

APPENDIX

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MODEL MILITARY ACTIVITY ZONE ORDINANCE (RICHLAND COUNTY)

SUMMARY.

- A. The Military Activity Zoning Districts are intended to provide for uses and unique design requirements for lands adjacent to and within accident potential zones, restricted airspace zones and noise zones for the McEntire JNGB and Fort Jackson/McCrary Training Center (TC). Site design and other standards are necessary to protect navigable airspace and critical training areas and may include density limitations, height limitations, smoke limitations, lighting limitations, and other standards necessary to ensure protection of the airspace and training areas. These environs have been identified through data provided to the county from the United State Army, United States Air Force, the South Carolina Army National Guard, and the South Carolina Air National Guard and by the Joint Land Use Study conducted by the county.
- B. The following documents are hereby adopted by reference as is fully set forth within this Ordinance:
 1. McEntire JNGB Air Installation Compatible Use Zone (AICUZ) Report.
 2. South Carolina Army National Guard Statewide Operational Noise Management Plan
 3. Fort Jackson/McCrary TC and McEntire JNGB Joint Land Use Study

PURPOSE

The purpose of the Military Activity Zoning Districts is to:

1. Ensure safety to people and property within the MAZ;
2. Prohibit the establishment of incompatible structures within the designated MAZs;
3. Protect the training range areas, airspace, approach zones, inner horizontal zones, conical zones, outer horizontal zones, and transitional zones from the establishment of uses, structures or placement of objects that interfere with the safe operation of aircraft and other military activities;
4. Limit land uses within the MAZ to those uses that are compatible with military operations;
5. Protect people and property from the potential adverse effects of aircraft and training noise and aircraft crashes; and
6. Ensure the continued presence of Fort Jackson/McCrary TC and McEntire JNGB in Richland County.

ADMINISTRATION.

The following administrative requirements apply to the airport/airfield environs.

Notification of US Army and Air National Guard. All applications for rezoning and development approval, including site plans, building permits, subdivision plats, sign permits, temporary use permits, permits for structures in excess of 75 feet in height and other permits and plans in the MAZ shall be subject to review by a representative at Fort Jackson/McCrary TC and McEntire JNGB. Such review shall be limited to issues of compatibility with Jackson/McCrary TC and McEntire JNGB and issues affecting the safety of persons and property related to weapons training, aircraft take-offs, landings, and flight operations. Comment shall be received in the form of a recommendation to the final approving authority.

MCENTIRE ACTIVITY ZONING DISTRICTS (MAZ).

- A. Description of Military Activity Zoning Districts. Military Activity Zoning Districts (MAZ) include the established accident potential and noise zones of the airfield at McEntire JNGB and noise zones at Fort Jackson/McCrary TC and extend outward from those zones at varying distances specific to the installations and their uses. MAZs include and define areas that are close enough to the installations to affect or to be affected by the mission of the training ranges and airfield. Because of the relationship of these areas to the training ranges and airfield, they are subject to additional restrictions on development. The regulations and densities adopted herein are based on the South Carolina Army National Guard Statewide Operational Noise Management Plan findings, the Air Installation Compatible Use Zone (AICUZ) findings, the recommendations in Department of Defense Instruction (DoDI) 4165.57 (Air Installations Compatible Use Zones), Air Force Instruction (AFI) 32-7063 (Air Installation Compatible Use Zone Program) and the Joint Land Use Study.
 1. MAZ 1: Includes all property in the Clear Zones of McEntire JNGB
 2. MAZ 2: Includes all property in the Accident Potential Zones (APZs) I of McEntire JNGB
 3. MAZ 3: Includes all property in the Accident Potential Zones (APZs) II of McEntire JNGB
 4. MAZ 4: Includes all property outside of the Clear Zones and Accident Potential Zones (APZs), but within 1,000 feet of the installation perimeter of McEntire JNGB
 5. MAZ 5: Includes all property outside of the Clear Zones and Accident Potential Zones (APZs), but within 1,000 feet of the installation perimeter of Fort Jackson/McCrary TC
 6. MAZ 6: All other property within the outer MAZ boundary, which is close enough to the airfield and post to impact or be impacted by military operations of the installations

B. General requirements for all MAZ areas.

1. *Avigation and/or noise easements.* All applications for subdivision approval and/or building permits for any structure requiring plan approval shall include the dedication of an avigation/noise easement to the county. The dedicated avigation easement allows property owners to develop land in accordance with the applicable zoning district and regulations. However, military installations receive a clear right to maintain flight operations over the parcel or noise-generating training activity within proximity of the parcel. The easement is recorded with the deed to a property and runs in perpetuity with the land.
2. *Real Estate Disclosure.* All real estate transactions within any MAZ shall include a form disclosing the proximity of the site to the military installations. The form shall be affixed to all listing agreements, sales and rental contracts, subdivision plats, and the State of South Carolina Residential Property Condition Disclosure Statements. Disclosure is required as soon as practicable, but must be before the execution of a contract, i.e., before the making or acceptance of an offer.
3. *Noise reduction standards.* All new residential buildings shall be constructed with sound protection based on the level of noise exposure within the 55 Ldn or higher noise contours of McEntire JNGB or the PK 115 dB or higher noise contours of Fort Jackson/McCrary TC. Sound attenuation is not required if the site is located outside the 55 Ldn noise contour of McEntire JNGB or the PK 115 dB or higher noise contours of Fort Jackson/McCrary TC. These provisions shall apply to new residential construction in noise zones located around the installations. Noise reduction standards, construction and methods are specified in Naval Facilities Engineering Command's Sound Insulation Guidelines for Residences Exposed to Aircraft Operations.
 - a. The Department of Defense (DoD) recommends an outdoor-to-indoor noise level reduction (NLR) of at least 25 dB for homes in the 65 and 70 dB DNL noise contours.
 - b. The Department of Defense (DoD) recommends an outdoor-to-indoor noise level reduction (NLR) of at least 30 dB for homes in the 70 and 75 dB DNL noise contours and the PK 115 and PK 130 dB noise contours.
 - c. Manufactured home parks shall be prohibited within the 55 Ldn or higher noise contours of McEntire JNGB or the PK 115 dB or higher noise contours of Fort Jackson/McCrary TC.

NOTE: Since local jurisdictions are prevented from establishing their own building code, governments would have to request a statewide modification to permit any changes to the building code that achieve the recommended NLR.

4. *Uses interfering with aircraft.* It is unlawful to establish, maintain or continue any use within the county in such a manner as to interfere with the operation of aircraft. The following requirements shall apply to all lawfully established uses within the county.

NOTE: The county has an existing AP Airport Height Restrictive Overlay District (Sec. 26-103) with provisions related to lighting and height that can be incorporated directly or by reference into this section of the overlay.

- a. *Height.* Uses shall comply with the requirements of Sec. 26-103. AP Airport Height Restrictive Overlay District.
- b. *Obstruction marking and lighting.* Notwithstanding the provisions of any other article of this ordinance or any other ordinance, the owner of any structure or obstruction over 200 feet above ground level shall install marking and lighting on the structure in accordance with the specific standards established by Chapter 14-60, Rules of the Department of Transportation (Appendix 1) and Federal Aviation Advisory Circular 70-7460-1 Series (Appendix 2) and amendments thereto. In addition, the owner shall install high intensity white obstruction lights on a structure which exceeds 800 feet above ground level (AGL.) Towers less than 200 feet may require lighting after McEntire JNGB evaluation. Uses shall comply with the requirements of Sec. 26-103. AP Airport Height Restrictive Overlay District.
- c. *Dangerous lighting.* All lights or illumination used in conjunction with street, parking, signs or use of land and structures shall be arranged and operated in such a manner that is not misleading or dangerous to aircraft operating from an installation or in a vicinity thereof as determined by Fort Jackson/McCrary TC and McEntire JNGB. Lighting shall comply with the requirements of Section 26-177 infra.
- d. *Emissions.* No operations of any type shall produce smoke, gas, steam, glare or other visual emissions that can interfere with the safe use of runways, flight corridors or training range areas at the installations.
- e. *Electronic interference.* No operations of any type shall produce electronic interference with navigation signals or radio communication between the airfield and the aircraft.
- f. *Aircraft-wildlife strike hazards.* Human-made or natural uses such as retention ponds, roosting habitats on buildings, landscaping, putrescible-waste disposal operations, wastewater treatment plants, agricultural or aquacultural activities, surface mining, or wetlands, may be used by wildlife for escape, feeding, loafing, or reproduction. Wildlife use of areas within an airport's approach or departure airspace, aircraft movement areas, loading ramps, or aircraft parking

areas may cause conditions hazardous to aircraft safety. Human-made uses shall be sited in accordance with the following criteria to achieve adequate separation between the attractant and aircraft movement:

- i. A distance of 10,000 feet from any runways, loading ramps, or aircraft parking areas used or planned to be used by turbojet or turboprop aircraft.
 - ii. A distance of 5 miles from any runways, loading ramps, or aircraft parking areas if the use places the runways and/or approach and departure patterns of the airfield between bird feeding, water or roosting areas.
5. *Split parcels*. For purposes of regulating parcels split by the MAZ lines, only that portion of a parcel that falls within the MAZ shall be subject to the conditions of the MAZ.

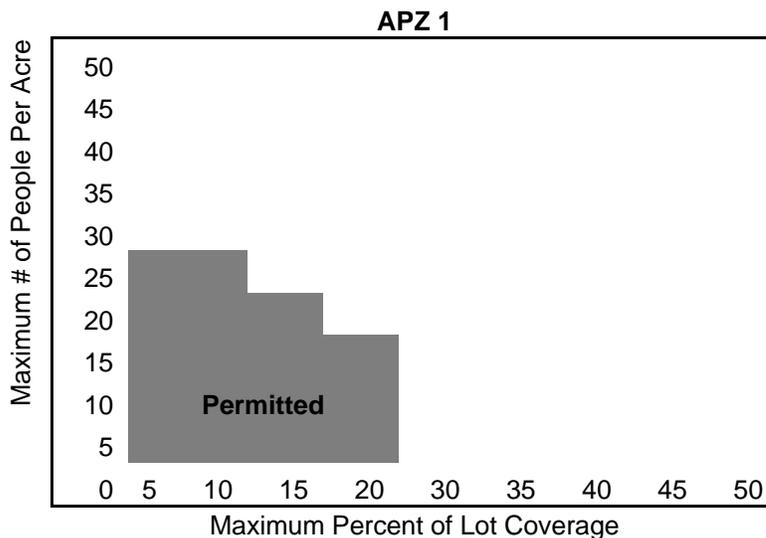
MAZ REGULATIONS

- A. MAZ 1 regulations. Areas within the MAZ 1 overlay are subject to the following additional restrictions:
1. The following uses are prohibited:
 - a. Any structures in the Clear Zone
 2. The following uses are permitted:
 - a. Roads
 - b. Underground Utilities
 - c. Agriculture (except livestock)
 - d. Permanent passive open space
- B. MAZ 2 regulations. Areas within the MAZ 2 overlay are subject to the following additional restrictions:
1. The following uses are prohibited:
 - a. All residential uses
 - b. Any non-residential uses that concentrate, within a structure on a regular basis, more than 25 people per acre. This limitation applies to: sports stadiums, amphitheatres, auditoriums, clubhouses, churches, schools, hospitals, assisted living and other medical facilities, hotels and motels, restaurants and other eating and drinking establishments

and strip commercial centers built to such a scale that gatherings of more than 25 people per acre would be expected on a regular basis.

2. The following uses are permitted:

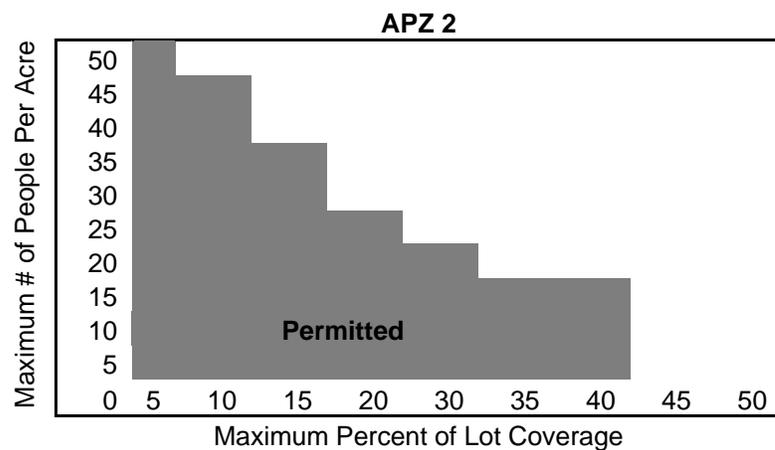
- a. Any commercial uses permitted in the underlying zoning district. All permitted commercial uses must comply with the following development standards:
 - I. Maximum building footprint shall be 8,000 square feet
 - II. Maximum gross acreage lot coverage shall be 20%
 - III. Minimum side yard setback shall be 15 feet
- b. Any industrial uses permitted in the underlying zoning district. Uses shall comply with a sliding scale of employee density and lot coverage such that uses with fewer employees per shift can cover a high percentage of the lot in accordance with Figure 1.
 - I. No industrial use shall have more than 25 employees per shift
 - II. No industrial use shall exceed a lot coverage of 20%



C. MAZ 3 regulations. Areas within the MAZ 3 overlay are subject to the following additional restrictions:

- 1. The following uses are prohibited:
 - a. All multi-family residential uses
 - b. Manufactured home parks

- c. Any non-residential uses that concentrate, within a structure on a regular basis, more than 50 people per acre. This limitation applies to: sports stadiums, amphitheaters, auditoriums, clubhouses, churches, schools, hospitals, assisted living and other medical facilities, hotels and motels, restaurants and other eating and drinking establishments and strip commercial centers built to such a scale that gatherings of more than 50 people per acre would be expected on a regular basis.
2. Any uses permitted in the underlying zoning district. All permitted uses must comply with the following development standards:
- a. The maximum density of single-family residential uses shall not exceed one (1) unit per acre.
 - b. Any commercial uses permitted in the underlying zoning district. All permitted commercial uses must comply with the following development standards:
 - I. Maximum building footprint shall be 15,000 square feet
 - II. Maximum gross acreage lot coverage shall be 35%
 - III. Minimum side yard setback shall be 10 feet
 - c. Any industrial uses permitted in the underlying zoning district. Uses shall comply with a sliding scale of employee density and lot coverage such that uses with fewer employees per shift can cover a high percentage of the lot in accordance with Figure 2.
 - I. No industrial use shall have more than 50 employees per shift
 - II. No industrial use shall exceed a lot coverage of 40%



- D. MAZ 4 regulations. Areas within the MAZ 4 overlay are subject to the following additional restrictions:
1. The following uses are prohibited:
 - a. All multi-family residential uses
 - b. Manufactured home parks
 2. Any uses permitted in the underlying zoning district. All permitted uses must comply with the following development standards:
 - a. The maximum density of single-family residential uses shall not exceed two (2) units per acre.
 - b. The maximum height of any structure shall be 35 feet.
- E. MAZ 5 regulations. Areas within the MAZ 5 overlay are subject to the following additional restrictions:
3. The following uses are prohibited:
 - c. All multi-family residential uses
 - d. Manufactured home parks
 4. Any uses permitted in the underlying zoning district. All permitted uses must comply with the following development standards:
 - c. The maximum density of single-family residential uses shall not exceed two (2) units per acre.
 - d. The maximum height of any structure shall be 35 feet.

