

Military Operations Areas (MOAs)

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A Message From Your Presenter

- ▶ Susan Beck is not an Air Force or Air National Guard Representative
 - ▶ A resident of Southwest New Mexico
 - ▶ A retired Air Force Colonel with experience in military flight operations and training and Air Force policy and decision making in the Pentagon
 - ▶ A volunteer who just wants to provide accurate information and help everyone understand current and proposed military training in Pennsylvania -- not an advocate or an activist

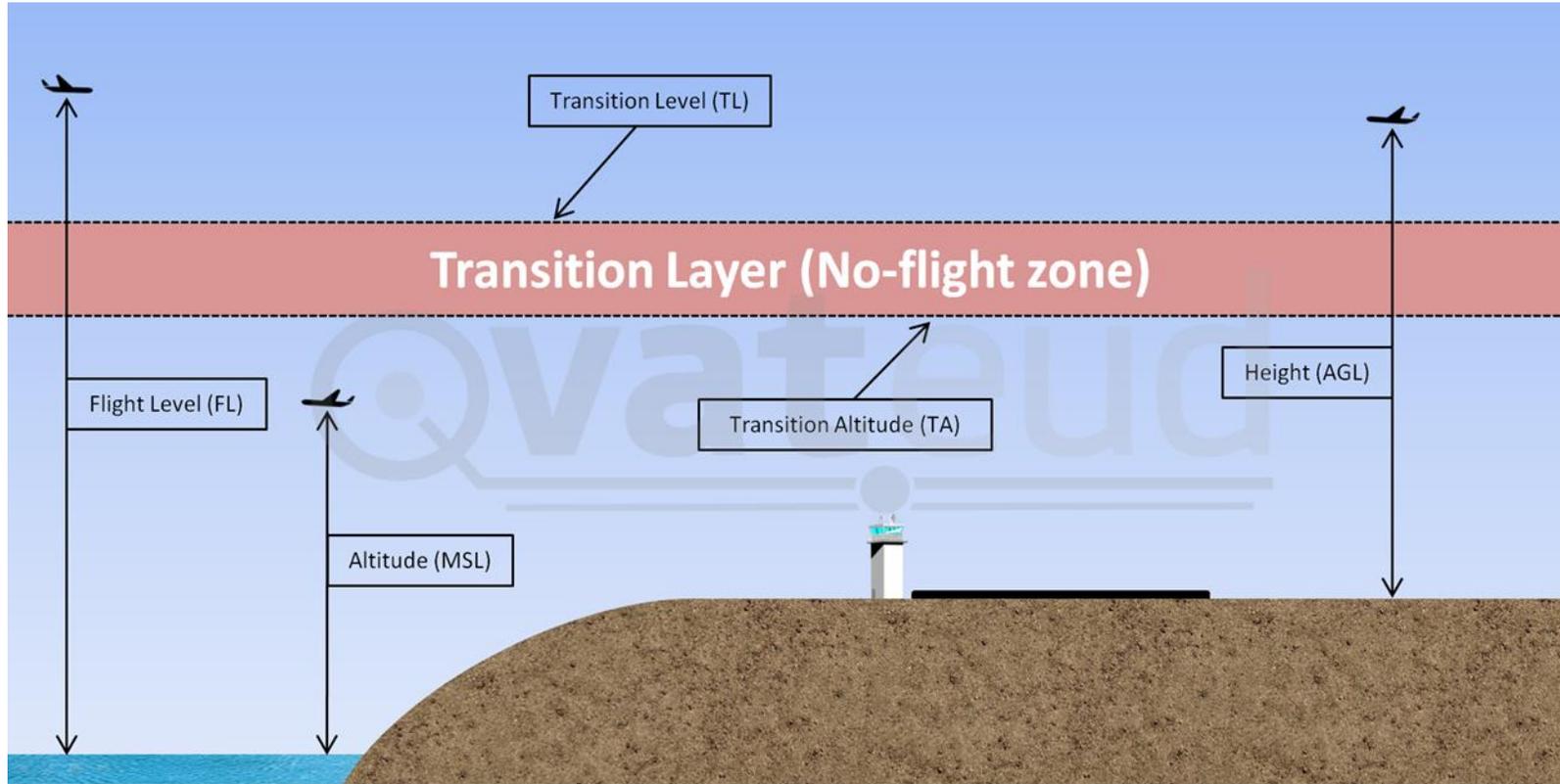
Overview

- ▶ Military Operations Areas (MOAs)
- ▶ Why Establish Duke Low MOA?
- ▶ National Environmental Policy Act Process
- ▶ Existing Low Level Military Training Routes
- ▶ Comment and Educate!

Military Operations Areas

- ▶ A Military Operations Area (MOA) is one of six types of Special Use Airspace (SUA).
- ▶ MOAs are designated by the FAA to separate certain non-hazardous military aircraft training activities from instrument flight rules (IFR) air traffic and to identify for visual flight rules (VFR) air traffic where these activities are conducted.
 - MOAs are established at the request of military organizations to contain certain military activities such as air combat maneuvers, air intercepts, acrobatics, formation training, and low-altitude tactics.
 - MOAs are recommended to be within 100 miles of the user's base.
 - The activity status of MOAs may change frequently (active/inactive), but **MOAs can be used anytime by posting a Notice to Air Missions (NOTAM).**

Understanding Altitude Terms



AGL (Above Ground Level) - altitude measured from the ground

MSL (Mean Sea Level) - altitude measured from mean sea level

FL (Flight Level) - altitude from sea level assuming a standard sea level pressure

Low Altitude Flying Training

- ▶ [Air Force Fact Sheet on Low Altitude Flying Training](#) - Low-level airspace used for military flight activities include:
 - **MOAs** - Airspace designated for non-hazardous military activity such as acrobatics, air combat tactics and formation training, etc.
