NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Ms. Elizabeth Zelinski City of Dayton, Department of Aviation	File Number: LRH-2009-682-GMR	Date: 1/11/2010
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://usace.army.mil/inet/functions/cw/cecwo/reg or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

APPENDIX E

Dayton Airport Culvert Extension Project

Information provided by Ohio Historic Preservation Office on November 10, 2010

Historic Structures
No Features Found

National Register Listed Properties
No Features Found

National Register Determinations of Eligibility
No Features Found

National Register Districts
No Features Found

Archaeological Sites
No Features Found

Previously Surveyed Areas - Phase I

NADB	Phase	Title	Author1	Author2	Year	SentFrom	Acres	Areas	Log
11720	1	AN ARCHAEOLOGICAL SURVEY OF RUNWAY EXPANSIONS AT DAYTON INTERNATIONAL AIRPORT, MONTGOMERY COUNTY, OHIO	Riordan, Robert V.		1984	Robert V. Riordan	2	3	0

Previously Surveyed Areas - Phase 2
No Features Found

Previously Surveyed Areas - Phase 3
No Features Found

OGS Cemeteries
No Features Found

National Road
National Road located within 500 m of project site

APPENDIX F

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 sitting 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 And Design Group [1]	Distance In Feet From Runway Centerline To Crop		Distance In Feet From Runway End To Crop		Distance In Feet From Centerline Of Taxiway To Crop	Distance In Feet From Edge Of Apron To Crop
	Visual & ≥ ¾ mile	< ¾ mile	Visual & ≥ ¾ mile	< ¾ mile		
Category A & B Aircraft						
Group I	200 [2]	400	300[3]	600	45	40
Group II	250	400	400[3]	600	66	58
Group III	400	400	600	800	93	81
Group IV	400	400	1,000	1,000	130	113
Category C, D & E Aircraft						
Group I	530[3]	575[3]	1,000	1,000	45	40
Group II	530[3]	575[3]	1,000	1,000	66	58
Group III	530[3]	575[3]	1,000	1,000	93	81
Group IV	530[3]	575[3]	1,000	1,000	130	113
Group V	530[3]	575[3]	1,000	1,000	160	138
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.	Category A:	Speed less than 91 knots
Group II:	Wing span 49ft. up to 78 ft.	Category B:	Speed 91 knots up to 120 knots
Group III:	Wing span 79 ft. up to 117 ft.	Category C:	Speed 121 knots up to 140 knots
Group IV:	Wing span 118 ft. up to 170 ft.	Category D:	Speed 141 knots up to 165 knots
Group V:	Wing span 171 ft. up to 213 ft.	Category E:	Speed 166 knots or more
Group VI:	Wing span 214 ft. up to 261 ft.		

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 there of (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.

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 sitting 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 And Design Group [1]	Distance In Feet From Runway Centerline To Crop		Distance In Feet From Runway End To Crop		Distance In Feet From Centerline Of Taxiway To Crop	Distance In Feet From Edge Of Apron To Crop
	Visual & ≥ ¾ mile	< ¾ mile	Visual & ≥ ¾ mile	< ¾ mile		
Category A & B Aircraft						
Group I	200 [2]	400	300[3]	600	45	40
Group II	250	400	400[3]	600	66	58
Group III	400	400	600	800	93	81
Group IV	400	400	1,000	1,000	130	113
Category C, D & E Aircraft						
Group I	530[3]	575[3]	1,000	1,000	45	40
Group II	530[3]	575[3]	1,000	1,000	66	58
Group III	530[3]	575[3]	1,000	1,000	93	81
Group IV	530[3]	575[3]	1,000	1,000	130	113
Group V	530[3]	575[3]	1,000	1,000	160	138
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.	Category A:	Speed less than 91 knots
Group II:	Wing span 49ft. up to 78 ft.	Category B:	Speed 91 knots up to 120 knots
Group III:	Wing span 79 ft. up to 117 ft.	Category C:	Speed 121 knots up to 140 knots
Group IV:	Wing span 118 ft. up to 170 ft.	Category D:	Speed 141 knots up to 165 knots
Group V:	Wing span 171 ft. up to 213 ft.	Category E:	Speed 166 knots or more
Group VI:	Wing span 214 ft. up to 261 ft.		

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)).