SAMPLE COMPREHENSIVE PLAN LANGUAGE

According to South Carolina law (SC ST SEC 6-29-510), the purpose of the Comprehensive Plan is to help manage “the physical, social, and economic growth, development, and redevelopment of the area within its jurisdiction. The plans and programs must be designed to promote public health, safety, morals, convenience, prosperity, or the general welfare as well as the efficiency and economy of its area of jurisdiction. Specific planning elements must be based upon careful and comprehensive surveys and studies of existing conditions and probable future development and include recommended means of implementation.”

In South Carolina, a Comprehensive Plan must address multiple elements including population, economics, natural and cultural resources, community facilities such as sewer and water services, housing needs, land use, and transportation. The Comprehensive Plan must also include a priority investment element that analyzes the likely federal, state, and local funds available for public infrastructure and facilities during the planning horizon, and recommends capital projects for the expenditure of those funds.

Each of the communities participating in the Fort Jackson/ McCrady Training Center and McEntire Joint National Guard Base Joint Land Use Study has a Comprehensive Plan, although some plans pre-date the newly required Priority Investment Act that was passed by the state legislature in 2007. The following sections build on the Richland County Draft Comprehensive Plan 2009 to include references to the community’s relationship with regional military installations. This sample text can be inserted into the current plan or in an update in the future. Although the recommendations pertain to the Richland County plan, the recommended text can be modified to fit the needs and context of any of the regional jurisdictions. Also, local jurisdictions may wish to adopt the final Joint Land Use Study as an addendum to its comprehensive plan.

Richland County

Richland County has recently completed its Comprehensive Plan and will be under consideration for adoption by the Council in late 2009. The plan includes mention of the regional military installations in the Natural Resources Element, the Economic Development Element, the Priority Investment Element, and the Land Use Element. The sample text here includes amendments that can be readily made to the plan to update it with the most recent JLUS progress.

Natural Resources Element

This element of the plan mentions Fort Jackson as a site of managed forest land and habitat for endangered species. Although the Goals and Implementation Strategies encourage preservation of wildlife habitat generally, specific goals addressing issues that Fort Jackson is experiencing could enhance the ability of the community to protect its natural resources.

The section describing Fort Jackson can be updated with the following text: “As a federal agency, Fort Jackson must continue managing dedicated lands for endangered species habitat. As regional land is consumed by suburban development, wildlife is seeking refuge on remaining forests such as Fort

Jackson. As additional species move onto the Fort, the military has less land available for military readiness training activities, thereby limiting the viability of the post. Preserving natural habitat outside of the regional military installations will both improve the quality of natural resources in the region as well as protecting the military viability of these bases.”

Goal 3 in the Goals and Implementation Strategies section can also be updated with a specific implementation strategy: “continue coordinating with MAJIC and other conservation land trusts to implement the Joint Compatible Use Buffer conservation easement program. Provide outreach assistance by making developers and land owners aware of the program and posting maps of targeted areas in the region.”

Community Facilities Element

Although military installations are not specifically mentioned in the Community Facilities Element of the comprehensive plan, the planned extension of urban facilities into undeveloped areas around McEntire National Guard Base can have the ability to induce incompatible growth around the installation if prior management techniques are not in place. For this reason, it is recommended that the Community Facility Element be updated to include a goal of protecting military installations from incompatible development while balancing the goals of providing sustainable services to property owners. The Implementation Strategies for Goal 2 can be updated to include, “ensure that adequate development regulations, such as zoning overlays, are in place in areas planned for infrastructure expansion so that future development complies with the adopted Future Land Use Map.”

Priority Investment Element

This chapter reviews projected revenues and identifies Capital Improvement Projects to implement the Comprehensive Plan. The section labeled Intergovernmental Coordination identifies the two military installations as entities that the county should coordinate with prior to capital expenditures. Inclusion of the military installations in the coordination list is encouraged for all jurisdictions in the region.

Land Use Element

This chapter of the Comprehensive Plan begins with a short list of issues that the plan addresses. In it is included the concern that development is encroaching onto the military bases, thereby threatening their viability. The issue is resolved with the introduction of a 3,000 foot “Military Buffer” around each installation. Although it is not stated in the plan, the 3,000 foot measurement is based on the state law requiring local jurisdictions to coordinate zoning requests with the military installation if the request is within 3,000 feet of the installation. The plan identifies this area as where additional encroachment should be avoided, and suggests that the JLUS will provide further details.

This section and map can be updated with the suggested military planning areas provided in the JLUS, including a buffer around the Accident Potential Zones, Noise impact zones, and low aircraft operations areas. The paragraph can be revised to refer to the JLUS report for specific information concerning compatible land uses appropriate in those areas.

Many of the Goals and Implementation Strategies for the Land Use Element reinforce sustainable planning techniques around the military installations, such as encouraging urban redevelopment and limiting development in areas with insufficient infrastructure. Goal 7 specifically relates to limiting incompatible land uses around Fort Jackson and McEntire. The Implementation Strategies can be updated to state:

- *Adopt zoning and other regulatory land use protection measures to ensure compatible development within the military planning areas identified in the Joint Land Use Study (JLUS) Report*
- *Continue active County participation in the JLUS implementation phase, including appointing a voting member to the JLUS Committee at the Central Midlands Council of Governments.*
- *Execute Memoranda of Understanding among the adjacent local governments and military installations implementing the recommended communication and coordination strategies from the JLUS Report.*

SAMPLE REAL ESTATE DISCLOSURE

**AREA OF MILITARY IMPACT
REAL ESTATE DISCLOSURE FORM**

Property at the following location is situated within the vicinity of Fort Jackson/McCrary Training Center and/or McEntire Joint National Guard Base . The subject property may therefore be exposed to periodic low-level military aircraft over-flights and associated noise, the risk of an aircraft accident, noise from large artillery and small arms firing and tracked vehicle movement, smoke from prescribed burns on the installations, and other impacts associated with standard military training activities.

Parcel #: _____ **Deed Book #** _____ **Page #** _____

Address: _____

I, _____, (owner of the subject property) hereby certify that I have informed _____ (prospective purchaser/lessee/renter) that the subject property is located within the vicinity of Fort Jackson/McCrary Training Center and/or McEntire Joint National Guard Base and may therefore be exposed to periodic low-level military aircraft over-flights, artillery/small arms noise, other such military training activities.

Owner/ Date

I, _____, (prospective purchaser/lessee/renter of the subject property) hereby certify that I have been informed by _____ (owner) that the subject property is located in the vicinity of Fort Jackson/McCrary Training Center and/or McEntire Joint National Guard Base and may therefore be exposed to periodic low-level military aircraft over-flights, artillery/small arms/tracked vehicle movement noise, smoke from prescribed burns on the installations and other such impacts of standard military training activities.

Purchaser/Lessee/Renter Date

Signed before me on this _____ day of _____, 20____, in the
County of _____, South Carolina

_____, Notary Public, State of South Carolina.

My Commission Expires on _____. (SEAL)

SAMPLE AVIGATION/NOISE EASEMENT

Parcel _____ County _____

Grantor (s) Name _____

Grantor (s) Address _____

LEGAL DESCRIPTION:

In accordance with section XXXXX of the Subdivision Ordinance for XXXXX County, State of South Carolina, approving a permit for residential development on the above described property, and in consideration of such approval, Grantors grant to the owners of all property adjacent to the above described property, a perpetual nonexclusive easement as follows:

1. The Grantors, their heirs, successors, and assigns acknowledge by the granting of this easement that the residential development is situated in an area that may be subjected to conditions resulting from military training at Fort Jackson/McCrary Training Center and McEntire Joint National Guard Base (JNGB). Such conditions include the firing of small and large caliber weapons, the overflight of both fixed-wing and rotary-wing aircraft, the movement of vehicles, the use of generators, prescribed burning, and other accepted and customary military training activities. These activities ordinarily and necessarily produce noise, dust, smoke and other conditions that may conflict with Grantors' use of Grantors' property for residential purposes. Grantors hereby waive all common law rights to object to normal and necessary military training activities legally conducted on adjacent Fort Jackson/McCrary Training Center and McEntire JNGB which may conflict with Grantors' use of Grantors' property for residential and other purposes, and Grantors hereby grant an easement to the adjacent Fort Jackson/McCrary Training Center and McEntire JNGB for such activities.
2. Nothing in this easement shall grant a right to Fort Jackson/McCrary Training Center and McEntire JNGB for ingress or egress upon or across the described property. Nothing in this easement shall prohibit or otherwise restrict the Grantors from enforcing or seeking enforcement of statutes or regulations of governmental agencies for activities conducted on adjacent properties.
3. This easement is appurtenant to all property adjacent to the above described property and shall bind to the heirs, successors, and assigns of Grantors and shall endure for the benefit of the adjoining Fort Jackson/McCrary Training Center and McEntire JNGB. Fort

Jackson/McCrady Training Center and McEntire JNGB is hereby expressly granted the right of third party enforcement of the easement.

IN WITNESS WHEREOF, the Grantors have executed this easement dated this _____ day of _____, 20____

Grantor

Grantor

SUBDIVISION LANGUAGE

Avigational easement and release: It shall be the responsibility of the subdivider to dedicate to the County on the final plat such easements and releases in such location and width as required for the avigational easement and release for property within the Military Activity Zone Overlay District. The subdivider of said property shall dedicate to the County on the final plat an avigational easement over the subject property and release the County from all liability for any and all claims for damage originating from dust, noise, vibration, fumes, fuel and lubricant particles, etc.

**Memorandum of Agreement Between
the Federal Aviation Administration,
the U.S. Air Force,
the U.S. Army,
the U.S. Environmental Protection Agency,
the U.S. Fish and Wildlife Service, and
the U.S. Department of Agriculture
to Address Aircraft-Wildlife Strikes**

PURPOSE

The signatory agencies know the risks that aircraft-wildlife strikes pose to safe aviation.

This Memorandum of Agreement (MOA) acknowledges each signatory agency's respective missions. Through this MOA, the agencies establish procedures necessary to coordinate their missions to more effectively address existing and future environmental conditions contributing to aircraft-wildlife strikes throughout the United States. These efforts are intended to minimize wildlife risks to aviation and human safety, while protecting the Nation's valuable environmental resources.

BACKGROUND

Aircraft-wildlife strikes are the second leading causes of aviation-related fatalities. Globally, these strikes have killed over 400 people and destroyed more than 420 aircraft. While these extreme events are rare when compared to the millions of annual aircraft operations, the potential for catastrophic loss of human life resulting from one incident is substantial. The most recent accident demonstrating the grievous nature of these strikes occurred in September 1995, when a U.S. Air Force reconnaissance jet struck a flock of Canada geese during takeoff, killing all 24 people aboard.

The Federal Aviation Administration (FAA) and the United States Air Force (USAF) databases contain information on more than 54,000 United States civilian and military aircraft-wildlife strikes reported to them between 1990 and 1999¹. During that decade, the FAA received reports indicating that aircraft-wildlife strikes, damaged 4,500 civilian U.S. aircraft (1,500 substantially), destroyed 19 aircraft, injured 91 people, and killed 6 people. Additionally, there were 216 incidents where birds struck two or more engines on civilian aircraft, with damage occurring to 26 percent of the 449 engines involved in these incidents. The FAA estimates that during the same decade, civilian U.S. aircraft sustained \$4 billion worth of damages and associated losses and 4.7 million hours of aircraft downtime due to aircraft-wildlife strikes. For the same period,

¹ FAA estimates that the 28,150 aircraft-wildlife strike reports it received represent less than 20% of the actual number of strikes that occurred during the decade.

USAF planes colliding with wildlife resulted in 10 Class A Mishaps², 26 airmen deaths, and over \$217 million in damages.

Approximately 97 percent of the reported civilian aircraft-wildlife strikes involved common, large-bodied birds or large flocks of small birds. Almost 70 percent of these events involved gulls, waterfowl, and raptors (Table 1).

About 90 percent of aircraft-wildlife strikes occur on or near airports, when aircraft are below altitudes of 2,000 feet. Aircraft-wildlife strikes at these elevations are especially dangerous because aircraft are moving at high speeds and are close to or on the ground. Aircrews are intently focused on complex take-off or landing procedures and monitoring the movements of other aircraft in the airport vicinity. Aircrew attention to these activities while at low altitudes often compromises their ability to successfully recover from unexpected collisions with wildlife and to deal with rapidly changing flight procedures. As a result, crews have minimal time and space to recover from aircraft-wildlife strikes.

Increasing bird and wildlife populations in urban and suburban areas near airports contribute to escalating aircraft-wildlife strike rates. FAA, USAF, and Wildlife Services (WS) experts expect the risks, frequencies, and potential severities of aircraft-wildlife strikes to increase during the next decade as the numbers of civilian and military aircraft operations grow to meet expanding transportation and military demands.

SECTION I.

SCOPE OF COOPERATION AND COORDINATION

Based on the preceding information and to achieve this MOA's purpose, the signatory agencies:

- A.** Agree to strongly encourage their respective regional and local offices, as appropriate, to develop interagency coordination procedures necessary to effectively and efficiently implement this MOA. Local procedures should clarify time frames and other general coordination guidelines.
- B.** Agree that the term "airport" applies only to those facilities as defined in the attached glossary.
- C.** Agree that the three major activities of most concern include, but are not limited to:
 - 1. airport siting and expansion;

² See glossary for the definition of a Class A Mishap and similar terms.

2. development of conservation/mitigation habitats or other land uses that could attract hazardous wildlife to airports or nearby areas; and
 3. responses to known wildlife hazards or aircraft-wildlife strikes.
- D.** Agree that “hazardous wildlife” are those animals, identified to species and listed in FAA and USAF databases, that are most often involved in aircraft-wildlife strikes. Many of the species frequently inhabit areas on or near airports, cause structural damage to airport facilities, or attract other wildlife that pose an aircraft-wildlife strike hazard. Table 1 lists many of these species. It is included solely to provide information on identified wildlife species that have been involved in aircraft-wildlife strikes. It is not intended to represent the universe of species concerning the signatory agencies, since more than 50 percent of the aircraft-wildlife strikes reported to FAA or the USAF did not identify the species involved.
- E.** Agree to focus on habitats attractive to the species noted in Table 1, but the signatory agencies realize that it is imperative to recognize that wildlife hazard determinations discussed in Paragraph L of this section may involve other animals.
- F.** Agree that not all habitat types attract hazardous wildlife. The signatory agencies, during their consultative or decisionmaking activities, will inform regional and local land use authorities of this MOA’s purpose. The signatory agencies will consider regional, local, and site-specific factors (e.g., geographic setting and/or ecological concerns) when conducting these activities and will work cooperatively with the authorities as they develop and implement local land use programs under their respective jurisdictions. The signatory agencies will encourage these stakeholders to develop land uses within the siting criteria noted in Section 1-3 of FAA Advisory Circular (AC) 150.5200-33 (Attachment A) that do not attract hazardous wildlife. Conversely, the agencies will promote the establishment of land uses attractive to hazardous wildlife outside those siting criteria. Exceptions to the above siting criteria, as described in Section 2.4.b of the AC, will be considered because they typically involve habitats that provide unique ecological functions or values (e.g., critical habitat for federally-listed endangered or threatened species, ground water recharge).
- G.** Agree that wetlands provide many important ecological functions and values, including fish and wildlife habitats; flood protection; shoreline erosion control; water quality improvement; and recreational, educational, and research opportunities. To protect jurisdictional wetlands, Section 404 of the Clean Water Act (CWA) establishes a program to regulate dredge and/or fill activities in these wetlands and navigable waters. In recognizing Section 404 requirements and the Clean Water Action Plan’s goal to annually increase the Nation’s net wetland acreage by 100,000 acres through 2005, the signatory agencies agree to resolve aircraft-wildlife conflicts. They will do so by

avoiding and minimizing wetland impacts to the maximum extent practicable, and will work to compensate for all associated unavoidable wetland impacts. The agencies agree to work with landowners and communities to encourage and support wetland restoration or enhancement efforts that do not increase aircraft-wildlife strike potentials.