 - **Military Training Routes (MTRs)** -- for military flight training at airspeeds in excess of 250 knots. There are two types of military training routes:
 - Instrument Flight Rules (IR) -- for low-altitude navigation and tactical training below 10,000 feet and at airspeeds in excess of 250 knots **at night and in foul weather**.
 - Visual Flight Rules (VR) -- for low-altitude navigation and tactical training below 10,000 feet at airspeeds in excess of 250 knots **under visual flight rules**.

Low MOAs

- ▶ The difference between a MOA and a Low MOA is the implementation of avoidance areas to try to mitigate impacts of low-altitude military training.
- ▶ [AF Fact Sheet on Low Altitude Flying Training](#)
 - ▶ The FAA and DOD have worked out rules for low-altitude, high-speed training to ensure the greatest safety for both military and general aviation.
 - ▶ The military, in addition to following its own flying rules on low-level altitudes and airspeed, also follows those in FAA Regulation 91.79 which states that **no plane may fly closer than "500 feet from any person, vessel, vehicle or structure."**
- ▶ **Public Involvement** - The Air Force welcomes public reports of suspected flight violations. Citizens may call or write to flight operations or public affairs offices at their nearest Air Force base. Those who call or write should provide date and time of incident, any aircraft markings, the number and location of the plane's engines, its approximate altitude, and the direction it was flying.

Units Expected to Use Duke Low MOA

- ▶ In addition to the MD ANG's 175 Wing as the primary user, other expected users of the Duke Low MOA would include:
 - The 177 Fighter Wing (FW), New Jersey ANG - F-16C
 - The 193d Special Operations Wing, Pennsylvania ANG - C-130
 - The 113 Fighter Wing, District of Columbia ANG - F-16C
- ▶ While other wings would use the airspace, the 175 Wing is the only user that would fly below 1,000 feet, according to the Draft Final EA.

Why are the Air National Guard and Air Force Establishing Duke Low MOA?

