

SOUND OF FREEDOM FAQ

MARINE CORPS AIR STATION BEAUFORT

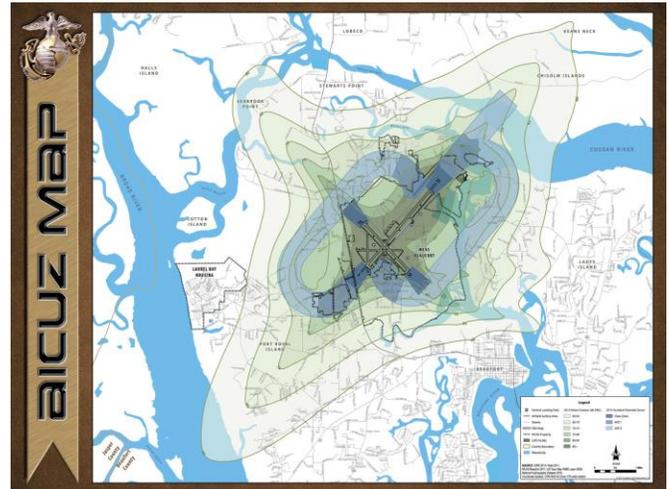


NOISE 101

In the early 1970s, the Department of Defense (DOD) initiated the Air Installations Compatible Use Zones (AICUZ) program to protect the health, safety, and welfare of those living and working in the vicinity of a military installation while sustaining the operational mission. Under the AICUZ program, the DOD established guidelines to define high noise zones and accident potential zones (APZs) surrounding military airfields and recommended land uses that are compatible within these zones. Local governments are encouraged to incorporate AICUZ program compatibility guidelines as an element of land use planning and development practices. For example, AICUZ program guidelines encourage noise-sensitive land uses (e.g., houses, churches) to be placed outside high noise zones and discourage people-intensive uses (e.g., apartments, theaters) in APZs. Such uses are incompatible in that they could jeopardize public health, safety, and welfare.

In the AICUZ study, noise exposure from aircraft is measured using the Day-Night Average Sound Level (DNL). DNL is an average of cumulative noise produced by individual events that occur over a 24-hour period. Aircraft operations conducted from 10:00 pm to 7:00 am are weighted with a 10 decibel (dB) penalty to represent added intrusiveness of sounds occurring during normal sleeping hours.

After DNL values are calculated for numerous (hundreds of thousands) points on the ground, points of equal value are connected with lines to generate noise contours. DNL noise contours of 60-65, 65-70, 70-75, 80-85, and 85+ dB are plotted on maps in the AICUZ study. The area between two noise contours is sometimes referred to as a noise zone.



It is important to note that the dB levels on the AICUZ map are the DNL average, not single event noise. Single event noise can be higher than the average. For example, if you live in the 60-65 DNL zone, you will experience single event noises greater than 65 dB. This is explained further in the AICUZ study available at: www.beaufort.marines.mil.

HOW DOES THE AICUZ PROGRAM WORK IN THE MCAS BEAUFORT AREA?

Marine Corps Air Station (MCAS) Beaufort implemented an AICUZ program in 1977. AICUZ studies should be updated when an installation has a change in the type of aircraft at the installation, a significant change in operations (i.e., the number of take-offs and landings or significant increases in nighttime [2200 to 0700 hours] flying activities), or changes in flight paths or procedures. The most recent AICUZ study was completed in 2013, after the Marine Corps F-35B East Coast Basing Environmental Impact Statement was finalized and Record of Decision signed. MCAS Beaufort and Lowcountry governments have been working together for years to support the community in understanding the AICUZ program and its planning guidance. Through the AICUZ program and numerous other efforts, MCAS Beaufort and local officials work hard to ensure that persons seeking to use areas impacted by Air Station operations, whether for business, residence, or other purpose, are provided the opportunity to understand the potential for increased jet noise and accident potential before substantial investment (including, and especially, residential use) in such areas. For example, Beaufort County and City of Beaufort ordinances require potential property purchasers, renters, or lessees sign a "real estate disclosure," which is acknowledgement of AICUZ noise or APZs applying to affected property. Beaufort County Development Code and the City of Beaufort Code require disclosures be signed for properties at 65 DNL and higher, or within an APZ.



While the disclosures identify what DNL noise zone each resident is within, disclosures do not discuss single event noise, which can be higher. This information is available in the AICUZ study and the F-35B East Coast Basing Environmental Impact Statement (EIS), both available to the public online at www.beaufort.marines.mil.

WHY IS THE AIR STATION IMPORTANT TO BEAUFORT?