- H.** Agree that the: U.S. Army Corps of Engineers (ACOE) has expertise in protecting and managing jurisdictional wetlands and their associated wildlife; U.S. Environmental Protection Agency (EPA) has expertise in protecting environmental resources; and the U.S. Fish and Wildlife Service (USFWS) has expertise in protecting and managing wildlife and their habitats, including migratory birds and wetlands. Appropriate signatory agencies will cooperatively review proposals to develop or expand wetland mitigation sites, or wildlife refuges that may attract hazardous wildlife. When planning these sites or refuges, the signatory agencies will diligently consider the siting criteria and land use practice recommendations stated in FAA AC 150/5200-33. The agencies will make every effort to undertake actions that are consistent with those criteria and recommendations, but recognize that exceptions to the siting criteria may be appropriate (see Paragraph F of this section).
- I.** Agree to consult with airport proponents during initial airport planning efforts. As appropriate, the FAA or USAF will initiate signatory agency participation in these efforts. When evaluating proposals to build new civilian or military aviation facilities or to expand existing ones, the FAA or the USAF, will work with appropriate signatory agencies to diligently evaluate alternatives that may avoid adverse effects on wetlands, other aquatic resources, and Federal wildlife refuges. If these or other habitats support hazardous wildlife, and there is no practicable alternative location for the proposed aviation project, the appropriate signatory agencies, consistent with applicable laws, regulations, and policies, will develop mutually acceptable measures, to protect aviation safety and mitigate any unavoidable wildlife impacts.
- J.** Agree that a variety of other land uses (e.g., storm water management facilities, wastewater treatment systems, landfills, golf courses, parks, agricultural or aquacultural facilities, and landscapes) attract hazardous wildlife and are, therefore, normally incompatible with airports. Accordingly, new, federally-funded airport construction or airport expansion projects near habitats or other land uses that may attract hazardous wildlife must conform to the siting criteria established in the FAA Advisory Circular (AC) 150/5200-33, Section 1-3.
- K.** Agree to encourage and advise owners and/or operators of non-airport facilities that are known hazardous wildlife attractants (See Paragraph J) to follow the siting criteria in Section 1-3 of AC 150/5200-33. As appropriate, each signatory agency will inform proponents of these or other land uses about the land use's potential to attract hazardous species to airport areas.

The signatory agencies will urge facility owners and/or operators about the critical need to consider the land uses' effects on aviation safety.

- L.** Agree that FAA, USAF, and WS personnel have the expertise necessary to determine the aircraft-wildlife strike potentials of various land uses. When there is disagreement among signatory agencies about a particular land use and its potential to attract hazardous wildlife, the FAA, USAF, or WS will prepare a wildlife hazard assessment. Then, the appropriate signatory agencies will meet at the local level to review the assessment. At a minimum, that assessment will:

 1. identify each species causing the aviation hazard, its seasonal and daily populations, and the population's local movements;
 2. discuss locations and features on and near the airport or land use attractive to hazardous wildlife; and
 3. evaluate the extent of the wildlife hazard to aviation.
- M.** Agree to cooperate with the airport operator to develop a specific, wildlife hazard management plan for a given location, when a potential wildlife hazard is identified. The plan will meet applicable FAA, USAF, and other relevant requirements. In developing the plan, the appropriate agencies will use their expertise and attempt to integrate their respective programmatic responsibilities, while complying with existing laws, regulations, and policies. The plan should avoid adverse impacts to wildlife populations, wetlands, or other sensitive habitats to the maximum extent practical. Unavoidable impacts resulting from implementing the plan will be fully compensated pursuant to all applicable Federal laws, regulations, and policies.
- N.** Agree that whenever a significant aircraft-wildlife strike occurs or a potential for one is identified, any signatory agency may initiate actions with other appropriate signatory agencies to evaluate the situation and develop mutually acceptable solutions to reduce the identified strike probability. The agencies will work cooperatively, preferably at the local level, to determine the causes of the strike and what can and should be done at the airport or in its vicinity to reduce potential strikes involving that species.
- O.** Agree that information and analyses relating to mitigation that could cause or contribute to aircraft-wildlife strikes should, whenever possible, be included in documents prepared to satisfy the National Environmental Policy Act (NEPA). This should be done in coordination with appropriate signatory agencies to inform the public and Federal decision makers about important ecological factors that may affect aviation. This concurrent review of environmental issues will promote the streamlining of the NEPA review process.
- P.** Agree to cooperatively develop mutually acceptable and consistent guidance, manuals, or procedures addressing the management of habitats attractive to

hazardous wildlife, when those habitats are or will be within the siting criteria noted in Section 1-3 of FAA AC 5200-33. As appropriate, the signatory agencies will also consult each other when they propose revisions to any regulations or guidance relevant to the purpose of this MOA, and agree to modify this MOA accordingly.

SECTION II. GENERAL RULES AND INFORMATION

- A.** Development of this MOA fulfills the National Transportation Safety Board's recommendation of November 19, 1999, to form an inter-departmental task force to address aircraft-wildlife strike issues.
- B.** This MOA does not nullify any obligations of the signatory agencies to enter into separate MOAs with the USFWS addressing the conservation of migratory birds, as outlined in Executive Order 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, dated January 10, 2001 (66 *Federal Register*, No. 11, pg. 3853).
- C.** This MOA in no way restricts a signatory agency's participation in similar activities or arrangements with other public or private agencies, organizations, or individuals.
- D.** This MOA does not alter or modify compliance with any Federal law, regulation or guidance (e.g., Clean Water Act; Endangered Species Act; Migratory Bird Treaty Act; National Environmental Policy Act; North American Wetlands Conservation Act; Safe Drinking Water Act; or the "no-net loss" policy for wetland protection). The signatory agencies will employ this MOA in concert with the Federal guidance addressing wetland mitigation banking dated March 6, 1995 (60 *Federal Register*, No. 43, pg. 12286).
- E.** The statutory provisions and regulations mentioned above contain legally binding requirements. However, this MOA does not substitute for those provisions or regulations, nor is it a regulation itself. This MOA does not impose legally binding requirements on the signatory agencies or any other party, and may not apply to a particular situation in certain circumstances. The signatory agencies retain the discretion to adopt approaches on a case-by-case basis that differ from this MOA when they determine it is appropriate to do so. Such decisions will be based on the facts of a particular case and applicable legal requirements. Therefore, interested parties are free to raise questions and objections about the substance of this MOA and the appropriateness of its application to a particular situation.
- F.** This MOA is based on evolving information and may be revised periodically without public notice. The signatory agencies welcome public comments on this MOA at any time and will consider those comments in any future revision of this MOA.

- G.** This MOA is intended to improve the internal management of the Executive Branch to address conflicts between aviation safety and wildlife. This MOA does not create any right, benefit, or trust responsibility, either substantively or procedurally. No party, by law or equity, may enforce this MOA against the United States, its agencies, its officers, or any person.
- H.** This MOA does not obligate any signatory agency to allocate or spend appropriations or enter into any contract or other obligations.
- I.** This MOA does not reduce or affect the authority of Federal, State, or local agencies regarding land uses under their respective purviews. When requested, the signatory agencies will provide technical expertise to agencies making decisions regarding land uses within the siting criteria in Section 1-3 of FAA AC 150/5200-33 to minimize or prevent attracting hazardous wildlife to airport areas.
- J.** Any signatory agency may request changes to this MOA by submitting a written request to any other signatory agency and subsequently obtaining the written concurrence of all signatory agencies.
- K.** Any signatory agency may terminate its participation in this MOA within 60 days of providing written notice to the other agencies. This MOA will remain in effect until all signatory agencies terminate their participation in it.

SECTION III. PRINCIPAL SIGNATORY AGENCY CONTACTS

The following list identifies contact offices for each signatory agency.

Federal Aviation Administration
Office Airport Safety and Standards
Airport Safety and
Compliance Branch (AAS-310)
800 Independence Ave., S.W.
Washington, D.C. 20591
V: 202-267-1799
F: 202-267-7546

U.S. Air Force
HQ AFSC/SEFW
9700 Ave., G. SE, Bldg. 24499
Kirtland AFB, NM 87117
V: 505-846-5679
F: 505-846-0684

U.S. Army
Directorate of Civil Works
Regulatory Branch (CECW-OR)
441 G St., N.W.
Washington, D.C. 20314
V: 202-761-4750
F: 202-761-4150

U.S. Environmental Protection Agency
Office of Water
Wetlands Division
Ariel Rios Building, MC 4502F
1200 Pennsylvania Ave., SW
Washington, D.C. 20460
V: 202-260-1799
F: 202-260-7546

U.S. Fish and Wildlife Service
Division of Migratory Bird Management
4401 North Fairfax Drive, Room 634
Arlington, VA 22203
V: 703-358-1714
F: 703-358-2272

U.S. Department of Agriculture
Animal and Plant Inspection Service
Wildlife Services
Operational Support Staff
4700 River Road, Unit 87
Riverdale, MD 20737
V: 301-734-7921
F: 301-734-5157

Signature Page


Associate Administrator for Airports,
Federal Aviation Administration

12/17/02
Date


Chief of Safety,
U. S. Air Force

27 May 2003
Date


Acting Assistant Secretary of the Army
(Civil Works)
Department of the Army

December 9, 2002
Date


Assistant Administrator, Office of Water,
U.S. Environmental Protection Agency

1/17/03


Assistant Director, Migratory Birds
and State Programs,
U.S. Fish and Wildlife Service

7/29/03
Date

Acting 
Deputy Administrator, Wildlife Services
U.S. Department of Agriculture

09 January 2003
Date

GLOSSARY

This glossary defines terms used in this MOA.

Airport. All USAF airfields or all public use airports in the FAA's National Plan of Integrated Airport Systems (NPIAS). Note: There are over 18,000 civil-use airports in the U.S., but only 3,344 of them are in the NPIAS and, therefore, under FAA's jurisdiction.

Aircraft-wildlife strike. An aircraft-wildlife strike is deemed to have occurred when:

1. a pilot reports that an aircraft struck 1 or more birds or other wildlife;
2. aircraft maintenance personnel identify aircraft damage as having been caused by an aircraft-wildlife strike;
3. personnel on the ground report seeing an aircraft strike 1 or more birds or other wildlife;
4. bird or other wildlife remains, whether in whole or in part, are found within 200 feet of a runway centerline, unless another reason for the animal's death is identified; or
5. the animal's presence on the airport had a significant, negative effect on a flight (i.e., aborted takeoff, aborted landing, high-speed emergency stop, aircraft left pavement area to avoid collision with animal)

(Source: *Wildlife Control Procedures Manual*, Technical Publication 11500E, 1994).

Aircraft-wildlife strike hazard. A potential for a damaging aircraft collision with wildlife on or near an airport (14 CFR 139.3).

Bird Sizes. Title 40, Code of Federal Regulations, Part 33.76 classifies birds according to weight:

- small birds weigh less than 3 ounces (oz).
- medium birds weigh more than 3 oz and less than 2.5 lbs.
- large birds weigh greater than 2.5 lbs.

Civil aircraft damage classifications. The following damage descriptions are based on the *Manual on the International Civil Aviation Organization Bird Strike Information System*:

Minor: The aircraft is deemed airworthy upon completing simple repairs or replacing minor parts and an extensive inspection is not necessary.

Substantial: Damage or structural failure adversely affects an aircraft's structural integrity, performance, or flight characteristics. The damage normally requires major repairs or the replacement of the entire affected component. Bent fairings or cowlings; small dents; skin punctures; damage to wing tips, antenna, tires or brakes, or engine blade damage not requiring blade replacement are specifically excluded.

Destroyed: The damage sustained makes it inadvisable to restore the aircraft to an airworthy condition.

Significant Aircraft-Wildlife Strikes. A significant aircraft-wildlife strike is deemed to have occurred when any of the following applies:

1. a civilian, U.S. air carrier aircraft experiences a multiple aircraft-bird strike or engine ingestion;
2. a civilian, U.S. air carrier aircraft experiences a damaging collision with wildlife other than birds; or
3. a USAF aircraft experiences a Class A, B, or C mishap as described below:

A. Class A Mishap: Occurs when at least one of the following applies:

1. total mishap cost is \$1,000,000 or more;
2. a fatality or permanent total disability occurs; and/or
3. an Air Force aircraft is destroyed.

B. Class B Mishap: Occurs when at least one of the following applies:

1. total mishap cost is \$200,000 or more and less than \$1,000,000; and/or
2. a permanent partial disability occurs and/or 3 or more people are hospitalized;

C. Class C Mishap: Occurs when at least one of the following applies:

1. cost of reported damage is between \$20,000 and \$200,000;
2. an injury causes a lost workday (i.e., duration of absence is at least 8 hours beyond the day or shift during which mishap occurred); and/or
3. an occupational illness causing absence from work at any time.

Wetlands. An ecosystem requiring constant or recurrent, shallow inundation or saturation at or near the surface of the substrate. The minimum essential characteristics of a wetland are recurrent, sustained inundation or saturation at or

near the surface and the presence of physical, chemical, and biological features indicating recurrent, sustained inundation, or saturation. Common diagnostic wetland features are hydric soils and hydrophytic vegetation. These features will be present, except where specific physiochemical, biotic, or anthropogenic factors have removed them or prevented their development.

(Source the 1987 Delineation Manual; 40 CFR 230.3(t)).

Wildlife. Any wild animal, including without limitation any wild mammal, bird, reptile, fish, amphibian, mollusk, crustacean, arthropod, coelenterate, or other invertebrate, including any part, product, egg, or offspring there of (50 CFR 10.12, *Taking, Possession, Transportation, Sale, Purchase, Barter, Exportation, and Importation of Wildlife and Plants*). As used in this MOA, “wildlife” includes feral animals and domestic animals while out of their owner’s control (14 CFR 139.3, *Certification and Operations: Land Airports Serving CAB-Certificated Scheduled Air Carriers Operating Large Aircraft (Other Than Helicopters)*)

Table 1. Identified wildlife species, or groups, that were involved in two or more aircraft-wildlife strikes, that caused damage to one or more aircraft components, or that had an adverse effect on an aircraft's flight. Data are for 1990-1999 and involve only civilian, U.S. aircraft.