- ▶ According to the 175th Wing website's [Public Affairs Guidance](#):
 - “The A-10C is the premier attack platform currently in service worldwide for combat search and rescue, close air support, forward air control, air interdiction, and surface attack missions.”
 - “Each of these mission sets has a specific requirement for use of low-altitude airspace.”
 - “The 175 Wing A-10C aircraft require low-altitude airspace to accurately train and prepare for current and future conflicts.”
 - “In a close air support environment, deploying weapons during an aircraft dive spans the altitudes between 100 ft. and 20,000 ft.”

Why are the Air National Guard and Air Force Establishing Duke Low MOA?

- ▶ According to the [175th Wing website for Duke Low MOA](#):
 - “The main purpose of the proposed modification to the Duke MOA is to provide low-altitude airspace to accurately train and prepare for current and future conflicts in an integrated, year-round, and realistic training environment.
 - The modified low-altitude airspace will provide MD ANG A-10 pilots the ability to train so they can protect American and allied troops on the ground, as well as perform search and rescue missions.”
- ▶ Note: The MD ANG currently flies the A-10C. There is no mention of what will happen when the MD ANG transitions to the F-16C sometime before 2029.

A-10C Thunderbolt (Called “Warthog”)



A-10C Thunderbolt II from 355th Wing at Davis-Monthan AFB

A-10 Retirement is Imminent

- ▶ The US Air Force wants to retire all A-10s by 2029 -- *Defense News*
 - The Air Force says the low-and-slow-flying aircraft would not be able to survive in a fight against a nation with modern air defenses, like China. The Air Force needs aircraft that can fill multiple roles, and the A-10's utility is too limited.
 - In 2023, the Air Force will start retiring its first 21 A-10s, which will reduce the A-10 inventory from 281 to 260, and this will continue each year until 2029.
 - The first A-10s to be retired will come from the Indiana Air National Guard's 122nd Wing at Fort Wayne Air National Guard Station, which will then transition to an equal number of F-16s.
 - There is no published schedule for subsequent A-10 retirements, so no way to know when the 175th Wing will retire its A-10s and receive F-16s.

F-16 Fighting Falcon



**F-16 Fighting Falcon and F-35 Lightning II from
56th Fighter Wing at Luke AFB**

EC-130J and MC-130J Commando



193rd Special Operations Wing EC-130J and the soon to arrive MC-130J

The Proposed Duke Low MOA

Draft Final Environmental Assessment for Modification of Duke Military Operations Area

▶ Draft Final EA for Airspace Modification of Duke MOA

- ▶ “The proposed Duke Low MOA would modify the existing altitudes within the Duke MOA to establish low-altitude airspace... The existing Duke MOA, covering 2,178 square nautical miles...” (page 1-2)”
- ▶ “The purpose of the proposed action is to modify the existing altitudes within the Duke MOA to establish low-level airspace beneath the existing Duke MOA to train and prepare military pilots and aircrews for current and future conflicts.” (p. 1-4)”
- ▶ “The proposed Duke Low MOA, covering 1,727 SNM, would be in Pennsylvania and New York (Figure 2-1). The proposed Duke Low MOA would modify the existing altitudes of the existing Duke MOA to allow for low-altitude training. **The low altitude MOA** would follow the lateral footprint of the existing Duke MOA, except for the southwestern portion, to avoid potential operational impacts to regional airports. (p. 2-1)”
- ▶ The proposed Duke Low MOA is not actually the modification of Duke MOA. It is a new MOA that can be used in conjunction with Duke MOA or independent of it.

The National Environmental Policy Act of 1969 (NEPA) Process

- ▶ The National Environmental Policy Act (NEPA) of 1969 established a national policy that promotes the enhancement of the environment.
 - The essential purpose of NEPA is to ensure that environmental factors are weighted equally when compared to other factors in the decision-making process undertaken by federal agencies.
 - The NEPA process provides the means for federal agencies to assess the potential environmental impacts of their proposed actions and to identify ways to minimize and mitigate those impacts.
- ▶ “This MD ANG EA has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321 et seq.), Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 Code of Federal Regulations [CFR] §§1500-1508) (2022), **the Air Force Environmental Impact Analysis Process (EIAP) (32 CFR 989)**, and the Federal Aviation Administration (FAA) Order 1050.1F, Environmental Impacts...”

