing residential development is considered as pre-existing, non-conforming land uses.
b. Where the community determines that these uses must be allowed, measures to achieve outdoor to indoor NLR of at least 25 decibels (dB) in DNL 65-69 and 30 dB in DNL 70-74 should be incorporated into building codes and be considered in individual approvals; for transient housing, an NLR of at least 35 dB should be incorporated in DNL 75-79.
c. Normal permanent 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, upgraded sound transmission class ratings in windows and doors, and closed windows year round. Additional consideration should be given to modifying NLR levels based on peak noise levels or vibrations.
d. NLR criteria will not eliminate outdoor noise problems. However, building location, site planning, design, and use of berms and barriers can help mitigate outdoor noise exposure particularly from ground level sources. Measures that reduce noise at a site should be used wherever practical in preference to measures that only protect interior spaces.
2. Measures to achieve NLR of 25 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 of 30 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 of 35 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. If project or proposed development is noise sensitive, use indicated NLR; if not, land use is compatible without NLR.
6. Buildings are not permitted.
7. Land use is compatible provided special sound reinforcement systems are installed.
8. Residential buildings require an NLR of 25
9. Residential buildings require an NLR of 30.
10. Residential buildings are not permitted.
11. Land use that involves outdoor activities is not recommended, but if the community allows such activities, hearing protection devices should be worn when noise sources are present. Long-term exposure (multiple hours per day over many years) to high noise levels can cause hearing loss in some unprotected individuals.