Birds	No. reported strikes
Gulls (all spp.)	874
Geese (primarily, Canada geese)	458
Hawks (primarily, Red-tailed hawks)	182
Ducks (primarily Mallards.)	166
Vultures (primarily, Turkey vulture)	142
Rock doves	122
Doves (primarily, mourning doves)	109
Blackbirds	81
European starlings	55
Sparrows	52
Egrets	41
Shore birds (primarily, Killdeer & Sandpipers)	40
Crows	31
Owls	24
Sandhill cranes	22
American kestrels	15
Great blue herons	15
Pelicans	14
Swallows	14
Eagles (Bald and Golden)	14
Ospreys	13
Ring-necked pheasants	11
Hérons	11
Barn-owls	9
American robins	8
Meadowlarks	8
Buntings (snow)	7
Cormorants	6
Snow buntings	6
Brants	5
Terns (all spp.)	5
Great horned owls	5
Horned larks	4
Turkeys	4
Swans	3
Mockingbirds	3
Quails	3
Homing pigeons	3
Snowy owls	3
Anhingas	2

Birds	No. reported strikes
Ravens	2
Kites	2
Falcons	2
Peregrine falcons	2
Merlins	2
Grouse	2
Hungarian partridges	2
Spotted doves	2
Thrushes	2
Mynas	2
Finches	2
Total known birds	2,612

Mammals	No. reported strikes
Deer (primarily, White-tailed deer)	285
Coyotes	16
Dogs	10
Elk	6
Cattle	5
Bats	4
Horses	3
Pronghorn antelopes	3
Foxes	2
Raccoons	2
Rabbits	2
Moose	2
Total known mammals	340

Ring-billed gulls were the most commonly struck gulls. The U.S. ring-billed gull population increased steadily at about 6% annually from 1966-1988. Canada geese were involved in about 90% of the aircraft-geese strikes involving civilian, U.S. aircraft from 1990-1998. Resident (non-migratory) Canada goose populations increased annually at 13% from 1966-1998. Red-tailed hawks accounted for 90% of the identified aircraft-hawk strikes for the 10-year period. Red-tailed hawk populations increased annually at 3% from 1966 to 1998. Turkey vultures were involved in 93% of the identified aircraft-vulture strikes. The U.S. Turkey vulture populations increased annually at 1% between 1966 and 1998. Deer, primarily white-tailed deer, have also adapted to urban and airport areas and their populations have increased dramatically. In the early 1900's, there were about 100,000 white-tailed deer in the U.S. Current estimates are that the U.S. population is about 24 million.



U.S. Department
of Transportation
**Federal Aviation
Administration**

Advisory Circular

Subject: HAZARDOUS WILDLIFE
ATTRACTANTS ON OR NEAR AIRPORTS

Date: 5/1/97
Initiated by: AAS-310
and APP-600

AC No: 150/5200-33
Change:

1. PURPOSE. This advisory circular (AC) provides guidance on locating certain land uses having the potential to attract hazardous wildlife to or in the vicinity of public-use airports. It also provides guidance concerning the placement of new airport development projects (including airport construction, expansion, and renovation) pertaining to aircraft movement in the vicinity of hazardous wildlife attractants. Appendix 1 provides definitions of terms used in this AC.

2. APPLICATION. The standards, practices, and suggestions contained in this AC are recommended by the Federal Aviation Administration (FAA) for use by the operators and sponsors of all public-use airports. In addition, the standards, practices, and suggestions contained in this AC are recommended by the FAA as guidance for land use planners, operators, and developers of projects, facilities, and activities on or near airports.

3. BACKGROUND. Populations of many species of wildlife have increased markedly in the last few years. Some of these species are able to adapt to human-made environments, such as exist on and around airports. The increase in wildlife populations, the use of larger turbine engines, the increased use of twin-engine aircraft, and the increase in air-traffic, all combine to increase the risk, frequency, and potential severity of wildlife-aircraft collisions.

Most public-use airports have large tracts of open, unimproved land that are desirable for added margins of safety and noise mitigation. These areas can present potential hazards to aviation because they often attract hazardous wildlife. During the past century, wildlife-aircraft strikes have resulted in the loss of hundreds of lives world-wide, as well as billions of dollars worth of aircraft damage. Hazardous wildlife attractants near airports could jeopardize future airport expansion because of safety considerations.

DAVID L. BENNETT
Director, Office of Airport Safety and Standards

SECTION 1. HAZARDOUS WILDLIFE ATTRACTANTS ON OR NEAR AIRPORTS.

1-1. TYPES OF HAZARDOUS WILDLIFE ATTRACTANTS ON OR NEAR AIRPORTS. Human-made or natural areas, such as poorly-drained areas, retention ponds, roosting habitats on buildings, landscaping, putrescible-waste disposal operations, wastewater treatment plants, agricultural or aquacultural activities, surface mining, or wetlands, may be used by wildlife for escape, feeding, loafing, or reproduction. Wildlife use of areas within an airport's approach or departure airspace, aircraft movement areas, loading ramps, or aircraft parking areas may cause conditions hazardous to aircraft safety.

All species of wildlife can pose a threat to aircraft safety. However, some species are more commonly involved in aircraft strikes than others. Table 1 lists the wildlife groups commonly reported as being involved in damaging strikes to U.S. aircraft from 1993 to 1995.

Table 1. Wildlife Groups Involved in Damaging Strikes to Civilian Aircraft, USA, 1993-1995.

Wildlife Groups	Percent involvement in reported damaging strikes
Gulls	28
Waterfowl	28
Raptors	11
Doves	6
Vultures	5
Blackbirds- Starlings	5
Corvids	3
Wading birds	3
Deer	11
Canids	1

1-2. LAND USE PRACTICES. Land use practices that attract or sustain hazardous wildlife populations on or near airports can significantly increase the potential for wildlife-aircraft collisions. FAA recommends against land use practices, within the siting criteria stated in 1-3, that attract or sustain populations of hazardous wildlife within the vicinity of airports or cause movement of hazardous wildlife onto, into, or across the approach or departure airspace, aircraft movement area, loading ramps, or aircraft parking area of airports.

Airport operators, sponsors, planners, and land use developers should consider whether proposed land uses, including new airport development projects, would increase the wildlife hazard. Caution should be exercised to ensure that land use practices on or near airports do not enhance the attractiveness of the area to hazardous wildlife.

1-3. SITING CRITERIA. FAA recommends separations when siting any of the wildlife attractants mentioned in Section 2 or when planning new airport development projects to accommodate aircraft movement. The distance between an airport's aircraft movement areas, loading ramps, or aircraft parking areas and the wildlife attractant should be as follows:

- a. **Airports serving piston-powered aircraft.** A distance of 5,000 feet is recommended.
- b. **Airports serving turbine-powered aircraft.** A distance of 10,000 feet is recommended.
- c. **Approach or departure airspace.** A distance of 5 statute miles is recommended, if the wildlife attractant may cause hazardous wildlife movement into or across the approach or departure airspace.

SECTION 2. LAND USES THAT ARE INCOMPATIBLE WITH SAFE AIRPORT OPERATIONS.

2-1. GENERAL. The wildlife species and the size of the populations attracted to the airport environment are highly variable and may depend on several factors, including land-use practices on or near the airport. It is important to identify those land use practices in the airport area that attract hazardous wildlife. This section discusses land use practices known to threaten aviation safety.

2-2. PUTRESCIBLE-WASTE DISPOSAL OPERATIONS. Putrescible-waste disposal operations are known to attract large numbers of wildlife that are hazardous to aircraft. Because of this, these operations, when located within the separations identified in the siting criteria in 1-3 are considered incompatible with safe airport operations.

FAA recommends against locating putrescible-waste disposal operations inside the separations identified in the siting criteria mentioned above. FAA also recommends against new airport development projects that would increase the number of aircraft operations or that would accommodate larger or faster aircraft, near putrescible-waste disposal operations located within the separations identified in the siting criteria in 1-3.

2-3. WASTEWATER TREATMENT FACILITIES. Wastewater treatment facilities and associated settling ponds often attract large numbers of wildlife that can pose a threat to aircraft safety when they are located on or near an airport.

a. New wastewater treatment facilities. FAA recommends against the construction of new wastewater treatment facilities or associated settling ponds within the separations identified in the siting criteria in 1-3. During the siting analysis for wastewater treatment facilities, the potential to attract hazardous wildlife should be considered if an airport is in the vicinity of a proposed site. Airport operators should voice their opposition to such sitings. In addition, they should consider the existence of wastewater treatment facilities when evaluating proposed sites for new airport development projects and avoid such sites when practicable.

b. Existing wastewater treatment facilities. FAA recommends correcting any wildlife hazards arising from existing wastewater treatment facilities located on or near airports without delay, using appropriate wildlife hazard mitigation techniques. Accordingly, measures to minimize hazardous wildlife attraction should be developed in consultation with a wildlife damage management biologist. FAA recommends that wastewater treatment facility operators incorporate appropriate wildlife hazard mitigation techniques into their operating practices. Airport operators also should encourage those operators to incorporate these mitigation techniques in their operating practices.

c. Artificial marshes. Waste-water treatment facilities may create artificial marshes and use submergent and emergent aquatic vegetation as natural filters. These artificial marshes may be used by some species of flocking birds, such as blackbirds and waterfowl, for breeding or roosting activities. FAA recommends against establishing artificial marshes within the separations identified in the siting criteria stated in 1-3.

d. Wastewater discharge and sludge disposal. FAA recommends against the discharge of wastewater or sludge on airport property. Regular spraying of wastewater or sludge disposal on unpaved areas may improve soil moisture and quality. The resultant turf growth requires more frequent mowing, which in turn may mutilate or flush insects or small animals and produce straw. The maimed or flushed organisms and the straw can attract hazardous wildlife and jeopardize aviation safety. In addition, the improved turf may attract grazing wildlife such as deer and geese.

Problems may also occur when discharges saturate unpaved airport areas. The resultant soft, muddy conditions can severely restrict or prevent emergency vehicles from reaching accident sites in a timely manner.

e. Underwater waste discharges. The underwater discharge of any food waste, e.g., fish processing offal, that could attract scavenging wildlife is not recommended within the separations identified in the siting criteria in 1-3.

2-4. WETLANDS.**a. Wetlands on or near Airports.**

(1) **Existing Airports.** Normally, wetlands are attractive to many wildlife species. Airport operators with wetlands located on or nearby airport property should be alert to any wildlife use or habitat changes in these areas that could affect safe aircraft operations.

(2) **Airport Development.** When practicable, the FAA recommends siting new airports using the separations identified in the siting criteria in 1-3. Where alternative sites are not practicable or when expanding existing airports in or near wetlands, the wildlife hazards should be evaluated and minimized through a wildlife management plan prepared by a wildlife damage management biologist, in consultation with the U.S. Fish and Wildlife Service (USFWS) and the U.S. Army Corps of Engineers (COE).

NOTE: If questions exist as to whether or not an area would qualify as a wetland, contact the U.S. Army COE, the Natural Resource Conservation Service, or a wetland consultant certified to delineate wetlands.

b. Wetland mitigation. Mitigation may be necessary when unavoidable wetland disturbances result from new airport development projects. Wetland mitigation should be designed so it does not create a wildlife hazard.

(1) FAA recommends that wetland mitigation projects that may attract hazardous wildlife be sited outside of the separations identified in the siting criteria in 1-3. Wetland mitigation banks meeting these siting criteria offer an ecologically sound approach to mitigation in these situations.

(2) Exceptions to locating mitigation activities outside the separations identified in the siting criteria in 1-3 may be considered if the affected wetlands provide unique ecological functions, such as critical habitat for threatened or endangered species or ground water recharge. Such mitigation must be compatible with safe airport operations. Enhancing such mitigation areas to attract hazardous wildlife should be avoided. On-site mitigation plans may be reviewed by the FAA to determine compatibility with safe airport operations.

(3) Wetland mitigation projects that are needed to protect unique wetland functions (see 2-4.b.(2)), and that must be located in the siting criteria in 1-3 should be identified and evaluated by a wildlife damage management biologist before implementing the mitigation. A wildlife damage management plan should be developed to reduce the wildlife hazards.

NOTE: AC 150/5000-3, Address List for Regional Airports Division and Airports District/Field Offices, provides information on the location of these offices.

2-5. DREDGE SPOIL CONTAINMENT AREAS. FAA recommends against locating dredge spoil containment areas within the separations identified in the siting criteria in 1-3, if the spoil contains material that would attract hazardous wildlife.

SECTION 3. LAND USES THAT MAY BE COMPATIBLE WITH SAFE AIRPORT OPERATIONS.

3-1. GENERAL. Even though they may, under certain circumstances, attract hazardous wildlife, the land use practices discussed in this section have flexibility regarding their location or operation and may even be under the airport operator's or sponsor's control. In general, the FAA does not consider the activities discussed below as hazardous to aviation if there is no apparent attraction to hazardous wildlife, or wildlife hazard mitigation techniques are implemented to deal effectively with any wildlife hazard that may arise.

3-2. ENCLOSED WASTE FACILITIES. Enclosed trash transfer stations or enclosed waste handling facilities that receive garbage indoors; process it via compaction, incineration, or similar manner; and remove all residue by enclosed vehicles, generally would be compatible, from a wildlife perspective, with safe airport operations, provided they are not located on airport property or within the runway protection zone (RPZ). No putrescible-waste should be handled or stored outside at any time, for any reason, or in a partially enclosed structure accessible to hazardous wildlife.

Partially enclosed operations that accept putrescible-waste are considered to be incompatible with safe airport operations. FAA recommends these operations occur outside the separations identified in the siting criteria in 1-3.

3-3. RECYCLING CENTERS. Recycling centers that accept previously sorted, non-food items such as glass, newspaper, cardboard, or aluminum are, in most cases, not attractive to hazardous wildlife.

3-4. COMPOSTING OPERATIONS ON AIRPORTS. FAA recommends against locating composting operations on airports. However, when they are located on an airport, composting operations should not be located closer than the greater of the following distances: 1,200 feet from any aircraft movement area, loading ramp, or aircraft parking space; or the distance called for by airport design requirements. This spacing is intended to prevent material, personnel, or equipment from penetrating any Obstacle Free Area (OFA), Obstacle Free Zone (OFZ), Threshold Siting Surface (TSS), or Clearway (see AC 150/5300-13, *Airport Design*). On-airport disposal of compost by-products is not recommended for the reasons stated in 2-3.d.

a. Composition of material handled. Components of the compost should never include any municipal solid waste. Non-food waste such as leaves, lawn clippings, branches, and twigs generally are not considered a wildlife attractant. Sewage sludge, wood-chips, and similar material are not municipal solid wastes and may be used as compost bulking agents.

b. Monitoring on-airport composting operations. If composting operations are to be located on airport property, FAA recommends that the airport operator monitor composting operations to ensure that steam or thermal rise does not affect air traffic in any way. Discarded leaf disposal bags or other debris must not be allowed to blow onto any active airport area. Also, the airport operator should reserve the right to stop any operation that creates unsafe, undesirable, or incompatible conditions at the airport.

3-5. ASH DISPOSAL. Fly ash from resource recovery facilities that are fired by municipal solid waste, coal, or wood, is generally considered not to be a wildlife attractant because it contains no putrescible matter. FAA generally does not consider landfills accepting only fly ash to be wildlife attractants, if those landfills: are maintained in an orderly manner; admit no putrescible-waste of any kind; and are not co-located with other disposal operations.

Since varying degrees of waste consumption are associated with general incineration, FAA classifies the ash from general incinerators as a regular waste disposal by-product and, therefore, a hazardous wildlife attractant.

3-6. CONSTRUCTION AND DEMOLITION (C&D) DEBRIS LANDFILLS. C&D debris (Class IV) landfills have visual and operational characteristics similar to putrescible-waste disposal sites. When co-located with putrescible-waste disposal operations, the probability of hazardous wildlife attraction to C&D landfills increases because of the similarities between these disposal activities.

