

# JLUS/AIGUZ Planning Map

## Joint Land Use Study (JLUS)

The JLUS for the Hampton Roads region was initiated in 2004 as part of the Department of Defense (DoD) nationwide JLUS program. It addresses land use compatibility is three jurisdictions – the cities of Virginia Beach, Chesapeake, and Norfolk – surrounding the three Navy airfields in the region.

The objective of the Hampton Roads JLUS is to provide recommendations regarding compatible land development policy and implementation responding to the Navy's air mission in the region. For more information on JLUS, refer to the study, 2005 Hampton Roads JLUS Report, located at <a href="http://www.hrpdc.org/JLUS">http://www.hrpdc.org/JLUS</a> or at local libraries or the city planning department.

# **AICUZ Program**

#### **Overview**

All airports attract development. People who work at the airport want to live nearby, and businesses are established to cater to the airport and its employees. As development encroaches upon the airfield, more people experience the noise and other impacts associated with aircraft operations.

upon the attriet, more people expendence the noise and other impacts associated with aircrait operations. The Noise Control Act of 1972 declared that it is the policy of the United States to promote an environment for all Americans free from noise that jeopardizes their health or welfare. This act also excluded military weapons or equipment that are designed for combat use. In response to the Noise Control Act of 1972, the Department of Defense (DoD) established the Air Installations Compatible Use Zones (AICUZ) Program to balance the need for aircraft operations and community concerns. Individual services, in turn, adopted the program. The Navy's guidance on AICUZ may be found in Chief of Naval Operations Instruction (OPNAVINST) 11010.368 for viewing on the Navy's web site of directives, http://neds.daps.dla.mil/Directives/11010\_36b.pdf. The goal of the AICUZ Program is to protect the health, safety, and welfare of those living near a military airport while preserving operational assurance for the flying mission. AICUZ guidelines define zones of high noise and accident potential and recommend uses compatible within these zones. Local governments are encouraged to apply these guidelines of the and use decision-making processes.

#### Noise Zones

Under the AICUZ Program, DoD provides noise zones as a planning tool for local planning agencies. Noise exposure is measured using the day-night average sound level (DNL). For a detailed discussion of DNL, refer to the Noise Metrics section. The DNL contours on the AICUZ maps reflect the noise exposure in the surrounding communities and the fact that noise impacts diminish with distance from the airfield. DNL contours do not reflect the noise of individual aircraft events. DNL contours are used to assess average long-term noise exposure rather than the impact of a single event.

## **Noise Metrics**

Noise is unwanted sound. Sound is all around us; sound becomes noise when it interferes with normal activities such as sleep or conversation. The main sources of noise at airfields are flight operations, which include take-offs, landings, touch-and-go operations, and engine maintenance activities. A discussion of how the effect of noise on the environment is quantitatively measured is provided below.

#### Decibels (dB)

A dB is a logarithmic unit that measures the intensity, or loudness, of sound. A sound level of 0 dB is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal speech has a sound level of approximately 60 dB. Sound levels of about 130 dB are felt in the human ear as discomfort and pain.

In measuring community noise, sound frequency is taken into account by adjusting the very high and very low frequencies to approximate the human ear's lower sensitivity to those frequencies. This is called "A-weighting" and is commonly used in measuring community noise levels. An A-weighted decibel (abbreviated dBA) is a unit of sound pressure with a greater intensity than the ambient, or background, sound pressure with a greater intensity than the ambient, or background, sound pressure with a greater intensity than the ambient, or background, sound pressure with the streffect the range of human hearing. Table 2 shows the typical A-weighted sound levels of common sounds and noise environments. The minimum change in sound level of individual events that the average human ear can detect is about 3 dB. On average, a person perceives a change in sound level of about 10 dB as a doubling of the sound's loudness.