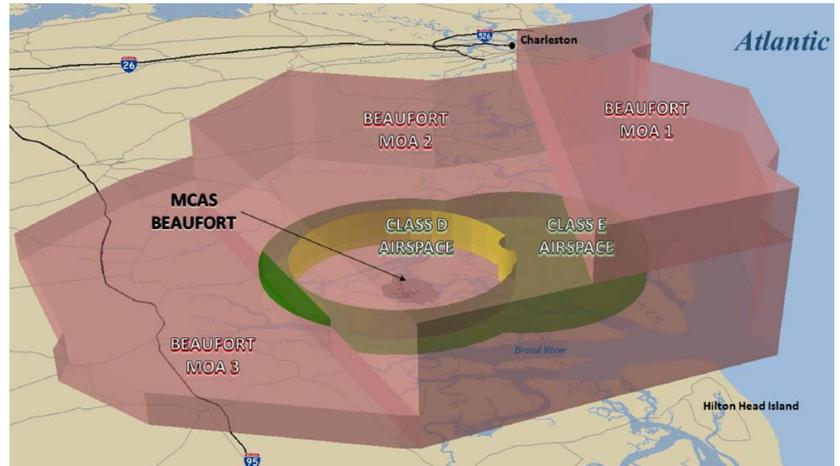
MCAS Beaufort has been a home station for military jet aircraft since 1960 and air operations have been a routine presence in Beaufort County and the surrounding area since inception. Along with Marine Corps Recruit Depot Parris Island and the Naval Hospital Beaufort, MCAS Beaufort is part of the Tri-Command Installations. Proud to call the greater Beaufort area "home," MCAS Beaufort service members, their families, and civilian employees number over 8,000, and have long been an integral part of the Lowcountry. The local economy is

significantly enhanced by MCAS Beaufort's expenditures for salaries, contracts, construction, retirement pay, off-installation accommodations for travelers, and more. According to a study by the South Carolina Military Base Task Force in 2017, the Tri-Command is the biggest economic driver in Northern Beaufort County providing \$2 billion in economic impact each year. Alone, MCAS Beaufort generates \$787 million in economic activity each year and sustains over 7,250 jobs in the local area.

In terms of national defense, MCAS Beaufort is home of the Marine Corps' Atlantic Coast fixed-wing, fighter-attack aircraft assets, and is among the United States military's most important installations. MCAS Beaufort is an operational base for Marine Aircraft Group 31 (MAG-31). MAG-31 aircrew regularly rotate overseas, either stationed in foreign nations in direct support of operations, the Unit Deployment Program in the Pacific, or on Navy aircraft carrier deployments wherever U.S. carrier aviation assets are needed. At any given time, up to half the squadrons are directed to various points around the globe, and, most recently, have seen combat in the skies over Iraq and Syria. Additionally, MCAS Beaufort is the only location in the world where pilots train to fly the F-35B Lightning II.

CAN MILITARY AIRCRAFT FLY OUTSIDE OF THE AICUZ NOISE CONTOURS AND APZS?

The AICUZ noise contours and APZs are not boundaries for aircraft. Airspace near Beaufort is more complex than it may appear. Civilian airports in the area, military training routes, and Federal Aviation Administration (FAA) airways contribute to the challenges of air traffic control. As depicted in the visual, the FAA has established airspace to account for different airspace users. MCAS Beaufort has several Military Operating Areas (MOAs) and controls airspace within five miles from the center of the Air Station. A MOA separates certain nonhazardous military activities from Instrument Flight Rules (IFR) traffic, and identifies where these activities are conducted for Visual Flight Rules (VFR) traffic. MCAS Beaufort Air Traffic Control has the ability to re-route aircraft anywhere within their area of responsibility.



CAN THE AIRCRAFT TRAIN ELSEWHERE?

MCAS Beaufort pilots train on a diverse set of training ranges throughout the region, primarily in the Carolinas, Georgia, and Florida, or off of the coast. Most of the training is conducted over the Atlantic Ocean and at Townsend Bombing Range in Georgia, and arrivals and departures reflect movement to and from these areas. In order for pilots to be proficient at the skillsets required for various departures and arrivals, there are closed patterns of flying at MCAS Beaufort where the departure and arrival are connected without other training in between. The primary training taking place at MCAS Beaufort is practice approaches and landings which are not practical to be done elsewhere.

WHY IS THERE VARIATION IN THE FLIGHT PATHS?