FAA generally does not consider C&D landfills to be hazardous wildlife attractants, if those landfills: are maintained in an orderly manner; admit no putrescible-waste of any kind; and are not co-located with other disposal operations.

3-7. WATER DETENTION OR RETENTION PONDS. The movement of storm water away from runways, taxiways, and aprons is a normal function on most airports and is necessary for safe aircraft operations. Detention ponds hold storm water for short periods, while retention ponds hold water indefinitely. Both types of ponds control runoff, protect water quality, and can attract hazardous wildlife. Retention ponds are more attractive to hazardous wildlife than detention ponds because they provide a more reliable water source.

To facilitate hazardous wildlife control, FAA recommends using steep-sided, narrow, linearly-shaped, rip-rap lined, water detention basins rather than retention basins. When possible, these ponds should be placed away from aircraft movement areas to minimize aircraft-wildlife interactions. All vegetation in or around detention or retention basins that provide food or cover for hazardous wildlife should be eliminated.

If soil conditions and other requirements allow, FAA encourages the use of underground storm water infiltration systems, such as French drains or buried rock fields, because they are less attractive to wildlife.

3-8. LANDSCAPING. Wildlife attraction to landscaping may vary by geographic location. FAA recommends that airport operators approach landscaping with caution and confine it to airport areas not associated with aircraft movements. All landscaping plans should be reviewed by a wildlife damage management biologist. Landscaped areas should be monitored on a continuing basis for the presence of hazardous wildlife. If hazardous wildlife is detected, corrective actions should be implemented immediately.

3-9. GOLF COURSES. Golf courses may be beneficial to airports because they provide open space that can be used for noise mitigation or by aircraft during an emergency. On-airport golf courses may also be a concurrent use that provides income to the airport.

Because of operational and monetary benefits, golf courses are often deemed compatible land uses on or near airports. However, waterfowl (especially Canada geese) and some species of gulls are attracted to the large, grassy areas and open water found on most golf courses. Because waterfowl and gulls occur throughout the U.S., FAA recommends that airport operators exercise caution and consult with a wildlife damage management biologist when considering proposals for golf course construction or expansion on or near airports. Golf courses should be monitored on a continuing basis for the presence of hazardous wildlife. If hazardous wildlife is detected, corrective actions should be implemented immediately.

3-10. AGRICULTURAL CROPS. As noted above, airport operators often promote revenue-generating activities to supplement an airport's financial viability. A common concurrent use is agricultural crop production. Such use may create potential hazards to aircraft by attracting wildlife. Any proposed on-airport agricultural operations should be reviewed by a wildlife damage management biologist. FAA generally does not object to agricultural crop production on airports when: wildlife hazards are not predicted; the guidelines for the airport areas specified in 3-10.a-f. are observed; and the agricultural operation is closely monitored by the airport operator or sponsor to ensure that hazardous wildlife are not attracted.

NOTE: If wildlife becomes a problem due to on-airport agricultural operations, FAA recommends undertaking the remedial actions described in 3-10.f.

a. Agricultural activities adjacent to runways. To ensure safe, efficient aircraft operations, FAA recommends that no agricultural activities be conducted in the Runway Safety Area (RSA), OFA, and the OFZ (see AC 150/5300-13).

b. Agricultural activities in areas requiring minimum object clearances. Restricting agricultural operations to areas outside the RSA, OFA, OFZ, and Runway Visibility Zone (RVZ) (see AC 150/5300-13) will normally provide the minimum object clearances required by FAA's airport design standards. FAA recommends that farming operations not be permitted within areas critical to the proper operation of localizers, glide slope indicators, or other visual or electronic navigational aids. Determinations of minimal areas that must be kept free of farming operations should be made on a case-by-case basis. If navigational aids are present, farm leases for on-airport agricultural activities should be coordinated with FAA's Airway Facilities Division, in accordance with FAA Order 6750.16, *Siting Criteria for Instrument Landing Systems*.

NOTE: Crop restriction lines conforming to the dimensions set forth in Table 2 will normally provide the minimum object clearance required by FAA airport design standards. The presence of navigational aids may require expansion of the restricted area.

c. Agricultural activities within an airport's approach areas. The RSA, OFA, and OFZ all extend beyond the runway shoulder and into the approach area by varying distances. The OFA normally extends the farthest and is usually the controlling surface. However, for some runways, the TSS (see AC 150/5300-13, Appendix 2) may be more controlling than the OFA. The TSS may not be penetrated by any object. The minimum distances shown in Table 2 are intended to prevent penetration of the OFA, OFZ, or TSS by crops or farm machinery.

NOTE: Threshold Siting standards should not be confused with the approach areas described in Title 14, Code of Federal Regulations, Part 77, (14 CFR 77), *Objects Affecting Navigable Airspace*.

d. Agricultural activities between intersecting runways. FAA recommends that no agricultural activities be permitted within the RVZ. If the terrain is sufficiently below the runway elevation, some types of crops and equipment may be acceptable. Specific determinations of what is permissible in this area requires topographical data. For example, if the terrain within the RVZ is level with the runway ends, farm machinery or crops may interfere with a pilot's line-of-sight in the RVZ.

e. Agricultural activities in areas adjacent to taxiways and aprons. Farming activities should not be permitted within a taxiway's OFA. The outer portions of aprons are frequently used as a taxilane and farming operations should not be permitted within the OFA. Farming operations should not be permitted between runways and parallel taxiways.

f. Remedial actions for problematic agricultural activities. If a problem with hazardous wildlife develops, FAA recommends that a professional wildlife damage management biologist be contacted and an on-site inspection be conducted. The biologist should be requested to determine the source of the hazardous wildlife attraction and suggest remedial action. Regardless of the source of the attraction, prompt remedial actions to protect aviation safety are recommended. The remedial actions may range from choosing another crop or farming technique to complete termination of the agricultural operation.

Whenever on-airport agricultural operations are stopped due to wildlife hazards or annual harvest, FAA recommends plowing under all crop residue and harrowing the surface area smooth. This will reduce or eliminate the area's attractiveness to foraging wildlife. FAA recommends that this requirement be written into all on-airport farm use contracts and clearly understood by the lessee.

Table 2. Minimum Distances Between Certain Airport Features and Any On-Airport Agriculture Crops.

Aircraft Approach Category ¹	Design Group ¹	Distance in Feet from Runway Centerline to Crop (Visual & ≥ 3/4 mile)	Distance in Feet from Runway Centerline to Crop (< 3/4 mile)	Distance in Feet from Runway End to Crop (Visual & ≥ 3/4 mile)	Distance in Feet from Runway End to Crop (< 3/4 mile)	Distance in Feet from Centerline of Taxiway to Crop	Distance in Feet from Edge of Apron to Crop
A & B	Group I	200 ²	400	300 ³	600	45	40
A & B	Group II	250	400	400 ³	600	66	58
A & B	Group III	400	400	600	800	93	81
A & B	Group IV	400	400	1,000	1,000	130	113
C, D & E	Group I	530 ³	575 ³	1,000	1,000	45	40
C, D & E	Group II	530 ³	575 ³	1,000	1,000	66	58
C, D & E	Group III	530 ³	575 ³	1,000	1,000	93	81
C, D & E	Group IV	530 ³	575 ³	1,000	1,000	130	113
C, D & E	Group V	530 ³	575 ³	1,000	1,000	160	138
C, D & E	Group VI	530 ³	575 ³	1,000	1,000	193	167

¹ Design Groups are based on wing span, and Category depends on approach speed of the aircraft:

- Group I: Wing span up to 49 ft.
- Group II: Wing span 49 ft. up to 78 ft.
- Group III: Wing span 79 ft. up to 117 ft.
- Group IV: Wing span 118 ft. up to 170 ft.
- Group V: Wing span 171 ft. up to 213 ft.
- Group VI: Wing span 214 ft. up to 261 ft.

- Category A: Speed less than 91 knots
- Category B: Speed 91 knots up to 120 knots
- Category C: Speed 121 knots up to 140 knots
- Category D: Speed 141 knots up to 165 knots
- Category E: Speed 166 knots or more

² If the runway will only serve small airplanes (12,500 lb. and under) in Design Group I, this dimension may be reduced to 125 feet; however, this dimension should be increased where necessary to accommodate visual navigational aids that may be installed. For example, farming operations should not be allowed within 25 feet of a Precision Approach Path Indicator (PAPI) light box.

³ These dimensions reflect the TSS as defined in AC 150/5300-13, Appendix 2. The TSS cannot be penetrated by any object. Under these conditions, the TSS is more restrictive than the OFA, and the dimensions shown here are to prevent penetration of the TSS by crops and farm machinery.

SECTION 4. NOTIFICATION OF FAA ABOUT HAZARDOUS WILDLIFE ATTRACTANTS ON OR NEAR AN AIRPORT.

4-1. GENERAL. Airport operators, land developers, and owners should notify the FAA in writing of known or reasonably foreseeable land use practices on or near airports that either attract or may attract hazardous wildlife. This section discusses those notification procedures.

4-2. NOTIFICATION REQUIREMENTS FOR WASTE DISPOSAL SITE OPERATIONS. The Environmental Protection Agency (EPA) requires any operator proposing a new or expanded waste disposal operation within 5 statute miles of a runway end to notify the appropriate FAA Regional Airports Division Office and the airport operator of the proposal (40 CFR 258, *Criteria for Municipal Solid Waste Landfills*, section 258.10, *Airport Safety*). The EPA also requires owners or operators of new municipal solid waste landfill (MSWLF) units, or lateral expansions of existing MSWLF units that are located within 10,000 feet of any airport runway end used by turbojet aircraft or within 5,000 feet of any airport runway end used only by piston-type aircraft, to demonstrate successfully that such units are not hazards to aircraft.

a. Timing of Notification. When new or expanded MSWLFs are being proposed near airports, MSWLF operators should notify the airport operator and the FAA of this as early as possible pursuant to 40 CFR Part 258. Airport operators should encourage the MSWLF operators to provide notification as early as possible.

NOTE: AC 150/5000-3 provides information on these FAA offices.

b. Putrescible-Waste Facilities. In their effort to satisfy the EPA requirement, some putrescible-waste facility proponents may offer to undertake experimental measures to demonstrate that their proposed facility will not be a hazard to aircraft. To date, the ability to sustain a reduction in the numbers of hazardous wildlife to levels that existed before a putrescible-waste landfill began operating has not been successfully demonstrated. For this reason, demonstrations of experimental wildlife control measures should not be conducted in active aircraft operations areas.

c. Other Waste Facilities. To claim successfully that a waste handling facility sited within the separations identified in the siting criteria in 1-3 does not attract hazardous wildlife and does not threaten aviation, the developer must establish convincingly that the facility will not handle putrescible material other than that as outlined in 3-2. FAA requests that waste site developers provide a copy of an official permit request verifying that the facility will not handle putrescible material other than that as outlined in 3-2. FAA will use this information to determine if the facility will be a hazard to aviation.

4-3. NOTIFYING FAA ABOUT OTHER WILDLIFE ATTRACTANTS. While U. S. EPA regulations require landfill owners to provide notification, no similar regulations require notifying FAA about changes in other land use practices that can create hazardous wildlife attractants. Although it is not required by regulation, FAA requests those proposing land use changes such as those discussed in 2-3, 2-4, and 2-5 to provide similar notice to the FAA as early in the development process as possible. Airport operators that become aware of such proposed development in the vicinity of their airports should also notify the FAA. The notification process gives the FAA an opportunity to evaluate the effect of a particular land use change on aviation safety.

The land use operator or project proponent may use FAA Form 7460-1, *Notice of Proposed Construction or Alteration*, or other suitable documents to notify the appropriate FAA Regional Airports Division Office.

It is helpful if the notification includes a 15-minute quadrangle map of the area identifying the location of the proposed activity. The land use operator or project proponent should also forward specific details of the proposed land use change or operational change or expansion. In the case of solid waste landfills, the information should include the type of waste to be handled, how the waste will be processed, and final disposal methods.

4-5. FAA REVIEW OF PROPOSED LAND USE CHANGES.

a. The FAA discourages the development of facilities discussed in section 2 that will be located within the 5,000/10,000-foot criteria in 1-3.

b. For projects which are located outside the 5,000/10,000-foot criteria, but within 5 statute miles of the airport's aircraft movement areas, loading ramps, or aircraft parking areas, FAA may review development plans, proposed land use changes, operational changes, or wetland mitigation plans to determine if such changes present potential wildlife hazards to aircraft operations. Sensitive airport areas will be identified as those that lie under or next to approach or departure airspace. This brief examination should be sufficient to determine if further investigation is warranted.

c. Where further study has been conducted by a wildlife damage management biologist to evaluate a site's compatibility with airport operations, the FAA will use the study results to make its determination.

d. FAA will discourage the development of any excepted sites (see Section 3) within the criteria specified in 1-3 if a study shows that the area supports hazardous wildlife species.

4-6. AIRPORT OPERATORS. Airport operators should be aware of proposed land use changes, or modification of existing land uses, that could create hazardous wildlife attractants within the separations identified in the siting criteria in 1-3. Particular attention should be given to proposed land uses involving creation or expansion of waste water treatment facilities, development of wetland mitigation sites, or development or expansion of dredge spoil containment areas.

a. AIP-funded airports. FAA recommends that operators of AIP-funded airports, to the extent practicable, oppose off-airport land use changes or practices (within the separations identified in the siting criteria in 1-3) that may attract hazardous wildlife. Failure to do so could place the airport operator or sponsor in noncompliance with applicable grant assurances. FAA recommends against the placement of airport development projects pertaining to aircraft movement in the vicinity of hazardous wildlife attractants. Airport operators, sponsors, and planners should identify wildlife attractants and any associated wildlife hazards during any planning process for new airport development projects.

b. Additional coordination. If, after the initial review by FAA, questions remain about the existence of a wildlife hazard near an airport, the airport operator or sponsor should consult a wildlife damage management biologist. Such questions may be triggered by a history of wildlife strikes at the airport or the proximity of the airport to a wildlife refuge, body of water, or similar feature known to attract wildlife.

c. Specialized assistance. If the services of a wildlife damage management biologist are required, FAA recommends that land use developers or the airport operator contact the appropriate state director of the United States Department of Agriculture/Animal Damage Control (USDA/ADC), or a consultant specializing in wildlife damage management. Telephone numbers for the respective USDA/ADC state offices may be obtained by contacting USDA/ADC's Operational Support Staff, 4700 River Road, Unit 87, Riverdale, MD, 20737-1234, Telephone (301) 734-7921, Fax (301) 734-5157. The ADC biologist or consultant should be requested to identify and quantify wildlife common to the area and evaluate the potential wildlife hazards.

d. Notifying airmen. If an existing land use practice creates a wildlife hazard, and the land use practice or wildlife hazard cannot be immediately eliminated, the airport operator should issue a Notice to Airmen (NOTAM) and encourage the land owner or manager to take steps to control the wildlife hazard and minimize further attraction.

APPENDIX 1. DEFINITIONS OF TERMS USED IN THIS ADVISORY CIRCULAR.