Air Force EIAP (NEPA Process)

- ▶ Very objective, deliberate process - very disciplined, legally reviewed
- ▶ Engages stakeholders and the public
 - Opportunities for local leaders and residents to bring information to light for the agency (Air National Guard) to consider
 - Meetings are usually held with the public
 - Public comment period is usually provided on the draft documents

Air Force EIAP

- ▶ There are two levels of EIAP analysis: the Environmental Assessment (EA) and the Environmental Impact Statement (EIS)
 - The purpose of an EA is to determine the significance of the proposal's environmental outcomes and to look at alternatives for achieving the agency's objectives.
 - An EA is done to provide sufficient evidence and analysis for determining whether to prepare an EIS and to aid an agency's compliance with NEPA when no EIS is deemed necessary
 - If it is determined that an EIS is not warranted, the agency will issue a Finding of No Significant Impact (FONSI)

Air Force EIAP

- ▶ Environmental Impact Statement (EIS)
 - Most intensive level of EIAP analysis
 - Very formal preparation and processing
 - Results: detailed written environmental impact statement
 - Fully discloses environmental impacts of proposed action and reasonable alternatives
 - Includes public meetings after the draft EIS is released

Air Force EIAP

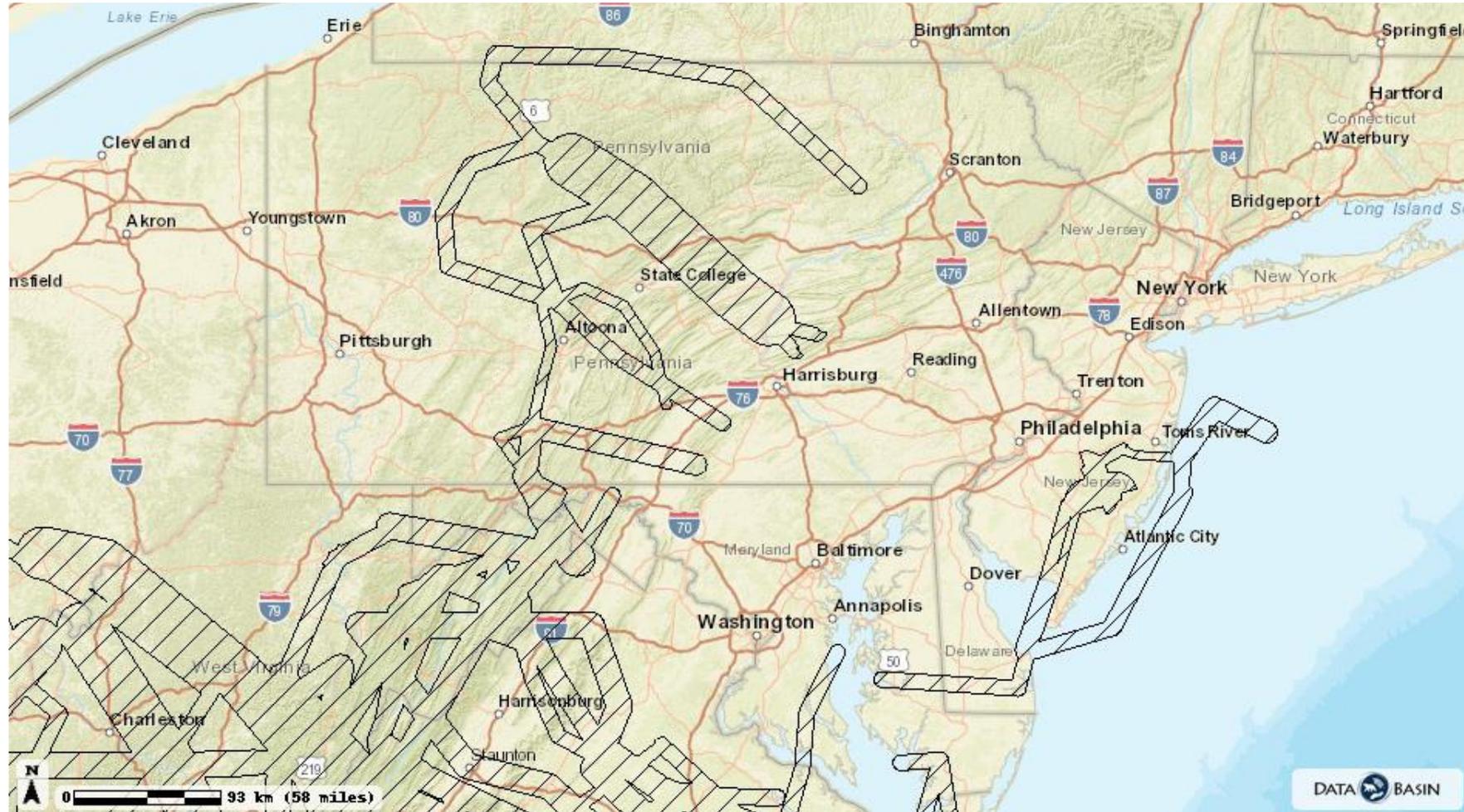
▶ § 989.16 Environmental impact statement.