It is important to note that flight paths are not like driving on a road. Pilots do not follow the same exact course every day as there are different factors that impact the flight path. Some local patterns are repetitive, and some vary greatly depending on conditions, such as daylight, weather, local winds, air traffic, presence of birds, mission, training requirements, ordnance on the aircraft, and more. Some examples of when you may see pilots flying lower include when they are conducting lower approaches during bad weather, practicing bad weather approaches, or training during Field Carrier Landing Practice. All flight operations to, from, and in the vicinity of MCAS Beaufort are conducted with safety in mind – safety for the military pilots, for the pilots and passengers of civilian aircraft nearby, and for the public.

WHAT ARE THE HOURS OF THE AIRFIELD? DO THEY CHANGE?

Typical airfield operating hours during a normal work week are:

Monday to Thursday 7:00 AM TO 11:00 PM	Friday 7:00 AM to 6:00 PM
Sunday 4:00 PM to 6:00 PM	Closed Saturday and federal holidays

Training or operational necessity can result in extended runway operational hours or additional days. For example, when deployed, pilots must operate at night to successfully accomplish their mission. Therefore, night training at MCAS Beaufort is necessary to maintain pilot readiness and all-weather capabilities. This is limited to what is required to remain proficient in night-flying. Prolonged aircraft operations scheduled to occur outside of typical airfield hours are normally announced on social media. There may, however, be circumstances when releasing the hours of operations will not occur in order to maintain operational security as releasing the dates and times of some flight operations may be detrimental to national security and undermine pilot and aircrew safety.



This information can be found on the MCAS Beaufort social media sites:

Facebook www.facebook.com/MCASBeaufort

Twitter www.twitter.com/MCASBeaufortSC

WHY DO I HEAR NOISE LOUDER THAN WHAT IS LISTED IN THE NOISE CONTOUR?

The noise zones depicted in the AICUZ study and AICUZ map represent noise averages over a 24 hour period, not single noise events. For example, if you use a personal decibel reader, you may measure noise events at higher dB than what is indicated by a specific noise contour line. Single noise events are designated in Maximum Sound Level, which comprises the highest sound level measured during a single aircraft overflight, and Sound Exposure Level, which is a single-number representation of noise energy dose, meaning it takes into account the effect of both the duration and intensity of a noise event. For example, during an aircraft flyover, it would take into account the noise levels produced during the onset and recess period of the flyover. Because an individual overflight takes seconds and Maximum Sound Level occurs instantaneously, Sound Exposure Level forms the best metric to compare noise levels from overflights. The table provides both metrics for the F-35B when it is at a specific altitude with a typical speed and power for that operation type. In this table, the decibels are listed in the “A-weighted” (dBA) scale that filters out very low and very high frequencies in order to replicate human sensitivity, mimicking the human ear’s non-linear sensitivity and perception of different frequencies of sound.

There is more information available about single noise events in the AICUZ study and the F-35B East Coast Basing Environmental Impact Statement (EIS), both available to the public online at www.beaufort.marines.mil.

F-35B					
Operation Type	Altitude (ft Above Ground Level)	Sound Exposure Level (dBA)	Maximum Sound Level (dBA)	Power (% Engine Thrust Ratio)	Speed (knots)
Departure (Conventional)	2,000 ft	110	106	100	300
Departure (Short Takeoff)	535 ft	125	123	100	290
Arrival (Conventional)	1,000 ft	107	102	55	170
Overhead Arrival (Initial Approach)	1,500 ft	89	84	35	300
Touch and Go (Closed Pattern)	1,000 ft	107	102	55	150
Field Carrier Landing Practice	600 ft	111	107	55	150

Department of the Navy analysis shows that a small increase in dB is generally not noticeable. Individual response to noise can be influenced by factors, such as:

- Activity the individual is engaged in at the time of the noise event
- Weather conditions (temperature inversions with low cloud cover can trap and amplify sounds)
- Time of day or night
- Length of time an individual is exposed to a noise
- Predictability of noise
- The individual’s general sensitivity to noise

WHAT ARE “COURSE RULES”?

The course rules are an aviation guide to address conditions, guidance, and safety measures specific to the local area. Course rules maintain aviation safety, however, the course rules do not supersede the appropriate professional judgement of pilots and air traffic controllers in maintaining aviation safety. Rules being employed at a certain time are highly dependent upon the situation in which an aircraft is being operated, circumstances of which are generally neither apparent nor observable to bystanders. For example, aircraft doing training operations in an active Military Operating Area may follow a different portion of the course rules than an aircraft conducting a “landing.” Even a “landing” has multiple meanings, and, in turn, different portions of the course rules may apply.

DO YOU AVOID FLYING OVER ANY COMMUNITIES?