1. **GENERAL.** This appendix provides definitions of terms used throughout this AC.

a. Aircraft movement area. The runways, taxiways, and other areas of an airport which are used for taxiing or hover taxiing, air taxiing, takeoff, and landing of aircraft exclusive of loading ramps and aircraft parking areas.

b. Airport operator. The operator (private or public) or sponsor of a public use airport.

c. Approach or departure airspace. The airspace, within 5 statute miles of an airport, through which aircraft move during landing or takeoff.

d. Concurrent use. Aeronautical property used for compatible non-aviation purposes while at the same time serving the primary purpose for which it was acquired; and the use is clearly beneficial to the airport. The concurrent use should generate revenue to be used for airport purposes (see Order 5190.6A, *Airport Compliance Requirements*, sect. 5h).

e. Fly ash. The fine, sand-like residue resulting from the complete incineration of an organic fuel source. Fly ash typically results from the combustion of coal or waste used to operate a power generating plant.

f. Hazardous wildlife. Wildlife species that are commonly associated with wildlife-aircraft strike problems, are capable of causing structural damage to airport facilities, or act as attractants to other wildlife that pose a wildlife-aircraft strike hazard.

g. Piston-use airport. Any airport that would primarily serve FIXED-WING, piston-powered aircraft. Incidental use of the airport by turbine-powered, FIXED-WING aircraft would not affect this designation. However, such aircraft should not be based at the airport.

h. Public-use airport. Any publicly owned airport or a privately-owned airport used or intended to be used for public purposes.

i. Putrescible material. Rotting organic material.

j. Putrescible-waste disposal operation. Landfills, garbage dumps, underwater waste discharges, or similar facilities where activities include processing, burying, storing, or otherwise disposing of putrescible material, trash, and refuse.

k. Runway protection zone (RPZ). An area off the runway end to enhance the protection of people and property on the ground (see AC 150/5300-13). The dimensions of this zone vary with the design aircraft, type of operation, and visibility minimum.

l. Sewage sludge. The de-watered effluent resulting from secondary or tertiary treatment of municipal sewage and/or industrial wastes, including sewage sludge as referenced in U.S. EPA's *Effluent Guidelines and Standards*, 40 C.F.R. Part 401.

m. Shoulder. An area adjacent to the edge of paved runways, taxiways, or aprons providing a transition between the pavement and the adjacent surface, support for aircraft running off the pavement, enhanced drainage, and blast protection (see AC 150/5300-13).

n. Turbine-powered aircraft. Aircraft powered by turbine engines including turbojets and turboprops but excluding turbo-shaft rotary-wing aircraft.

o. Turbine-use airport. Any airport that ROUTINELY serves FIXED-WING turbine-powered aircraft.

p. Wastewater treatment facility. Any devices and/or systems used to store, treat, recycle, or reclaim municipal sewage or liquid industrial wastes, including Publicly Owned Treatment Works (POTW), as defined by Section 212 of the Federal Water Pollution Control Act (P.L. 92-500) as amended by the Clean Water Act of 1977 (P.L. 95-576) and the Water Quality Act of 1987 (P.L. 100-4). This definition includes any pretreatment involving the reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a POTW. (See 40 C.F. R. Section 403.3 (o), (p), & (q)).

q. Wildlife. Any wild animal, including without limitation any wild mammal, bird, reptile, fish, amphibian, mollusk, crustacean, arthropod, coelenterate, or other invertebrate, including any part, product, egg, or offspring thereof (50 CFR 10.12, *Taking, Possession, Transportation, Sale, Purchase, Barter, Exportation, and Importation of Wildlife and Plants*). As used in this AC, WILDLIFE includes feral animals and domestic animals while out of the control of their owners (14 CFR 139.3, *Certification and Operations: Land Airports Serving CAB-Certificated Scheduled Air Carriers Operating Large Aircraft (Other Than Helicopters)*).

r. Wildlife attractants. Any human-made structure, land use practice, or human-made or natural geographic feature, that can attract or sustain hazardous wildlife within the landing or departure airspace, aircraft movement area, loading ramps, or aircraft parking areas of an airport. These attractants can include but are not limited to architectural features, landscaping, waste disposal sites, wastewater treatment facilities, agricultural or aquacultural activities, surface mining, or wetlands.

s. Wildlife hazard. A potential for a damaging aircraft collision with wildlife on or near an airport (14 CFR 139.3).

2. RESERVED.

CONSTRUCTION PRACTICES FOR SOUND ATTENUATION

Element	Location	STC	Requirement
Exterior walls	All perimeter walls	39	2 x 4 stud wall required with 5/8-inch exterior sheathing and 5/8-inch gypsumboard or plaster interior
Exterior walls	All perimeter walls		Insulation grade R-9 required
Exterior walls	All perimeter walls		No thru-wall HVAC
Windows	All habitable rooms	30	Stucco, brick, or siding homes - STC 30
Windows	All bedrooms		Window area max. 20% of floor area
Exterior doors	All doors to house	28	1-3/4-inch prime solid-core wood or insulated metal
Exterior doors	All doors to house		No thru-door openings
Roof construction	Entire house	39	Rafter depth 6 inches or more
Attic and kneewall	Vented attic and pitched roof		Insulation grade R-19 required
Ceiling	All habitable rooms	28	1/2-inch-thick gypsumboard or plaster
Ceiling under roof	All habitable rooms		Skylights STC-28
Floor	Over crawl space		Max vent area 2% of floor area
Ventilation	Entire house		Fresh air requirements met with windows and doors closed
Ventilation	Kitchen		Baffle vents to exterior
Ventilation	Attic		Code Minimum Number Gravity Vents

Element	Location	STC	Requirement
Exterior walls	All perimeter walls	44	2 x 4 stud wall required with 5/8-inch exterior sheathing and 5/8-inch gypsumboard or plaster interior
Exterior walls	All perimeter walls		Interior walls resiliently mounted
Exterior walls	All perimeter walls		Insulation grade R-11 required
Exterior walls	All perimeter walls		No thru-wall HVAC
Windows	All habitable rooms	36/40	Stucco or brick homes - STC 36; siding homes - STC 40
Windows	All bedrooms		Window area max. 20% of floor area
Exterior doors	All doors to house	35	1-3/4-inch prime and storm door
Exterior doors	All doors to house		No thru-door openings
Roof construction	Entire house	44	Rafter depth 6 inches or more
Attic and kneewall	Vented attic and pitched roof		Insulation grade R-19 required
Ceiling	Habitable rooms under pitched roof with attic	44	5/8-inch-thick gypsumboard or plaster
Ceiling under roof	All habitable rooms		No skylights
Floor	Lowest occupied rooms	49	Slab or enclosed basement/crawlspace
Floor	Over crawl space		Insulation grade R-9 required
Ventilation	Entire house		Fresh air requirements met with windows and doors closed
Ventilation	Kitchen		Baffle vents to exterior
Ventilation	Attic		No gravity vents
Miscellaneous	All habitable rooms		No vented fireplaces

CONSTRUCTION PRACTICES FOR SOUND ATTENUATION

Element	Location	STC	Requirement
Exterior walls	All perimeter walls	49	2 x 4 staggered stud wall required with 5/8-inch exterior sheathing and sealed top and bottom and 1-inch gypsumboard or plaster interior
Exterior walls	All perimeter walls		Interior wall not rigidly connected to exterior wall studs
Exterior walls	All perimeter walls		Insulation grade R-11 required
Exterior walls	All perimeter walls		No thru-wall HVAC
Windows	All habitable rooms	40/24	Brick homes - STC 40; stucco or siding homes - STC 42
Windows	All bedrooms		Window area max. 20% of floor area
Exterior doors	All doors to house	38	1-3/4-inch prime and storm door
Exterior doors	All doors to house		No thru-door openings
Roof construction	Entire house	49	Rafter depth 6 inches or more
Attic and kneewall	Vented attic		Insulation grade R-30 required
Ceiling	Habitable rooms under cathedral ceiling, flat or pitched roof without attic		Resilient ceiling attachment
Ceiling	All habitable rooms		1-inch-thick gypsumboard or plaster
Ceiling under roof	All habitable rooms		No skylights
Floor	Lowest occupied rooms	49	Slab or enclosed basement/crawlspace
Floor	Over crawl space		Insulation grade R-11 required
Ventilation	Entire house		Fresh air requirements met with windows and doors closed
Ventilation	Kitchen		No vents direct to exterior
Ventilation	Attic		No gravity vents
Miscellaneous	All habitable rooms		No vented fireplaces

DRAFT AMENDMENT TO THE INTERNATIONAL CODE COUNCIL'S 2003 INTERNATIONAL BUILDING CODE

The draft building code amendment presented below is a variation on noise insulation standards in effect in California (California Administrative Code, Title 25, Article 4). The draft building code amendment has been numbered to allow easy incorporation into the 2003 International Building Code. The amendment includes single-family dwellings as well as nonresidential structures used for noise-sensitive activities and provides standards for soundproofing against noise and other sources of community noise.

Section 1211 Sound Attenuation Standards – Aircraft Noise

1211.1 Purpose

The purpose of these standards is to establish uniform minimum noise attenuation performance standards to protect persons within hotels, motels, apartment houses, attached and detached single-family dwellings, and other noise-sensitive activities within structures from the effects of excessive noise, including but not limited to hearing loss or impairment and persistent interference with speech and sleep.

1211.2 Application and Scope

The provisions of this article relating to noise attenuation performance standards apply to all applications for building permits made subsequent to the effective date of these regulations for new or redeveloped hotels, motels, dwellings, and other structures used for noise-sensitive activities.

1211.3 Definitions

The special terms used in this section are defined as follows:

Day-Night Average Sound Level (DNL)

A method for describing the estimated cumulative aircraft or other noise exposure that affects communities. The DNL metric represents decibels of noise as measured by an A-weighted soundlevel meter. In the DNL procedure, noise exposures are accumulated for a typical 24-hour period.

Daytime and nighttime noise exposures are considered separately. A weighting factor equivalent to penalty of 10 decibels is applied to aircraft operations or other noise sourced between 10 p.m. and 6:59 a.m. to account for the increased sensitivity of people to nighttime noise. The DNL values can be expressed graphically on maps using either contours or grid cells.

Decibel (dB)

A unit for measuring the volume of a sound, equal to the logarithm of the ratio of the sound intensity to the intensity of an arbitrarily chosen standard sound.

Noise

Any sound that is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying.

Noise Contours

Lines drawn on a map that connect points of equivalent DNL values. They are usually drawn in 5-DNL intervals, such as connections of DNL 75 values, DNL 70 values, DNL 65 values, and so forth.

Noise Grid

Squares or “cells” of equal size superimposed over a base map of an airport or other noise source and its environs. Numbers printed in each grid cell represent the DNL value of noise at the center of the square for a particular year being studied. Several numbers representing several years can also be displayed. Grid cells may be of any size, depending on the study area. Usually, a cell of about 1,000 feet to 1,400 feet per side (23 to 45 acres) is used for purposes of noise analysis and land use planning.

Noise-Sensitive Activities in Nonresidential Structures

Activities in office buildings, offices within other types of structures, research facilities, meeting rooms, and similar activities in structures not intended for residential or transient lodgings. Such uses and activities could be affected by high levels of exterior noise that penetrate into interior

spaces.

Redeveloped Structure

Renovations of existing structures when the cost modification is 50% or more of the value of the original structure at the time the renovation is to begin.

Residential Structures

Any structure for the purpose of housing occupants either on a permanent or transient basis.

Residential structures shall include, but shall not be limited to, detached single-family dwellings, attached single-family dwellings (townhouses and patio homes), boarding and rooming houses, mobile homes, manufactured or prefabricated houses, apartment houses (single-story or multistory), motels, and hotels.

1211.4 Noise Insulation from Exterior Sources

1211.4.1 Location and Orientation

Consistent with land use standards, residential structures or nonresidential structures used for noise-sensitive activities located in noise-critical areas shall be designed to prevent the intrusion of exterior noises beyond prescribed levels with all exterior doors and windows closed. Noisecritical areas are those near (a) airports; (b) county roads, city streets, and freeways; (c) railroads; (d) rapid transit lines; or (e) industrial areas. Proper design shall include, but shall not be limited to, orientation of windows or other openings in structures away from the noise source, setbacks, shielding, and sound attenuation of the building itself.

1211.4.2 Interior Noise Levels

Interior day-night average sound level (DNL) attributable to exterior sources shall not be exceed an annual DNL 45 in any habitable room with windows closed.

1211.4.3 Community Determination of DNL Contours and Grid Cells

The local jurisdiction shall prepare or shall have prepared a map showing DNL contours or grid cells for the areas exposed to noise levels of DNL 65 or higher from the sources specified in Section 1211.4.1. In the case of civil and military airports, the airport operator shall be responsible for preparing or have prepared a map of such contours or grid cells.

1211.4.4 Airport Noise Source

An acoustical analysis shall be required for new or redeveloped residential structures or nonresidential structures used for noise-sensitive activities located in areas where the exterior noise level due to aircraft operations is DNL 65 or higher. The acoustical analysis shall show that the structure or rooms in which the noise-sensitive activity takes place has been designed to limit intruding noise to the allowable interior noise level prescribed in Section 1211.4.2.

1211.4.5 Vehicular and Industrial Noise Sources

An acoustical analysis shall be required for new or redeveloped residential structures or nonresidential structures used for noise-sensitive activities located in areas where the exterior noise level due to vehicular noise or industrial operations is DNL 65 or higher. Vehicular noise of DNL 65 or higher can occur in the vicinity of an existing or adopted freeway, express-way, major street, thoroughfare, railroad, or rapid transit line. The acoustical analysis shall show that the structure or rooms where the noise-sensitive activity takes place has been designed to limit intruding noise to the allowable interior noise level prescribed in Section 1211.4.2.

1211.5 Compliance

1211.5.1 Evidence

Evidence of compliance shall consist of an acoustical analysis report, prepared under the supervision of a person experienced in the field of acoustical engineering, with the application for building permit. The report shall show the following: (a) topographical relationship of noise sources and dwelling or activity site; (b) identification of noise sources and their characteristics;

(c) predicted noise spectra at the exterior of the proposed structure considering present and future land use; (d) basis for the prediction (measured or obtained from published data); (e) noise attenuation measures to be applied, if any; and (f) an analysis of the effectiveness of the proposed construction showing that the prescribed interior noise-level requirements are met. If interior noise levels are met by requiring that windows be unopenable or closed, the design for the structure must also specify the means that will be employed to provide ventilation, and cooling if necessary, to provide a habitable interior environment.

1211.5.2 Field Testing

Field testing may be required only when inspection indicates that the construction is not in accordance with the approved design. Interior noise measurements shall be taken under conditions of typical maximum exterior noise levels within legal limits. A test report showing compliance or noncompliance with prescribed interior allowable levels shall be submitted to the Building Official.

If a field test is required to resolve a complaint of noncompliance with these standards, the complainant shall post a bond or adequate funds in escrow for the cost of the test. If the field test shows compliance, the cost of the test shall be borne by the complainant. If the field test shows noncompliance, the cost of the test shall be borne by the owner or builder.

SAMPLE REGIONAL BY-LAWS

ARTICLE 1 – TITLE

The title shall be the Fort Bragg/Pope Air Force Base Regional Land Use Advisory Commission, Inc. (RLUAC).

ARTICLE 2 – MISSION

The purposes and duties of the Fort Bragg/Pope Air Force Base Regional Land Use Advisory Commission are as follows:

1. To promote a regional perspective on land use and environmental issues of mutual concern to the adjacent local communities and the military installations.
2. To provide a forum for discussing noise and accident potential problems relating to land use and to deliberate and develop mitigation actions.
3. To foster compatible land uses impacted by civilian and military areas.
4. To foster increased local economic development opportunities, particularly as they relate to the military.

