



# Advisory

## Circular NCAA-AC-ARD029

NIGERIAN CIVIL AVIATION AUTHORITY (NCAA)

ISSUE NO 1

NOVEMBER, 2016

# LAND USE NEAR AERODROMES

## 1.0 GENERAL

Nigerian Civil Aviation Authority Advisory Circulars from Aerodrome Standards Department contain information about standards, practices and procedures that the Authority has found to be an Acceptable Means of Compliance (AMC) with the associated Regulations.

An AMC is not intended to be the only means of compliance with a regulation, and consideration will be given to other methods of compliance that may be presented to the Authority.

## 2.0 PURPOSE

This Advisory Circular provides aerodrome operators and the public with guidance on how to resolve issues in relation to land use near the aerodromes. It also provides aerodrome operators mechanism to comply with NCAA requirements to monitor and review obstacles in the vicinity of the aerodrome necessary in the safe operations of aircraft.

This AC is aimed at a variety of persons who have an interest in the use of land at or near the aerodrome such as:

- operators of certified aerodrome;
- operators of registered aerodromes;
- operators of aerodromes for permit-to-operate
- persons responsible in the planning/zoning of land within the vicinity of the aerodromes;
- land developers;
- technical specialists employed to carry out safety assessments of aerodromes; and
- Aerodrome safety and reporting officers.



### 3.0 REFERENCE

3.1 The Advisory Circular may refer to portions of the following:

- Civil Aviation Act of 2006
- NCAA Aerodrome Standards Manual
- NCAA Advisory Circular on Wildlife Management: NCAA-AC-ARD-012
- Nigerian Civil Aviation Regulations Part 12
- International Civil Aviation Organization (ICAO) Doc. 9184-AN/902 Airport Planning Manual Part 2 – Land use and Environmental Control,
- And Doc 9137-AN/901 Part 3 Airport Services Manual- Bird Control Reduction.

### 4.0 STATUS OF THIS AC

This AC is the first edition of AC to be issued on this subject.





## ACRONYMS

<b>AC</b>	Advisory Circular
<b>AIIP</b>	Aeronautical Information Publication
<b>ASM</b>	Aerodromes Standards Manual
<b>FAA</b>	United States Federal Aviation Administration
<b>ICAO</b>	International Civil Aviation Organization
<b>MTOW</b>	Maximum Takeoff Weight
<b>NCAA</b>	Nigerian Civil Aviation Authority
<b>Nig.CARs</b>	Nigeria Civil Aviation Regulations
<b>NOTAM</b>	Notice to Airmen
<b>OLS</b>	Obstacle Limitation Surfaces





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## 1.0 Background

- 1.1 Nigeria as a signatory to the Convention on International Civil Aviation, Chicago 1944, has adopted all the provisions specified in Annex 14 to the Convention Annex 14, published by the International Civil Aviation Organisation (ICAO), and includes standards and recommended practices (SARPs) that address land use planning and environmental control measures in the vicinity of an aerodrome.
- 1.2 Aviation is important to the pursuit of economic progress of Nigeria and one of the challenges posed to such progress is how to strike a balance between two conflicting goals: aviation safety and land utilization within the periphery of an aerodrome. The Nigerian Civil Aviation Authority (NCAA) oversees both private and public-used aerodromes. In playing the role of regulatory authority, NCAA is obligated to ensure aerodrome safety which is a vital component in aviation safety.
- 1.3 Providing adequate suitable facilities and maintaining a safe operational environment for aircraft activities promotes aerodrome safety. By complying with the prescribed standards and procedures and taking a pro-active safety management system approach, aerodrome operators can demonstrate that they have discharged their safety obligations to the regulatory authority and to their clients who, ultimately, are the traveling public.
- 1.4 The environment at and surrounding an airport has unique characteristics that impact on land use. Specific requirements for the operation of aircraft, airport design and airspace management are covered in the Civil Aviation Act of 2006 and corresponding Nigerian Civil Aviation Regulations (Nig.CARs). The regulatory oversight of these requirements is undertaken by the Director General of the Nigerian Civil Aviation Authority (NCAA) through the Directorate of Aerodrome and Airspace Standards (DAAS).
- 1.5 The term "in the vicinity" is taken to be land or water within 5km of the aerodrome reference point, and "garbage disposal dumps" refers to landfill sites (i.e. the disposal of waste by landfill) as defined under relevant Nigerian legislation. An "appropriate aeronautical study" is taken to be a study that focuses on the potential flight safety implications at the relevant aerodrome(s) with regards to existing or proposed land use and associated environmental issues. Such a study should consist of the overall assessment of the impact of aircraft noise and its environmental impact assessment of the associated risk on the environment and a site-specific risk assessment relating to any development or site in the vicinity with reference to the Aerodrome obstacle limitation surfaces. An "appropriate authority" is deemed to be an authority that has the power to take action in a particular situation.
- 1.6 In Nigeria, Aerodrome operators are mandated to monitor and review land use activities around their aerodrome to ensure the safe operation of aircraft and protection of airspace. Those persons making changes to land use must ensure that they comply with any applicable Nig.CARs, local authority planning requirements and work with aerodrome operators in land use changes. The