- ▶ (a) Certain classes of environmental impacts normally require preparation of an EIS ([40 CFR 1501.4](#)). These include, but are not limited to:
 - (1) Potential for significant degradation of the environment.
 - (2) Potential for significant threat or hazard to public health or safety.
 - (3) Substantial environmental controversy concerning the significance or nature of the environmental impact of a proposed action.

▶ Does this proposed action warrant an EIS, instead of an EA/FONSI?

Low-Level Military Training Routes in PA

VR-704, VR-705, and VR-707 (lowest altitude 100' AGL) used by the PA ANG's 193rd Special Operations Wing at Harrisburg ANG Base



[DOD Flight Information Publication AP/1B](#), pages 3-82 through 3-85

Low-Level Military Training Routes (MTRs)

- ▶ [DOD AP/1B - Flight Information Publication on Military Training Routes](#)
- ▶ Complete information about policy and procedures for instrument and visual routes is published in FAA Order JO 7610.4 series (Special Operations), with which the Department of Defense complies, and is therefore directive for all military flight operations.
- ▶ Avoidance Locations. All Instrument Route (IR) and Visual Route (VR) segments on which flight below 1,500 feet AGL is permitted shall be aligned such that the route width is clear of nuclear power plants...
- ▶ Aircrew should be familiar with the requirements of the FAA Aeronautical Information Manual (AIM) and applicable Service instructions regarding overflight of sensitive areas such as national parks, wildlife refuges, and wilderness areas.

Comment and Educate!

- ▶ Public engagement is a crucial part of the NEPA/EIAP process.
- ▶ Take advantage of the ANG's release of the Final Draft EA/FONSI and additional comment period -- military organizations don't normally release a Final Draft EA/FONSI for an additional public comment period.
- ▶ Educate the public in the region so they can make **substantive** comments, along with county and state elected leaders.
- ▶ Do all you can to educate the ANG.
 - ▶ You are the experts!
 - ▶ What else do they need to know about this region of Pennsylvania to make an educated decision? How would they discover this on their own from a distance?

Handling Concerns About Not Supporting the Military

- ▶ As Americans, we affirm our support for US military forces, in this case the MD ANG. Their training is important for the security of our nation.
 - Realistic training of pilots for combat is crucial to the success of air operations and to our military services as a whole.
 - Pilots must train as they will ultimately fight and as they will conduct other operations, such as search and rescue.
- ▶ While supporting the ANG or Air Force, which the ANG will ultimately join in combat operations, you can ask:
 - Is this the right or only place to conduct this training?
 - Have all the alternatives be considered?
 - Have all the impacts been properly considered and, at least, mitigated to the maximum extent possible?