The Marine Corps’ AICUZ guidelines are set forth in the Department of the Navy’s Office of the Chief of Naval Operations (OPNAV) Instruction 11010.36C, Marine Corps Order (MCO) 11010.16 AICUZ Program. While the order directs the Marine Corps to consider alternatives to account for noise effects, it also directs that “evaluation of an operational alternative must balance noise and APZ changes with impacts on flight safety, operational capability, and cost.” Safety is the biggest factor in flight path design. In the 1940s, MCAS Beaufort was built in such a way that aircraft could safely avoid the pre-existing downtown historic district established in the early 1700s. The flight paths were planned and angled for the safest route of arrival and departure in consideration of the historic district. Now, there is no “unpopulated land” over which the flight paths can be safely shifted.



To move a flight path to avoid specific neighborhoods at their request, and instead fly over other neighborhoods, could be considered an unjustified burden on other local communities that have been Air Station neighbors for decades. Additionally, Executive Order (E.O.) 12898 (“Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations”) directs federal agencies to identify and address disproportionate and adverse effects of actions on minority and low-income populations, to the greatest extent practicable and permitted by law.

HOW DO YOU DETERMINE WHICH RUNWAY TO USE?

MCAS Beaufort has two runways; one is 12,200 feet long, and the other is 8,000 feet long. The runway that offers the most safe and expeditious arrival and departure is usually the longest runway. The longer runway receives approximately 75% to 80% of the air operations and is equipped for high performance aircraft training. The shorter runway is used when wind conditions prevent safe use of the longer runway. During periods of runway maintenance when one runway may be closed, the other will receive more use.



With the F-35B capability to conduct short takeoffs and vertical landings, MCAS Beaufort also has vertical landing pads, and the L-Class Ship Field Carrier Landing Practice facility (commonly referred to as the LHD facility), which pilots use when practicing this type of takeoff and landing.

WILL NOISE INCREASE WITH THE F-35 TRANSITION?

The F-35 is the latest generation in a long line of fighter jet aircraft that have been home-based at MCAS Beaufort since World War II. The F-35 basing process began in approximately 2007; with the Environmental Impact Statement (EIS) completed in October 2010, and the Record of Decision posted in the Federal Register in December 2010. The EIS specifically analyzed a variety of issues to include local concerns associated with noise and land use. Additionally, the Marine Corps’ EIS considered the impact to the environment in accordance with a multitude of other acts and policies, such as the Endangered Species Act and Migratory Bird Treaty Act. As a part of the EIS and 2013 AICUZ study, the Marine Corps held multiple public forums and worked with communities to answer questions and help incorporate the new guidelines into community planning materials. At the public forums, the Marine Corps communicated detailed information on what the community can expect with the transition to the F-35.



It was communicated in the EIS that the public may notice an increase in noise levels as there will be an increased number of operations. Because the nation has been at war following September 11, 2001, MCAS Beaufort has been flying a historically low number of operations, approximately 30,000 per year, due to operational requirements of constant deployments. During the 1970s and 1980s, MCAS Beaufort flew more than 100,000 flight operations per year. MCAS Beaufort will increase, incrementally, back to this normal amount of flight operations. Additionally, because F-18s are aging and reaching the end of their designed life cycle, many are in various states of repair and require more maintenance time, allowing less time in the air. As overseas commitments wind down and more F-35s arrive to replace F-18s, there will

be a gradual increase in the number of operations until reaching full operations in the mid-2020s, with primarily F-35B aircraft.

In comparison to the previous generation aircraft, noise studies on the F-35 determined that the aircraft is comparable to the F-18 in conventional flight mode, with the rule-of-thumb being the F-35 is slightly louder during conventional takeoff, and slightly quieter on conventional approaches. Because the F-35B can land vertically, the public may notice a difference in landing speed when pilots are practicing this type of landing. Overall, noise levels heard by the community will depend on the type of flight operation (departure, arrival, pattern work, straight and level flight), the power setting, altitude, and weather conditions.

HAVE YOU CONSIDERED IMPLEMENTING AN OUTLYING LANDING FIELD?

MCAS Beaufort does not have a requirement for an outlying landing field (OLF). A valid requirement must show current infrastructure cannot support training requirements from a capacity standpoint and lack of an OLF creates a significant risk of not being able to train for combat operations. After detailed analysis, the F-35B Basing EIS determined that the existing airfield could support the F-35 operations planned for MCAS Beaufort. Regardless of whether an installation has an OLF, takeoffs and landings, which comprise a large majority of the noise impact in the community, are a necessary part of a military air facility.