ARTICLE 3 – ESTABLISHMENT

The Fort Bragg/Pope Air Force Base Regional Land Use Advisory Commission is established through the authority of N.C.G.S. Chapters 160A-460 through 464 and 55A et. al.

ARTICLE 4 – MEMBERSHIP

1. Composition: Fort Bragg/Pope Air Force Base Regional Land Use Advisory Commission membership is limited to Fort Bragg, Pope Air Force Base, and all municipal / county governments within Cumberland, Harnett, Hoke, Moore, Richmond, Robeson, Sampson, and Scotland Counties.
2. Each member county and municipality shall appoint one voting member. Member governments are encouraged to appoint an elected official to be their voting member. They may also appoint as many non-voting members as they deem appropriate. Fort Bragg and Pope Air Force Base may appoint as many non-voting members as they deem appropriate.
3. Voting and non-voting members shall be appointed by the Boards of Commissioners from the Cities and Counties they represent. Military members/representatives shall be appointed by the Commanding Officer(s) from the military installations which they represent.
4. Voting and non-voting members should have a basic knowledge of the Fort Bragg/Pope Air Force Base region's physical, environmental, social, and economic makeup. In addition, a basic understanding of the planning process and land use planning, in particular, is recommended.

5. Terms of Voting and Non-Voting Members:

- a. The length of term for a voting member shall be three (3) years. Non-voting members serve at the will of the appointing body and have no specified terms.
- b. Voting members may be reappointed to successive terms.

ARTICLE 5 – MEETINGS

- 1. Meetings – Meetings will be held quarterly throughout the year, generally on the third Thursday of February, May, August, and November.
- 3. Attendance – Attendance is mandatory. If an appointee is absent from more than two (2) consecutive meetings or three (3) in a calendar year, and such absences are not caused by extraordinary events, the member is obligated to resign in writing.
- 4. Public – All regular and special meetings, hearings, records, and accounts of the Commission shall be open to the public.
- 5. Special Meetings – Special meetings shall be called at the request of the Chairman or a majority of members of the Commission. The Chairman may designate in advance regular or special meetings for the presentation of reports on the comprehensive plan, or on general planning discussions, deferring hearings and petitions to subsequent meetings.
- 6. Prayer – All Commissions meetings may be opened with prayer.
- 7. Written Material – All written material used for consideration in Commission meetings become part of the official records of that meeting and are to be kept on file in the office of the Executive Director.

ARTICLE 6 – OFFICERS/DUTIES

- 1. Chairman – The Chairman shall preside at all meetings, appoint members to committees, and perform such other duties as may be ordered by the Commission.
- 2. Vice-Chairman – The Vice-Chairman shall act in the capacity of the Chairman in his absence.
- 3. Secretary – The Secretary shall keep the minutes, execute such documents as authorized by the Commission, in the name of the Commission, and perform such other duties as the Commission shall determine or direct.
- 4. Executive Director – The position of Executive Director may be authorized by the Board of Directors and appointed or discharged by a vote of the Fort Bragg / Pope Air Force Base Regional Land Use Advisory Commission (RLUAC) membership. The employment of the Executive Director shall be an at-will employment. The responsibilities and job requirements of the Executive Director shall be as follows:

Responsibilities

- a. Make the logistical arrangements for and participate in RLUAC quarterly meetings (4 each year).
- b. Make the logistical arrangements for quarterly Board of Directors meetings (4 each year). He /she shall offer suggestions for topics and speakers for the RLUAC quarterly meetings.
- c. Serve as the “point of contact” / primary liaison for RLUAC information and public relations.
- d. Represent the RLUAC at public hearings, meetings, and conferences as directed by the Board of Directors.
- e. Contact and confirm speakers for the RLUAC quarterly meetings.
- f. Prepare agendas for RLUAC quarterly meetings and Board of Directors’ meetings (8 each year).
- g. Oversee the preparation of minutes for RLUAC quarterly and Board of Directors’ meetings (8 each year).
- h. Coordinate the mailing of minutes and meeting notices (by U.S. mail and e-mail) for RLUAC quarterly meetings and Board of Directors’ meetings (8 each year).
- i. Oversee the maintenance of accurate and up-to-date membership rolls and attendance records.
- j. Maintain current information regarding regional, state, and national legislative issues of interest.
- k. Complete various other tasks as assigned by the Board of Directors.
- l. Fund Raising - Coordinate efforts to raise funding to support RLUAC operations.
 - 1) Prepare and submit grant proposals to appropriate corporations and foundations.
 - 2) Prepare and mail fund raising letters to potential financial supporters.
 - 3) Make presentations to potential funding entities as opportunities arise.
- m. Incorporation – Facilitate the process of incorporating the RLUAC and securing tax exempt designation with the State of North Carolina and the federal government.

Job Requirements

A Master’s Degree in Planning or Public Administration curriculum and three years planning and management experience, which includes one year in a supervisory capacity; or a College Degree and five years of specifically related planning and management experience, including one year in a supervisory capacity; or an equivalent combination of education and experience.

The Executive Director job description may be amended by the Board of Directors.

ARTICLE 7 BOARD OF DIRECTORS

1. The Board of Directors shall act as the Executive Committee and shall be elected from the membership for two year terms.
2. Composition
 - a. The Chairman, Vice Chairman, Secretary, one representative selected from each of the County delegations, and a representative from each of the military installations shall constitute the Board of Directors.
 - b. Non-voting members may be named to the Board of Directors by the officers as they deem necessary.
3. Meetings of the Executive Committee shall be called as necessary by the Chairman or Vice Chairman to plan agendas for the Advisory Commission and to provide decisions on matters of importance when it is impractical to convene a special meeting of the full Advisory Commission.
4. Meetings of the Board of Directors shall be open to the public.
5. A quorum must be present for the Board of Directors to vote. A quorum consists of a majority of the current membership.

ARTICLE 8 – ELECTIONS

1. The Chairman shall be elected at the first regular meeting in each odd numbered year. Terms of office shall be for two years beginning in the year 2007. The Commission shall elect the Chairman from its membership.
2. The Vice-Chairman shall be elected at the first regular meeting in each odd numbered year. Terms of office shall be for two years. The Commission shall elect the Vice-Chairman from its membership.
3. The Secretary shall be elected at the first regular meeting in each odd numbered year. Terms of office shall be for two years. The Secretary is not required to be a member of the Commission.

ARTICLE 9 – VOTING

1. Action – Transaction of business and the taking of official action shall require a concurring vote of a majority of the voting members of the Commission present at the meeting.
2. Motions – Motions shall be restated by the Chairman before a vote is taken. The name of the maker of the motion and that of the second shall be recorded.
3. Voting – Voting shall be by voice or by show of hands. In the event that a vote is not unanimous, the minutes shall show the names of how each voted on each issue.

4. Abstaining – When a Commission member wishes to abstain from consideration on any issue, he or she shall make a formal request to the Chairman, prior to action by the Commission. Notification of a request for abstention should be made as soon as the member is aware of such a possibility. At the meeting, the Chairman shall ask if there is any opposition to the request. Abstention will be allowed only with a consenting vote of a majority of the Commission present.

5. When a voting member of the Commission is unable to attend a meeting, he or she may assign their voting authority to another RLUAC non-voting member designated by that voting member in writing to the Corporation.

ARTICLE 10 REMUNERATION

Members of the Commission may be reimbursed for their expenses by their appointing body in accordance with that body's policies and procedures.

ARTICLE 11 – AMENDMENTS

1. These Bylaws may be amended by an affirmative vote of two-thirds of all voting members present, provided all amendments conform to established policies and law.

2. Two-thirds of the appointing bodies must approve the Bylaws and all changes. Two-thirds of the appointing bodies can amend or revise the Bylaws without approval of the Commission.

ARTICLE 12 – DISSOLUTION

Two-thirds of the appointing bodies, as appointing authority, can reorganize or dissolve the Commission without advance notice.

ARTICLE 13 – RULES

Robert's Rules of Order Revised shall govern meetings, unless modified by the voting members.

ARTICLE 14 – REPORTS

Minutes of meetings shall be provided in advance of the next regular meeting. Copies of the minutes of all meetings shall also be mailed to the appointing authority.

Adopted this 13th day of January, 2005.

PHOENIX/JACKSON COUNTY
URBAN GROWTH BOUNDARY AND POLICY AGREEMENT¹

This agreement made and entered into this 17th day of May, 1995, by and between the City of Phoenix, a municipal corporation, hereinafter called "City" and Jackson County, a political subdivision of the State of Oregon, hereinafter called "County".

WHEREAS, Under ORS 197, State Land Use Goal 14, Urbanization, the "Establishment and change of the boundary shall be a cooperative process between a city and the county or counties that surround it;" and

WHEREAS, pursuant to authority granted by Oregon Revised Statutes and Charter of the City of Phoenix, the City and County propose to enter into an Agreement to adopt an Urban Growth Boundary, Policies, and Revision Procedures for the Phoenix Urbanizable Area.

THEREFORE, the City and County adopt the following Urban Growth Policies which shall serve as the basis for decisions pertaining to development and land uses in the area between the City limits of Phoenix and its Urban Growth Boundary, and other lands that are of mutual interest or are of significant importance to Phoenix's long-range growth and development.

SECTION I. THE PHOENIX URBANIZABLE AREA

The Phoenix Urbanizable Area includes lands currently within the City and encompasses selected land around the City which are planned for future City growth, and which are likely to require the extension of City services. The area is delineated by an Urban Growth Boundary imposed on the Official Comprehensive Plan and Zoning Map of Jackson County.

The Policies, Revision Procedures, and other discussion noted in this section of the Plan were developed as part of a coordinated process involving the City and County governing bodies, affected agencies, and local citizens' planning advisory groups.

Policies: The following policies will guide the administration of the Urban Growth Boundary for the City of Phoenix:

- 1) An Urban Growth Boundary adopted herein or hereinafter amended for the Phoenix area will establish the limits of urban growth to the year 2000, and is designed to accommodate a population of 6,465.
 - A) City annexation shall occur only within the officially adopted Urban Growth Boundary.
 - B) Specific annexation decisions shall be governed by the official annexation policy of the City. The City will provide an opportunity for the County to respond to pending requests for annexation.
 - C) Establishment of an Urban Growth Boundary does not imply that all land within the boundary will be annexed to the City.
- 2) A change in the use of urbanizable land from land uses designated on the Jackson County Comprehensive Plan and Zoning map to uses shown on the City of Phoenix Comprehensive Plan and Zoning Maps shall only occur upon annexation to the City, or a contract of annexation between the City, County, and other involved parties.

¹Adopted by Ordinance 95-20 on May 17, 1995, by the Board of Commissioners and on April 14, 1995, by the City of Phoenix, File 94-3-UGBA.

- A) Development of land for uses designated on the City Comprehensive Plan will be encouraged to occur on underdeveloped lands adjacent to or encompassed by the existing City limits prior to the conversion of other lands within the boundary.
 - B) Urban facilities and services must be adequate in condition and capacity to accommodate the additional level of growth, as allowed by the City Comprehensive Plan, prior to or concurrent with the land use changes.
- 3) Except in cases where a contract for annexation has been executed, or after proclamation of an annexation having a delayed effective date pursuant to ORS 222.180(2), Jackson County shall retain jurisdiction over land use decisions within the unincorporated urbanizable area and such decisions shall conform to these adopted policies:
- A) Recognizing that unincorporated areas within the Urban Growth Boundary could ultimately become part of Phoenix, the City's recommendations will be given due consideration. It is the intent of the County to administer a mutually adopted City/County policy in the urbanizable area until such time as the area is annexed.
 - B) The city will be requested to respond to pending applications for land use changes in the unincorporated urbanizable area. If no response is received within fourteen (14) days, the County will assume the City has no objection to the request.
 - C) The City will request the County to respond to pending applications for land use changes within the incorporated area which could affect land under County jurisdiction. If no response is received within fourteen (14) days, the City will assume the County has no objection to the request.
 - D) Any application for a subdivision, land partition, or other land division within the established Urban Growth Boundary of Phoenix shall include the City's written approval of a Conversion Plan for the subject property, in accordance with the requirements of Section 14, Conversion Plan Regulations, of the Phoenix Zoning Ordinance.
- 4) Any land use actions within the unincorporated urbanizable area shall conform to urban standards and public improvement requirements as contained in the City's and County's Land Development Codes, except that in the case of a conflict between the two, those of the City shall apply.
- 5) Within the unincorporated urbanizable area, execution and recording of an irrevocable consent to annex to the City, pursuant to ORS 222.115, shall be required for:
- A) Single-Family Residential permits
 - B) City sanitary sewer and City water hook-up permits
 - C) All land use actions subject to County site plan review

- 6) The City, County and affected agencies shall coordinate the expansion and development of all urban facilities and services within the Phoenix urbanizable area.
 - A) Provisions for urban facilities and services shall be planned in a manner limiting duplication in an effort to provide greater efficiency and economy of operation.
 - B) A single urban facility or service extended to the urbanizable area must be coordinated with the planned future development of all other urban facilities and services appropriate to that area, and shall be provided at levels necessary for expected uses, as designated on the City's Comprehensive Plan.
 - C) The City shall be responsible for adopting and maintaining a public facilities plan for the City and urbanizable area pursuant to OAR 660-11.
 - D) When development occurs within the unincorporated urbanizable areas subject to a contract for annexation, or after proclamation of an annexation having a delayed effective date, any or all City services may be extended to these areas, pursuant to ORS 222.180(2) and Jackson County Land Development Ordinance Chapter 251. All associated fees and charges which are applicable within the City shall be applicable to these areas and shall be paid to the City pursuant to City regulations.
- 7) Provision of City sewer and water services may only occur beyond the Urban Growth Boundary after approval by the provider agency and Jackson County, and when a "danger to public health" as defined by ORS 431.705(5) exists. The services thus authorized shall serve only the area in which the danger exists and shall provide a level of service consistent with the County's Comprehensive Plan designation.
- 8) The Highway 99 area north of the City is designated as an Area of Mutual Concern. The City and County will coordinate their land use and transportation planning activities for the area.
- 9) Long-range transportation and air quality planning for the urbanizable area shall be a joint City/County process coordinated with all affected agencies.
- 10) All County road construction and reconstruction resulting from new development, redevelopment, or land division in the urbanizable area shall be to urban standards, except that the term "reconstruction" does not include normal road maintenance by the County.
- 11) The City and the County acknowledge the importance of permanently protecting agricultural lands that are zoned Exclusive Farm Use (EFU), other than those that may be within the urbanizable area or in the identified direction of urban growth. Both jurisdictions will continue to maintain policies regarding the buffering of said lands. Urban development will be allowed to occur on land adjacent to land zoned EFU when the controlling jurisdiction determines that such development will be compatible with the adjacent farm use. Buffering shall occur on the urbanizable land adjacent to the Urban Growth Boundary. The amount and type of buffering required

will be considered in light of the urban growth and development policies of the City and circumstances particular to the agricultural land. Buffering options may include:

- A) Special setbacks for new urban structures adjacent to the Urban Growth Boundary;
- B) Acquisition by public agencies;
- C) Lower densities at the periphery of the Urban Growth Boundary than allowed elsewhere in the City;
- D) Strategic location of roads, golf courses, or other public areas or facilities; and/or,
- E) Use of vegetative screens, earthen berms, and fences of sufficient height and substance to help reduce trespass of people, animals, and vehicles.