Thank you!

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Back Up Slides

Special Use Airspace - FAA Order JO 7400.10C

- ▶ Special use airspace (SUA) is airspace of defined dimensions identified by an area on the surface of the earth where activities must be confined because of their nature, or where limitations are imposed on aircraft operations that are not a part of those activities, or both.
 - The vertical limits of SUA are measured by designated altitude floors and ceilings expressed as feet above mean sea level (MSL) or flight levels.
 - Unless otherwise specified, the word "to" (an altitude or flight level) means "to and including" (that altitude or flight level).
 - The horizontal limits of special use airspace are measured by boundaries described by geographic coordinates or other appropriate references that clearly define their perimeter.
 - The period of time during which a SUA is in effect is stated in the FAA designation of the SUA.

Military Operations Area

- ▶ A MOA is a type of special use airspace designated by the Federal Aviation Administration to separate certain non-hazardous military aircraft training activities from instrument flight rules (IFR) air traffic and to identify for visual flight rules (VFR) air traffic where these activities are conducted.
- ▶ MOAs are published on sectional aeronautical charts used by pilots and have defined geospatial boundaries including:
 - The lowest altitude (floor)
 - The highest altitude (ceiling)
 - The lateral (horizontal) dimensions for training activities
 - The times of use (Note: Military use of MOAs outside of the published times of use requires the publication of a notice to airmen (NOTAM).)
- ▶ Normally, the using agency is the organization or military command whose activity initially established the requirement for the MOA.

Altitude References

- ▶ Altitude references for aircraft operations are presented in several units of measure: AGL, MSL, and FL:
 - Above Ground Level (AGL) references are usually used at lower altitudes (almost always below 10,000 feet), when clearance from terrain is more of a concern for aircraft operation.
 - Mean Sea Level (MSL) altitudes are used most across all of aviation when operating at or below 18,000 feet when clearance from terrain is less of a concern for aircraft operation.
 - Flight Level (FL) is used to describe the cruising altitudes for aircraft traveling long distances above 18,000 feet, such as commercial airliners. Flight Levels are given in hundreds of feet, e.g. FL180 is 18,000 feet.

Above Ground Level (AGL)

▶ AGL

- ▶ Measurement that determines the height above ground in feet
- ▶ Measurement changes as the topography of the earth changes when a plane flies above it (e.g., over mountains)
- ▶ Example: if a plane flies a steady course at 10,000 feet AGL, a 10,000-foot high mountain would make the AGL 0 when the two objects come together

Mean Sea Level (MSL)

▶ MSL

- An MSL measurement refers to the altitude or height above the average height of the oceans
- MSL is a standard reference point for elevations
 - For instance, elevations in Grant County, NM, range from 4,000 feet MSL in the high desert at the southern end of the county to mountains reaching 10,000 feet MSL in the north end of the county
 - Silver City, NM, is at about 6,000 feet MSL
- To be able to ignore varying terrain elevations, pilots will use navigational altitudes and flight instruments that are based on MSL
- A plane that flies at 13,500 feet MSL and stays level registers as flying at 13,500 feet MSL no matter the terrain changes below the aircraft
 - So, if Silver City is about 6,000 feet MSL...

Duke MOA Listing in FAA JO 7400.10C

- ▶ Duke MOA
 - PA Boundaries. Beginning at lat. 42°02'40"N., long. 78°28'59"W.; to lat. 41°54'30"N., long. 77°24'19"W.; to lat. 41°19'55"N., long. 77°47'53"W.; to lat. 41°23'00"N., long. 78°36'39"W.; to the point of beginning. Altitudes. 8,000 feet MSL to but not including FL 180.
 - Times of use. 1000-1500 daily; other times by NOTAM.
 - Controlling agency. FAA, Cleveland ARTCC.
 - Using agency. Air National Guard
 - USING AGENCY CHANGED 06/18/98
- ▶ You will not see a change to this listing when Duke Low MOA is established because it is a new MOA.