#### Day-Night Average Sound Level (DNL)

Day-Night Average Sound Level (DNL) The DNL noise metric is based on the number of aircraft operations that occur on an average annual day or average busy day over a 24-hour period. The DNL includes a 10 dB adjustment, or penalty, for aircraft noise occurring between 10-00 pm and 7:00 am because people are more sensitive to noise during normal sleeping hours, when background noise levels are lower. DNL has become the standard metric used by many government agencies and organizations, including the U.S. Environmental Protection Agency (EPA) and FAA, for assessing aircraft noise. The DNL for the community is depicted as a series of contours that connect points of equal value, usually in 5 dB increments. DNL noise contours for NAS Oceana, NALF Fentress, and Chambers Field are shown on the maps included in this pamphlet. Noise contours are not exact measurements. Noise levels inside a contour may be similar to those outside a contour line because the change in noise levels occurs gradually.

**For Further Information:** 

# NAS Oceana AICUZ Office (757) 433-3158

light operations recording for FCLP and light demo at NAS Oceana/NALF Fentress: (757) 433-3733 NAS Oceana/NALF Fentres Noise Concern Hotlin (757) 433-2162 NS Norfolk Chambers Field s Office

#### Accident Potential Zones

Accordent Potential Zones The DoD provides Accident Potential Zones The DoD provides Accident Potential Zones (APZs) as a planning tool to local land use agencies. APZs are areas where an aircraft accident is likely to occur if one occurs. They do not reflect the probability of an accident. APZs follow arrival, departure, and pattern flight tracks and are based upon analysis of historical data. The AICUZ map defines three APZs - the Clear Zone, APZ 1, and APZ 2. The Clear Zone extends 3,000 feet beyond the runway and has the highest potential for accidents. APZ 1 extends 5,000 feet beyond APC L of APZ 2 extends 7,000 feet beyond APZ 1. If an accident occurs, it is more likely to occur in APZ 1 and MPZ 0 and more likely to occur in the Clear Zone than in either APZ 1 or APZ 2.

As stated above, APZs follow arrival, departure, and pattern flight tracks. APZs are not roadways in the sky. Weather conditions, wind, pilot technique, and other air traffic will cause ion within the landing pattern around an airport

# **Compatible Development**

Certain land uses are not compatible with military flight operations. Modifications to proposed land developments near the airfield can help resolve concerns between the community and the military. In general, DoD recommends that noise-sensitive uses (e.g., houses, churches, amphitheaters, etc.) be placed outside the high noise zones, that people-intensive uses (or g., regional shopping malls, theaters, etc.) not be placed in APZs, and that sound-attenuating methods be incorporated into building design and construction. For further information on local land use guidelines, please consult the appropriate city planning department. The DoD recommendations are intended to serve only as guidelines. Local governments alone are responsible for regulating land use.

Land use development should be compatible with noise zones and APZs around a military airfield. Although the military can serve in an advisory capacity, local government development beyond the boundaries of the military airfields. Table 1 shows the Navy's recommendations for land use development in noise zones and APZs. Further inforr use guidelines is available in the 2005 Hampton Roads JLUS Report and the OPNAVINST 11010.36B.

Development should also be compatible with flight safety. The Federal Aviation Administration (FAA) and the DoD encourage local communities to restrict development or land uses that could endanger aircraft in the vicinity of the airfield, including:

· Lighting (direct or reflected) that would impair pilot vision;

Towers, tall structures, and vegetation that penetrate navigable airspace or are to be constructed near the airfield:

Uses that would generate smoke, steam, or dust;

Uses that would attract birds, secally waterfow; and
 Uses that would attract birds, sepecially waterfow; and
 Uses that would produce electromagnetic interference with aircraft communication, navigation, or other electrical systems.

The FAA and the DoD established height standards within aircraft approach and departure zones for military and commercial airfields. These standards are presented in the U.S. Code of Federal Regulations, Title 14, Part 77, "Objects Affecting Navigable Airspace." The cities of Virginia Beach, Chesapeake, and Norfolk review building permits in the approach and departure zones to ensure compliance with these height standards. The FAA must be notified of any development that is not consistent with the height standards.