WHAT ARE AFTERBURNERS? CAN I HEAR THEM? An afterburner is a component present on some jet engines that provides an increase in thrust. Afterburner use in the surrounding area is mainly limited to use during takeoff and emergencies. Afterburners used on takeoff are generally extinguished by the time the aircraft reaches the end of the runway. If carrying heavy ordnance, afterburners may be used a bit longer in order to gain safe operating airspeed.



HOW DOES AIRCRAFT NOISE AFFECT WILDLIFE AND DOMESTIC ANIMALS?

Professional studies suggest that, overall, animal species differ in their response to various types, durations, and sources of noise making it difficult to generalize animal responses to noise disturbances. Because other environmental variables such as predators, weather, changing prey base, and more, affect wildlife populations, studies are often inconclusive on how noise may affect a certain population, nest, area, or region. Regarding domestic animals, a majority of noise studies indicate that domestic animals exhibit some behavioral responses to military overflights, but generally seem to adjust to the disturbances over a period of time.

WHAT IS THE NOISE INQUIRY PROGRAM?

MCAS Beaufort officials direct all inquiries regarding operations to the Community Hotline at (843) 228-6229, and maintain a log of the inquiries received at the hotline. Additionally, there is an inquiry form available on the MCAS Beaufort website that an individual can fill out and email to the address listed on the form. If the individual requests information, MCAS Beaufort responds to the individual as soon as practical depending on the question. Where information indicates something out of the ordinary or unexpected, additional scrutiny or investigation is applied. Individuals are encouraged to leave the time, date, location, direction of flight, how many aircraft and their description, such as one or two tails, color, jet or propeller, and any other details, and to indicate if you would like a return phone call. For the inquiry form and more details on the Community Hotline, please visit: www.beaufort.marines.mil.

THE NOISE YOU
HEAR IS
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FREEDOM

I AM A REAL ESTATE PROFESSIONAL / DEVELOPER / COMMUNITY PLANNER. WHAT CAN I DO TO HELP?

Any individual involved in land use in the northern portion of Beaufort County should be aware of the AICUZ program and its details, in order to be ready to discuss the AICUZ program with potential users of the land, and direct those individuals to additional resources so that they may fully understand the context of their potential purchase or proposed use. Per the Beaufort County Development Code and the City of Beaufort Development Code, any person marketing property for sale, rental, or lease within a noise zone 65+ DNL or higher, or within an APZ, must provide written disclosure to all prospective purchasers, renters, or lessees that such property is located within a noise zone or APZ. Noise zones and APZs are part of the existing landscape of Beaufort County, and are subject to change if the AICUZ study is revised.



In addition to being knowledgeable about the disclosure requirements, real estate agents, developers and planners can work with builders to help them understand noise level reduction standards in construction material. For example, the building material used in most house structures will reduce outdoor noise 15–25 dB, depending on whether the windows are open or closed. Greater noise reduction may be achieved by caulking and filling exterior openings, installing sound-insulating windows and doors, and adding thermal insulation to outer walls and ceilings. Many of these improvements may provide other useful benefits outside

of noise-quieting. Lowcountry government websites have many resources for learning more about planning around a military installation. Additionally, the Marine Corps works with the Lowcountry community on several other programs for land owners, such as the Readiness and Environmental Protection Integration (REPI) program and the Transfer of Development Rights (TDR) program. For more information, please visit: www.beaufort.marines.mil.

I LIVE NEAR TOWNSEND BOMBING RANGE. HOW DOES THIS APPLY TO ME?

Located in Long and McIntosh Counties in southeast, coastal Georgia, Townsend Bombing Range is 82 miles southwest of MCAS Beaufort. It is the primary air-to-ground training range for aviation units stationed at MCAS Beaufort. In addition to being an essential training asset to Marine Corps aviation units, Navy, Air Force and Air National Guard, and Army units from more than six states also train at Townsend Bombing Range and its complex of Special Use Airspace. Recently expanded from 5,183 acres to 33,834 acres, Townsend Bombing Range is being modernized for training operations.

Citizens who live near Townsend Bombing Range should direct inquiries to the Community Hotline at (843) 228-6229 or, for more information, visit the Townsend Bombing Range website at www.beaufort.marines.mil/Townsend-Bombing-Range.



MORE INFORMATION

To stay up to date on MCAS Beaufort activities, please like the MCAS Beaufort Facebook page at www.facebook.com/MCASBeaufort, follow the MCAS Beaufort Twitter at www.twitter.com/MCASBeaufortSC, or visit the MCAS Beaufort press release website at www.beaufort.marines.mil/news.