following provides guidance for those persons proposing land use changes around aerodromes and identifies specific points to be taken into account.

## **2.0 Aerodromes and Required Standards**

- 2.1 The Aerodromes Standards Manual hereafter referred to as the ASM, is made pursuant to Nigerian Civil Aviation Regulations governing Aerodrome (Nig. CARs Part 12) - It sets out the regulatory regime aerodrome operators at aerodromes used by aeroplanes conducting international and national air transport operations. The aerodrome regulatory regime sets out when an aerodrome is to be certified or when to be registered. The standards for the aerodromes are contained in the ASM.
- 2.2 Subject to published conditions of use, aerodromes and their associated facilities shall be kept continuously available for flight operations during published hours of operation, irrespective of weather conditions. 'Published conditions of use' refers to aeronautical data promulgated by Nigerian AIP or NOTAM or information broadcast by Air Traffic Control Units.
- 2.3 To assist aerodrome operators or potential operators, some general advice about specifications, procedures and other information of an educational or advisory nature may be issued from time to time by NCAA in the form of Advisory Circulars.
- 2.4 The scope of this circular therefore is confined to the safety, regularity and efficiency aspects of aerodrome facilities, equipment and operational procedures and how through the strategies enumerated herein, the infringement due to use of lands within the aerodrome can be reconciled. Correspondingly, this AC defines the roles, duties and responsibilities of the aerodrome operators in the process of reconciling safe aerodrome operations and hazards generated by land use for infrastructure, prevalence of wildlife and other land use based hazards.

## **3.0 Obstacle Limitation Surfaces**

### **3.1 The Civil Aviation Act of 2006**

- 3.1.1 Aerodrome standards may change from time to time to meet identified safety needs, technological changes and changes in international standards and practices. It is recognized that there may be difficulties and limitations in applying new standards to existing aerodrome facilities and installations. Therefore in the absence of uncertain standards and or conflicting interpretation of standards, and in the interest of aviation safety, this AC basically reconciles the issue by



invoking the discretionary power of the Nigerian Civil Aviation Authority provided for in CAA 2006 Part XII;

- (1) The Minister may approve the establishment and development of aerodromes anywhere in Nigeria.
- (2) Roads, approaches, apparatus, equipment, buildings and other accommodations in connection to such aerodromes shall be maintained by the owners in conformity with rules and regulations made under this Act.

3.1.2 The Nigerian Civil Aviation Regulations governing Aerodromes (Nig. CARs Part 12) and the Aerodrome Standards Manual (ASM).

3.1.3 The aerodrome operator must have in place obstacle limitation surfaces for the aerodrome that are defined surfaces in the airspace above and adjacent to the aerodrome. These obstacle limitation surfaces are necessary to enable aircraft to maintain a satisfactory level of safety while maneuvering at low altitude in the vicinity of the aerodrome. These surfaces should be free of obstacles and subject to control such as the establishment of zones, where the erection of buildings, masts and so on, are prohibited.

3.1.4 The OLS surfaces for certificated and registered aerodromes are found in the Chapter 8 of the ASM. It is important that any proposed building or structure does not infringe required OLS areas. Consultation with the aerodrome operator and the relevant local authority at an early stage is essential.