APZs

APZ 1

APZ 2

Clear Zone

KEY:	Table 1 <sup>00</sup> LAND USE COMPATIBILITY WITHIN NOISE ZONES AND APZS					
Compatible Compatible Incompatible		Noise Zones				
(1) Table 1 shows the Navy's recommendations for land use development	Land Use	Less than 65 DNL	65-70 DNL	70-75 DNL	Greater than 75 DNL	
in noise zones and AP2s. This table is a general guide to fand use compatibility around military airfields and should not be used as the basis for land use decision making. Euther guidance on land use	Outdoor Amphitheaters					
compatibility is provided in OPNAVINST 11010.36B, including detailed land use compatibility recommendations. This document is available	Residential					
for viewing at <a href="http://neds.daps.dla.mil/Directives/11010_36b.pdf">http://neds.daps.dla.for</a> further information on local land use guidelines, please consult the	Transient Lodging					
appropriate city planning department.	Churches, Schools					

### **Real Estate** Disclosure

Most areas of Hampton Roads, to a greater or lesser extent, experience aircraft noise and overflight. Property owners, renters, and lessees need to be aware of whether their property is located within a noise zone or APZ. Virginia law requires that any person marketing property for sale, rental, or lease within a noise zone or APZ provide written disclosure to all prospective purchasers, renters, or lessees that such property is located within a noise zone or APZ. The Hampton Roads REALTORS# Association also encourages its members to provide written disclosure in all real estate transactions and advise their clients to verify whether property is located within a noise zone or APZ, especially in property transactions with

Agriculture, Public Rights-of-way

Commercial, Retail, Services

Wholesale, Manufacturing

Restrictive Easements The Navy owns restrictive easements on 3,680 acres of land near NAS Oceana and 8,780 acres near NALF Fentress. These	Noise Zones The appropriate noise zone from the list below should be included in all real estate disclosure documents:	Accident Potential Zones The appropriate APZ from the list below should be included in all real estate disclosure documents:
easements restrict new incompatible development and certain uses of existing property, as outlined in the specific easement, near the airfields. All of the easements are recorded to deed in Virginia Beach or Chesapeake.	<ul> <li>Greater than 75 DNL</li> <li>70 to 75 DNL</li> <li>65 to 70 DNL</li> <li>Less than 65 DNL</li> </ul>	<ul> <li>Clear Zone</li> <li>APZ 1</li> <li>APZ 2</li> <li>None (outside APZs)</li> </ul>

Noise contours and APZs are subject to change. The noise contours and APZs will be periodically updated in association with mission changes at the airfield and/or master plan updates.

Questions concerning details relating to AICUZ easements or the location of a particular property within a noise zone or APZ should be directed to the NAS Oceana AICUZ office. Questions pertaining to AICUZ-related provisions of local government policies and ordinances should be directed to the planning office of the appropriate locality.

Federal Housing Administration (FHA) and Department of Veterans Affairs (VA) mortgage guarantee eligibility may be affected for homes in certain noise zones and APZs. Contact the FHA or VA for more information

The City of Virginia Beach's eMapping web site allows users to locate properties on a map by entering an address, street name, or geographic parcel identification number (GPIN). This tool provides property-specific informat ion, including:

AICUZ Noise/APZ Maps
Floodplains and Flood Zones
Real Estate Assessments
Virginia Beach Land Records
School Locations
To find more information about AICUZ and access the eMapping site, go to http://www.vbgov.com/aicuz.
The City of Chesapeake also has a web site that provides a substantial amount of background information on various related topics. This information can be found at: <a href="http://cityofchesapeake.net/services/depart/planning/planning/planning.html">http://cityofchesapeake.net/services/depart/planning/planning.html</a> . This useful web site provides such information as:
NALF Fentress AICUZ Noise Zone Map     NALF Fentress Navy Purchased Easement Map

Мар 2026 City Land Use Plan
2050 City Master Transpo

tion Plan Chesapeake Open Space and Agriculture Preservation Program
 Citywide Floodplain Maps

#### Sound Exposure Level (SEL)

SEL is a composite metric that represents both the intensity of a sound and its duration. Individual time-varying noise events (e.g., aircraft overflights) have two main characteristics—a sound level that changes throughout the event and a period of time during which the event is heard. The SEL provides a measure of the net impact of the entire acoustic event, but it does not directly represent the sound level hard at any given time. During an aircraft flyover, it would include both the maximum noise levels and the lower decibel levels produced during onset and recess periods of the overflight. **SEL levels may exceed the peak noise for an event**. Table 3 presents representative SEL values for aircraft on approach, departure, and in the Field Carrier Landing Practice (FCLP) or touch-and-go pattern.