Maryland Air National Guard

- ▶ 175th Wing stationed at Warfield Air National Guard Base, Martin State Airport, Middle River, MD
 - The Maryland Air National Guard is the aerial militia of the State of Maryland, United States of America. Along with the Maryland Army National Guard, it is an element of the Maryland National Guard. It is also an Air Reserve component of the United States Air Force.
 - As state militia units, the units in the Maryland Air National Guard are not actively in the United States Air Force chain of command until federalized. They are under the jurisdiction of the Governor of Maryland through the office of the Maryland Adjutant General unless they are federalized by order of the President of the United States.
 - The 175th Tactical Fighter Group operates one squadron of A-10C Thunderbolt II

Low-Level MOAs and MTRs

▶ [AF Fact Sheet on Low Altitude Flying Training](#)

- ▶ The Federal Aviation Administration manages U.S. airspace and is responsible for the development and enforcement of rules for aircraft flights and for the safe and efficient use of airspace.
- ▶ The Air Force takes very seriously noise problems associated with low-altitude training. For example, most low-level flying is limited to daylight hours and low-level flying near densely populated areas is prohibited.

NEPA Process

▶ NEPA EIS Elements:

- A Notice of Intent is published in the Federal Register - states the intent to prepare an environmental impact statement (EIS) for a particular project/proposal
- The public is engaged during the Scoping Process - the description of proposed action and alternatives are established; public input is sought
- The draft EIS is prepared for public comment - the comment period is at least 45 days; public meetings are hosted during the period to answer questions and solicit feedback/comments; written comments are invited
- Comments are addressed in the final EIS that is released for a 30-day public review
- After that, the decision is documented in a record of decision (ROD) which is approved by the Secretary of the AF and usually signed by the Assistant Secretary (Installations)
- The ROD then becomes a document of public record and is implemented by the Air Force/ANG and the FAA.

EIS Description

- ▶ The EIS provides a summary and analysis of the environmental consequences for several alternatives in the following areas:
 - ▶ Airspace Operations and Management - including civilian aircraft operations
 - ▶ Acoustic Environment - noise
 - ▶ Air Quality - including pollutant emissions
 - ▶ Natural Resources - including wildlife (consultation with USFWS is ongoing)
 - ▶ Land Management - airspace sizes and communities/features that would underlie them
 - ▶ Recreation - including noise
 - ▶ Socioeconomics - including impacts on home values and visitor experiences
 - ▶ Environmental Justice - relating to minority and low-income populations
 - ▶ Safety - including fire risk
 - ▶ Cultural Resources - including NRHP-listed archaeological or architectural resources
 - ▶ Hazardous Materials - including in case of aircraft mishap (crash) and cleanup

The Air Force NEPA Environmental Impact Assessment Process (EIAP)

▶ § 989.8 Analysis of alternatives.

- ▶ (a) The Air Force must analyze reasonable alternatives to the proposed action and the “no action” alternative in all EAs and EISs, as fully as the proposed action alternative.
 - ▶ (b) “Reasonable” alternatives are those that meet the underlying purpose and need for the proposed action and that would cause a reasonable person to inquire further before choosing a particular course of action. Reasonable alternatives are not limited to those directly within the power of the Air Force to implement.
- ▶ The “No Action” Alternative: ...the Air Force must always consider and assess the environmental impacts of the “no action” alternative. “No action” may mean either that current management practice will not change or that the proposed action will not take place.
- ▶ If no action would result in other predictable actions, those actions should be discussed within the no action alternative section. The discussion of the no action alternative and the other alternatives should be comparable in detail to that of the proposed action.