#### **4.0 Wildlife Hazard Management**

4.1 Under Nig. CARs Part 12, an aerodrome operator must establish an environmental management program to minimize or eliminate any wildlife hazard that presents a hazard to aircraft operations at their aerodrome in areas within their authority. Specific strategies are included in NCAA Advisory Circular AC-ARD-012, Wildlife Strike Hazard Management.

4.2 The management of wildlife, especially birds, is critical for aircraft operational safety. Bird strikes put the lives of aircraft crew members and their passengers at risk. It is important that land use changes are monitored and reviewed by the aerodrome operator in areas outside their immediate control to ensure that these land use changes do not increase wildlife hazards for the aerodrome.

4.3 Garbage disposal dumps and other sources that may attract wildlife activity on, or in the vicinity of, an aerodrome, need to be assessed as a potential source of wildlife hazard. The Nig. CARs; Part 12.6.23 requires that such activities are closely



managed by the controlling authority and when necessary, an aeronautical study may need to be undertaken to assess the potential wildlife activity hazard.

4.4 Examples of wildlife attractants include:

- Refuse Dumps and landfills
- Sewage Treatment and Disposal
- Agriculture - cultivation of land, types of activity e.g. cattle farming.
- Fish processing plants
- Cattle feed lots
- Wildlife refuges
- Artificial and natural lakes
- Animal farms
- Abattoirs and freezing works.

4.5 Proper planning of these activities and their impacts on wildlife should be undertaken. It should be noted that aircraft approach and departure areas may extend for a distance from the aerodrome runway, therefore wildlife impacts on aircraft activities may not be immediately apparent. Consultation with the aerodrome operator as early in the planning as possible becomes a necessity.

4.6 The Nig.CARs 12.6.26 provides specific information on the environmental management and site planning.

## 5.0. Refuse dump or landfills

5.1 If a refuse dump is proposed in the vicinity of the aerodrome there may be a requirement to provide bird control at the site to reduce the attractiveness to birds. The potential threat to aircraft depends on location relative to airport and flight paths, type of refuse, and the types of birds expected in the vicinity. The Nig.CARs 12.6.23.1 (b) stipulates that refuse dump sites be located no closer than 13 kilometers from the airport property. The proper siting of refuse dumps can reduce hazard and any location should be analyzed by a group of specialists on bird problems.

## 6.0. Water

6.1 Surface water is a large bird attractant and developments that have drainage ditches, artificial waterways and large areas of water close to an aerodrome may attract birds and other wildlife. It is known that in the vicinity of an aerodrome, artificial and natural lakes increase the bird strike hazard depending on the size and the shape of the lake, its ecological state and the surroundings. It is recommended, therefore, that an ornithologist/biologist evaluate the ecological conditions of the whole vicinity as well as migration in the area.

The bird strike hazard can be reduced if the lake is made smaller and the shores steeper, and if fishing, hunting and water sports are forbidden. Filling a lake with soil or covering the surface with wires and nets are two of the better solutions to the problem.





## 7.0 Building Codes

- 7.1 Planning Authorities implement their own Zoning Ordinance, and therefore, will require applicants to get a Height Clearance Permit from NCAA if the proposed site of the building/structure is under height restrictions. While generally concerned with the functional or structural aspects of buildings or structures, the Nigerian National Building Code has special requirements for properties located in close proximity of an aerodrome to secure height clearance permit from the NCAA.

## 8.0 Notice of Intention to Construct, Alter, Activate or Deactivate an Aerodrome

- 8.1 Nig. CARs Part 12 requires that prior notice be given to the Authority whenever a person intends to construct, alter, activate or deactivate an aerodrome. This notice will enable the Director General to identify whether the use of the airspace associated with the aerodrome proposal will be a hazard to other established airspace users. It will also allow identification of problems to do with the safety of persons and property on the ground. It is also necessary to consider efficient use of airspace at an early stage. The Director General, after receiving such notice, will give advice on the effects the proposal would have on the use of navigable airspace by aircraft and on the safety of persons and property on the ground. An aeronautical study will be undertaken and a determination on the proposal made.