Table 2	TYPICAL A-WEIGHTED SOU	IND LEVELS OF COMMON	SOUNDS AND NOISE ENVIR	
	NOISE SOURCE (at a given distance)	A-WEIGHTED SOUND LEVEL SCALE (dBA)	NOISE ENVIRONMENT	
	Civil Defense Siren (100 ft)	130	Carrier Flight Deck Threshold of Pain	
		120		
	Pile Driver (50 ft) Jet Fighter Departure (1,000 ft)* Jet Fighter Arrival (1,000 ft)*	110 108 104	Rock Music Concert	
	Ambulance Siren (100 ft) Newspaper Press (5 ft)		Printing Press Plant	
	Prop. Plane Flyover (1,000 ft)* Diesel Truck, 40 mph (50 ft)	90 88 84	Boiler Room	
	Garbage Disposal (3 ft)	80	High Urban Ambient Sound	
	Passenger Car, 65 mph (25 ft) Living Room Stereo (15 ft) Vacuum Cleaner (3 ft)			
	Electronic Typewriter (10 ft) Normal Conversation (5 ft) Air Conditioning Unit (100 ft)	60	Data Processing Center	
	Light Traffic (100 ft)	- 50	Private Rusiness Office	
	Eight france (100 h)		1 IIVate Dusiness Onice	
	Bird Calls (Distant)	44 40	Lower Limit of Urban Ambient Sound	
	Soft Whisper (5 ft)	30	Quiet Bedroom Recording Studio	
		20		
		10	Just Audible	
		0	Threshold of Hearing	
-				

Table 3         Comparison of Representative SEL Values (dB) for Aircraft on Approach, Departure, and in the FCLP or Touch-and-Go Pattern									
	Operation	Altitude (ft AGL)	F-14 B/D	F/A-18 C/D	F/A-18 E/F	E-2/C-2	C-5A	H-60	H-53
	Approach	1,000	87	109	114	82	110	85	97
	Departure	1,000	108	117	117	94	114	79	96
FCLP*									
		1,000	95	108	113	87	109	83	92
		800	97	109	115	89	109	86	93
FCLP or touch-and-go pattern altitude reflects the highest     atlitude of the downwind leg of the pattern.     SEL values for helicopters is given for level flight.     FCLP- Field Carrier Landing Practice									
_									

onal Airport Norfolk Internat (757) 857-3351 ederal Loan Guarantees: U.S. Department of Housing and Urban Development (800) 842-2610 U.S. Department of Veterans Affairs (800) 933-5499 Real Estate Disclosure: Hampton Roads REALTORS<sup>®</sup> Association (757) 473-9700 
 City of Virginia Beach
 (757) 427-4621

 City of Chesapeake
 (757) 382-6176

 City of Norfolk
 (757) 664-4752
 Web Sites: NAS Oceana http://www.nasoceana.navy.mil City of Virginia Beach http://www.vbgov.com/aicuz City of Chesapeake ke.net/services/ hing.html http://cityofchesape depart/planning/pla City of Norfolk http://www.norfolk.gov Hampton Roads Planning Dist http://www.hrpdc.org/JLUS Hampton Roads REALTORS\* Associ http://www.centerforrealestate.com

Hampton Roads Joint Land Use Study (JLUS)/ **Air Installations Compatible Use Zones** (AICUZ) Planning Map

Naval Air Station Oceana Apollo Soucek Field Virginia Beach, Virginia

Naval Auxiliary Landing **Field Fentress** Chesapeake, Virginia

**Naval Station Norfolk** Chambers Field Norfolk, Virginia

This brochure is the product of the Joint Land Use Study prepared under sponsorship of the Hampton Roads Planning District Commission and the cities of Virginia Beach, Chesapeake, and Norlok. Technical information was provided by the U.S. Navy for the JLUS effort. This planning map was prepared under contract with the Hampton Roads Planning District Commission with financial support from the Office of Economic Adjustment, Department of Defense. The content reflects the views of the Hampton Roads Planning District Commission and the jurisdictions involved and does not necessarily reflect the views of the Office of Economic Adjustment.

2005