In addition, a deed declaration recognizing common, customary, and accepted farming practices shall be required for all development that is allowed to occur within three-hundred (300) feet of any land zoned for Exclusive Farm Use. The City shall request the County's recommendations concerning the buffering of any such urban development proposals adjacent to lands zoned EFU.

Definitions:

- 1) Area of Mutual Planning Concern: A geographical area lying beyond the adopted Urban Growth Boundary in which the City and County have an interest in terms of that area's types and levels of development, land uses, environment, agriculture, and other unique characteristics. The area is not subject to annexation within the current planning period but may be in the path of longer-range urban growth. Therefore, the City and County will fully coordinate land use activity within this area.
- 2) Contract Annexation: A process whereby the City, County, and other involved parties enter into a contract that permits:
 - A) The parties to administer urban land use regulations on the development of property following an annexation decision while the property remains under County jurisdiction; and
 - B) The City to annex property developed to City densities and uses, with the improvement to appear on the County tax rolls prior to the effective date of annexation, resulting in a greater benefit to the tax base of the City.
- 3) Develop: To bring about growth or create new opportunities for growth, to extend public facilities or services; to construct, alter or expand a structure; to conduct a mining operation; to make a change in the use or appearance of land; to divide into smaller parcels; to create or terminate rights of access; etc.
- 4) Subdivide or Partition Land: The act of dividing the legal ownership of land into smaller units, as set forth in Oregon Revised Statutes 92.010.

- 5) Urban/Public Facilities and Services: Basic facilities that are planned for and provided by either the private or public sector, and are essential to the support of development in accordance with the City's Comprehensive Plan. Such facilities and services include, but are not limited to, police and fire protection, sanitary facilities, public water and storm drain facilities, planning, zoning, and subdivision controls, health services, recreation facilities and services, energy and communication services, and community governmental services including schools and transportation.
- 6) Urban Growth Boundary: A site specific line on the Official Plan and Zoning Map of Jackson County, which identifies and encompasses urban and urbanizable lands within the County, including:
 - A) Urban Land: Residential areas generally comprised of parcels smaller than one (1) acre, or highly developed commercial and industrial areas which are within incorporated cities or which contain concentrations of persons who reside or work in the areas, including land adjacent to and outside cities, and which have supporting urban/public facilities and services.
 - B) Urbanizable Land: Areas within an officially adopted Urban Growth Boundary which are needed for the expansion of urban uses, and which have been determined to be necessary and suitable for development as future urban land and which can be served with necessary urban public facilities and services.

Amendments and Corrections: The procedure for joint City and County review and amendment of the Urban Growth Boundary and Urbanization Policies is as follows:

- 1) Amendment Procedures for UGB and Urbanization Policies:
 - A) Major revisions in boundary or policies will be considered amendments to both the City and County Comprehensive Plans and, as such, are subject to a legislative review process.
 - B) A major revision shall include any boundary change that has widespread and significant impact beyond the immediate area, such as quantitative changes allowing for substantial changes in population or significant increases in resource impacts; qualitative changes in the land use itself, such as conversion of residential to industrial use; or spatial changes that affect large areas or many different ownerships. Any change in the Urbanization Policies is considered a major revision.
 - C) Major revisions will be considered by the City and County at five (5) year intervals from the date of adoption of the Urban Growth Boundary and Urbanization Policies. If the City and County governing bodies find that circumstances prevail which have a significant effect on the public health, safety or general welfare of the community, a major revision could be considered at intervals of less than five (5) years.
 - D) A request for a major revision can be initiated by an individual or group, citizen advisory committees, affected agencies, and governing bodies. The party who seeks the revision shall be responsible for filing adequate written

documentation with the City and County governing bodies. Final legislative action on major revision requests shall be based on the following factors:

1. Demonstrated need to accommodate long-range urban population growth requirements consistent with LCDC goals;
2. Need for housing, employment opportunities, and livability;
3. Orderly and economic provision for public facilities and services;
4. Maximum efficiency of land uses within and on the fringe of the existing urban area;
5. Environmental, energy, economic and social consequences;
6. Retention of agricultural land as defined, with Class I being the highest priority for retention and Class VI the lowest priority; and,
7. Compatibility of the proposed urban uses with nearby agricultural activities.

E) Major revision proposals shall be subject to a mutual City and County review and an agreement process that involves affected agencies, citizen advisory committees, and the general public.

2) Minor Boundary Line Adjustments:

A) Minor adjustments to an Urban Growth Boundary may be considered subject to similar procedures used by the City and County in hearing zoning requests. A minor amendment is defined as focusing on specific individual properties and not having significant impact beyond the immediate area of the change.

B) Application for a minor boundary line amendment can only be made by property owners, their authorized agents, or by a City or County governing body. Written applications for amendments may be filed in the office of the Jackson County Department of Planning and Development on forms prescribed by the County. The standards for processing an application are as follows:

1. Documentation must exist indicating the minor adjustment is based on:
 - a) A demonstrated need for the change consistent with the Urbanization Policies of the City and County;
 - b) Maximum efficiency of land use and urban facilities and services;
 - c) The effect on the existing land use character in the immediate area of the request; and,

- d) Findings of fact addressing the seven urbanization factors required by Goal 14, as listed above for major revisions.
 2. Applications will be reviewed by the affected City and County Planning Advisory Committees annually.
 3. The City and County may schedule a joint meeting of their respective planning commissions annually for the express purpose of considering minor boundary line adjustment.
 4. The Planning Commissions are required to forward a recommendation and findings on each application to the City and County governing bodies for final consideration.
 5. Amendments cannot be made to the Urban Growth Boundary unless mutually agreed to by a majority from each governing body. The County governing body shall be responsible for the preparation of the actual legal instrument which officially amends the boundary line.
- 3) Correction of Errors:
- A) An error is generally considered to be a cartographic mistake, or a misprint, omission, or duplication in the text. They are technical in nature and not the result of new information or changing attitudes or policies.
 - B) If the City Council and Board of County Commissioners become aware of an error in the map(s) or text of this mutually-adopted urbanization program, both bodies may cause an immediate amendment to correct the error, after mutual agreement is reached.
 - C) Corrections shall be made by ordinance, following a public hearing conducted by both governing bodies. Public hearings before the planning commissions shall not be required when an amendment is intended specifically to correct an error.

SECTION II. An Urban Growth Boundary and Area of Mutual Planning Concern for the City of Phoenix as described in this Agreement shall be established in a manner conforming to exhibit Map "A", attached hereto and by this reference considered a part hereof.

SECTION III. The Urban Growth Boundary and Urbanization Policies contained in this ordinance are hereby declared to be based upon and supported by the Findings of Fact, attached as Exhibit "B" to this Agreement.

SECTION IV: This AGREEMENT is intended to supersede all prior Agreements between the parties on the same subject matter, including the ordinance adopted by the Board of County Commissioners on July 28, 1978. This AGREEMENT shall be made effective upon execution by the representatives of the City and County as authorized by their respective governing bodies. Exhibits A and B are considered as part of this Agreement and have been referenced and made part of adopting ordinances.

SAMPLE MEMORANDUM OF UNDERSTANDING

Between Fort Jackson/McCradly Training Center and McEntire Joint National Guard Base and

The Counties of _____ and

The Cities of _____

This Memorandum of Understanding between Fort Jackson/McCradly Training Center and McEntire Joint National Guard Base, the Counties of _____, and the Cities of _____, is enacted to establish a mutually beneficial process that will ensure timely and consistent notification and cooperation between the parties on projects, policies, and activities. These parties have a mutual interest in the cooperative evaluation, review, and coordination of local plans, programs, and projects in the Counties of _____, the Cities of _____, and on Fort Jackson/McCradly Training Center and McEntire Joint National Guard Base.

The Cities of _____ and the Counties of _____ agree to:

1. Submit information to Fort Jackson/McCradly Training Center and McEntire Joint National Guard Base on plans, programs, actions, and projects that may affect the conducting of military operations. This may include, but not be limited to the following:
 - Development proposals
 - Transportation improvements and plans
 - Sanitary waste facilities/wastewater facilities/ water facilities/any infrastructure necessary to support development
 - Open space and recreation
 - Public works projects
 - Land use plans, comprehensive plan, and ordinances
 - Rezoning and variances

- School facility siting plan
 - Lighting plans for roadways, subdivision developments and major commercial/industrial developments
 - Capital Improvement Plans
 - Demographic data
2. Submit to Fort Jackson/McCrary Training Center and McEntire Joint National Guard Base for review and comment, project notification, policies, plans, reports, studies and similar information on development, infrastructure and environmental activities within proximity of Fort Jackson/McCrary Training Center and McEntire Joint National Guard Base as defined by the established Military Activity Zones.
 3. Consider US Army, Army National Guard and Air National Guard comments as part of local responses or reports.
 4. Make information on Joint Land Use Study recommendations, including maps and development standards in noise and accident potential zones readily available to the public.
 5. Explore the application of growth management techniques, such as establishing planned growth areas or promoting open space/conservation development to minimize land use incompatibility within the established Military Activity Zones.
 6. Coordinate city/county annexation and public infrastructure extensions to complement the goal of encroachment reduction in established Military Activity Zones.
 7. Mark all plats in the established Military Activity Zones with an “Area of Military Impact Plat Notification” and explore real estate disclosure within the Military Activity Zones.
 8. Include Fort Jackson/McCrary Training Center and McEntire Joint National Guard Base in the distribution of meeting agendas for, but not limited to:
 - City Council or County Commission Meetings

- Planning Commission Meetings
- Zoning Boards of Adjustment
- Review Board
- Transportation Studies
- Public Works Studies

Fort Jackson/McCrary Training Center and McEntire Joint National Guard Base agrees to:

1. Submit information to City and County representatives on plans, programs, actions, and projects which may affect the city or county. These may include, but not be limited to, the following:
 - Installation Master Plan
 - Air Installation Compatible Use Zone Studies
 - Noise Management Studies
 - Changes in existing installation use that may change off-post impacts, such as noise and traffic movement
 - Appropriate data on troop strength and activities for local plans, programs and projects
 - Army Compatible Use Buffer
 - Base Realignment and Closure, Grow the Army, or other Transformation initiatives that may affect mission activities and the number of personnel
 - Schedule of training activities when feasible
2. Submit to City and County representatives for review and comment, project notification, policies, plans, reports, studies and similar information on development, infrastructure and environmental activities at Fort Jackson/McCrary Training Center and McEntire Joint National Guard Base.
3. Make information on Joint Land Use Study recommendations, noise mitigation and encroachment reduction strategies readily available to the public.

This agreement will remain in effect until terminated by any of the parties. Amendments to this memorandum may be made by mutual agreement of all the parties. Review process details and appropriate forms may be developed to facilitate uniform and efficient exchanges of comments.

This understanding will not be construed to obligate the U.S. Army, South Carolina Army National Guard , Air National Guard, and the Cities of _____, the Counties of _____ to violate existing or future laws or regulations.

This agreement is approved by:

County

City

Fort Jackson

McCrary Training Center

McEntire Joint National Guard Base

**Fort Jackson/McEntire
Joint Land Use Study
Public Survey**

Please Circle One

- | | | |
|--|-----|----|
| 1. Do you consider the military and their operations to be important to the community? | Yes | No |
| Comments: _____
_____ | | |
| 2. Do you have any concerns about noise, traffic, safety or other issues around Fort Jackson or McEntire Joint National Guard Base? | Yes | No |
| Comments: _____
_____ | | |
| 3. Are you concerned that noise or potential for accidents affects your property or the community? | Yes | No |
| Comments: _____
_____ | | |
| 4. Do you support building standards for new construction that reduce noise entering homes around Fort Jackson/McCrary or McEntire Air National Guard Base? | Yes | No |
| Comments: _____
_____ | | |
| 5. Do you support telling homeowners near the base of noise issues? | Yes | No |
| Comments: _____
_____ | | |
| 6. Do you support special zoning near the base? | Yes | No |
| Comments: _____
_____ | | |
| 7. Do you support the voluntary purchase of development rights on lands near Jackson/McCrary and McEntire Air National Guard Base? | Yes | No |
| Comments: _____
_____ | | |
| 8. If you answered "yes" to number seven above, and you own land, would you be interested in receiving information about conservation partnerships? | Yes | No |

Name _____
Address _____
City/State/Zip _____

Your name and address will be kept strictly confidential -- only the contractor will use your name and mailing address to mail you the requested information.

Website Survey Response Summary

Question #	Yes Responses	No Responses	Total Responses	% Yes	% No
1	34	0	34	100%	0%
2	17	17	34	50%	50%
3	15	18	33	45%	55%
4	29	4	33	88%	12%
5	28	4	32	88%	13%
6	29	4	33	88%	12%
7	26	5	31	84%	16%

Comments to Question 8:

It is important that prospective developers and purchasers of properties near Fort Jackson and McEntire know that military training activities occur now, probably will increase, make loud noises now, that the noises also will probably will increase, and that its all necessary to our national defense.

Only when it is so loud at night and it wakes us up and I have to be to work early

Shakes the windows sometimes and I am scared that they will fall out

Traffic is a serious problem that will only get bigger as the bases grow. I'm also worried about ground water contamination from their old landfills and truck maintenance facilities.

Helicopters seem to fly very low. And they had a forest fire a few years ago that was close to my house off Leesburg Road.

Worry that it will cost to much.

Might lower resale.

The deer are a problem. Worry about the disease they may spread (from ticks) to dogs and others.

Traffic is a serious problem in the mornings as the gates back up, often onto the interstate.

We enjoy biking on Fort Jackson and running the Mud Run at McCrady.

They really made the Fort Jackson entrance nice with flowers about a year ago. Other gates aren't as nice.

Wish I could hunt on Fort Jackson.

Without such a consolidated training center at Fort Jackson, the local economy would die a horrific death.

I know there are local realtors selling properties who could do a better job of letting the prospective buyer know the proximity to Fort Jackson and it's typical noise levels.

Not really - I think what's more of a threat are independent truckers who disregard safe practices and slam into the guard rails just before exit 6 on I-77 southbound.

Yes and no - let me explain... yes - to make the option in the construction; no, if a city or county council decides to mandate it. This is STILL America.

No - impractical, wasteful. If they do not know by now, they are either deaf or their fine with it. I would only mention it to new or prospective buyers

Yes and no - that's going to depend on WHO purchases the rights and WHAT the intent would be (would not trust a pseudo-governmental entity to become land baron).

Forrest Drive at Fort Jackson traffic backups are very dangerous, the checkpoint needs to be moved further into the Fort to allow non fort traffic to flow!

Yes, proper numbering and labeling of roads and buildings on FT Jackson. Numbering is not sequential.

The military is important to the economical growth as well as the development of the men and women who protect our country at home and abroad

I think the areas should be buffered so that they can grow but also so that the home owners around them can be protected from the noise

Not my property as I don't live in the area but I am concerned about those I know who do live in the area

I think an informed community would be more supportive

There has to be some rules and regulations to follow if protection is to be adhered to

It depends on who's doing the telling, what information they are providing and to whom. It is not the role of government to tell people what they should be concerned about. It is the role government to ensure that the surrounding neighborhood/community associations in that area no where to go and who to talk to should they have concerns about the base.

Fort Jackson is a major employer in the region and our community needs to be supportive of the mission of the armed forces

These issues crop up around every military base. There have been significant zoning issues along with property rights issues around the base in Key West. I used to work as a planner in the area and have seen many arguments from both sides. It is best to move on this now before even more growth causes deeper problems.