**Note:** *Nig. CARs Part 12 prescribes rules for a person proposing to construct or alter a structure that could constitute a hazard in navigable airspace; or use of a structure, lights, lasers, weapons, or pyrotechnics, that could constitute a hazard in navigable airspace. Likewise the ASM under Chapter 8 provides guidelines on several areas that require application for a determination on such objects and activities among which is a structure that penetrates the obstacle limitation surface of an aerodrome. Full details of which can be accessed at the NCAA web site [www.ncaa.gov.ng](http://www.ncaa.gov.ng).*

## 9.0 Noise Issues

- 9.1 The Nig. CARs, Part 16.2 and Part 16.6.26 deals with aircraft noise certification administration and environmental management plan for dealing with noise respectively. In addition, noise abatement could be achieved through a variety of strategies including:
- a. Monitoring of aircraft noise levels from time to time;
  - b. Designing a means of receiving and responding to citizens' complaints or concerns on noise levels;
  - c. Land use measures and sound insulation programme that are designed to reduce the effects of aircraft noise on nearby residents;
  - d. Sensitization of the public about aircraft operations and noise issues.



## **10.0 Airport Land Use Committee (A.L.U.C.)**

10.1 This committee acts and advises the aerodrome operator in accordance to the appropriate ordinances and regulations which are critical to the safety and well-being of both people and wildlife within the vicinity of the aerodrome. It also reviews and makes policy suggestions on the development programs for the Airport and its surroundings, and updates and reviews the Airport Master Plan.

## **11.0 Requirement for ALUC at all Aerodromes**

11.1 An Airport Land Use Committee (A.L.U.C.) should be constituted at all aerodromes in Nigeria.

## **12.0 Functions of ALUC**

12.1 The Airport Land Use Committee shall:

- a. Prepare and adopt airport land use compatibility plan for the Aerodrome.
- b. Co-ordinate with other local agencies to review plans, requirements and other actions with respect to land use.
- c. Create awareness for the public to know the effects of incompatible land use on the safety of people as well as the safety and efficiency of airport operations.
- d. Identify compatible land use development tools and techniques to protect surrounding communities from impacts associated with airport operations.

## **13.0 Meetings of ALUC**

13.1 The committee shall meet quarterly at a stipulated time and date or more often as occasion demands.

13.2 The committee shall document and keep records of all meeting which shall be made available to the Authority when demanded.



## **14.0 Members of the Committee**

### **14.1 The airport land use committee shall consist of the following members:**

- a. Representatives (consisting of relevant units) of Aerodrome operator.
- b. Representative(s) of the Nigerian Civil Aviation Authority (NCAA).
- c. Representative(s) of the affected Town Planning Authority (ies).
- d. Representative(s) of the Nigerian Airspace Management Agency (NAMA).
- e. Representative(s) of the Nigerian Police Force (NPF)
- f. Other relevant stakeholders.

## **15.0 Responsibilities**

### **15.1 Aerodrome Operator**

- a. The aerodrome operator or its Representative shall preside over and coordinate the committee.
- b. The aerodrome operator or its representative shall be responsible for disseminating information to all members.
- c. The aerodrome operator or its Representative shall be responsible for relaying the decisions of the committee to the appropriate authority(ies) for action.
- d. The aerodrome operator or its Representative shall be responsible for any other duty delegated to it by the committee.

### **15.2 Nigerian Civil Aviation Authority (NCAA)**

- a. The Nigerian Civil Aviation Authority shall nominate Representative(s) from the relevant directorates as members of the committee.
- b. NCAA shall advise the committee on all issues within the competence and jurisdiction of the NCAA especially with regards to regulations guiding civil aviation within Nigeria.

### **15.3 Town Planning Authority**

- a. The affected Town Planning Authority(ies) shall nominate representative(s) as members of the committee.
- b. The affected Town Planning Authority(ies) representative(s) shall advise the committee on all issues regarding land use within their jurisdiction.
- c. The affected Town Planning Authority(ies) shall collaborate with the relevant enforcement agency(ies) to enforce the decisions of the committee within their jurisdiction.
- d. The affected Town Planning Authority(ies) shall act as Representative(s) of their state governments and be responsible for forwarding the decisions of the committee relevant to their state governments.



#### 15.4 **Nigerian Airspace Management Agency (NAMA)**

- a. The Nigerian Airspace Management Agency shall nominate Representative(s) as members of the committee.
- b. The NAMA Representative(s) shall advise on all matters within their area of competence and jurisdiction.
- c. The NAMA shall undertake any other responsibilities determined by the committee which is within their jurisdiction.

#### 15.5 **Nigerian Police Force**

- a. The Nigerian Police Force within the vicinity of the aerodrome shall nominate Representative(s) as members of the committee.
- b. The Nigerian Police Force within the vicinity of the aerodrome shall advise on all matters within their jurisdiction.
- c. The Nigerian Police Force with the necessary jurisdiction shall undertake and enforce the decisions of the committee and when necessary liaise with the affected Town Planning Authority(ies) to enforce the required standards within the vicinity of the aerodrome.

#### 15.6 **Other Relevant Stakeholders**

- a. This will be any entity, organization, agency, body, individual, etc which the committee determines in its own opinion to be necessary in the achievement of its purpose or agenda. However the committee shall reserve the right to dismiss, remove or discharge any of these stakeholders whenever it decides to.

#### 16.0 **Local Authority Zoning**

- 16.1 The NCAA encourages local authorities to protect aerodromes in their areas to ensure the long term sustainability of the aerodrome, the safety of the aircraft operations, and the safety of persons and property. In addition to the required obstacle limitation surfaces, it is important that the local authorities ensure that future uses of the land are compatible with airport operations and to protect persons and property. Zoning solely to obstacle limitation surface is insufficient to prevent the construction of incompatible uses such as housing or uses that attract congregations of people in the approach areas.

#### 17.0 **Official Map Regulations**

- 17.1 Airport operators are encouraged to adopt map regulations in support of an approved comprehensive master plan and capital improvement programs. This strategy permits these maps to show the location and extent of existing and proposed public facilities and needs. A potential application of such map regulations would encourage compatible development in an area designated for a runway in an Airport's Master Plan.



## **18.0 Infrastructure Extensions**

- 18.1 Provision or extension of basic infrastructure elements such as water, sewer, and roadways can significantly affect the extent and direction of growth and development. Used in conjunction with comprehensive plans and Airport Master Plans can allow for land uses to take place in areas that are compatible with aviation facilities.

## **19.0 Growth Policies**

- 19.1 Planning emphasizes a collaborative environment in which Federal, State, and Local Governments, indigenous leaders, the public, user group and industry work with the Aerodrome Operator to identify appropriate multiple uses of the public lands, plans are periodically reviewed as changing conditions and resources demand require.

## **20.0 Negotiation/Mediation**

- 20.1 Issues arising from ownership disputes can be resolved by negotiation or mediation technique. It can be an important tool when employed to address land use compatibility conflicts or disputes associated with airport facilities. Although the Nigerian land use Act of 1978 resolves to a great extent any issue that may arise with state or federal owned facilities, however negotiation or mediation technique can be very useful tool in conflict resolution.

## **21.0 Public Education and Awareness Programs**

- 21.1 Airports or local planning agencies that expect a reasonable chance of success in their planning efforts must provide for public education and awareness in the planning process.

## **22.0 Information Exchange**

- 22.1 Information exchange is a two-way flow of information. Once the information is disseminated, a dialogue occurs that may be used to enhance the education process and ultimately improve land use compatibility planning and to determine the public's attitude toward or acceptance of the disseminated message. Among the information exchange opportunities are public workshops, public advisory committees, radio/T.V. talk shows and speaking engagements.



## 23.0 Conclusion

- 23.1 Aerodromes have an important role in aviation safety in particular the safety of aircraft and passengers. In Nigeria, the Nigerian civil aviation authority oversees aviation safety based upon international aviation requirements. It is important that persons wanting to alter land use near an aerodrome do so in consultation with the aerodrome operator, the relevant local Planning authority and, where necessary, the Nigerian Civil Aviation Authority. It is important that land use changes near aerodromes are also compliant with any NCAA Aviation requirements because airport safety and land use processes are closely intertwined.

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Director General

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