Transport Canada Transports Canada

Advisory Circular

Subject: **Guidance on Airport Zoning Regulation clauses related to wildlife management**

Issuing Office:	Civil Aviation, Standards	Document No.:	AC 302-037
File Classification No.:	Z 5000-34	Issue No.:	01
RDIMS No.:	19103133-V8	Effective Date:	2026-10-14

Table of contents

1.0 Introduction 3
1.1 Purpose 3
1.2 Applicability 3
1.3 Description of changes 3
2.0 References and requirements 3
2.1 Reference documents 3
2.2 Cancelled documents 3
2.3 Definitions and abbreviations 3
3.0 Background 4
3.1 History and rationale 4
4.0 Wildlife management clauses 6
5.0 Coordination, collaboration and integration 7
6.0 Wildlife Attractants 8
6.1 Waste Management Facilities 8
6.1.1 Definition 8
6.1.2 Rationale 8
6.1.3 Recommendations 8
6.2 Stormwater Management / Sewage Treatment Ponds 8
6.2.1 Definition 8
6.2.2 Rationale 9
6.2.3 Recommendations 9
6.3 Parks /Greenspace / Protected wildlife areas 9
6.3.1 Definition 9
6.3.2 Habitat Restoration 10
6.3.3 Rationale 10
6.3.4 Recommendations 10
6.4 Agriculture 10
6.4.1 Definition 10
6.4.2 Rationale 11
6.4.3 Recommendations 11

7.0 Legally Non-conforming Uses 11
8.0 Information management 12
9.0 Document history 12
10.0 Contact us 12

1.0 Introduction

(1) This Advisory Circular (AC) is provided for information and guidance purposes. It describes an example of an acceptable means, but not the only means, of demonstrating compliance with regulations and standards. This AC on its own does not change, create, amend or permit deviations from regulatory requirements, nor does it establish minimum standards.

1.1 Purpose

(1) The primary purpose of this document is to provide guidance on certain land uses that have the potential to attract hazardous wildlife in the vicinity of airports, particularly those airports that have an airport zoning regulation with a clause on bird or wildlife hazard. The information presented may also be of use, even where there is no airport zoning regulation in effect.

1.2 Applicability

(1) This document applies to Transport Canada Civil Aviation (TCCA) Headquarters and regional personnel; to airport operators; and to municipalities and local land use authorities where an airport in that jurisdiction has an airport zoning regulation with clauses related to wildlife management.

1.3 Description of changes

(1) Not applicable.

2.0 References and requirements

2.1 Reference documents

(1) It is intended that the following reference materials be used in conjunction with this document:

(a) *Aeronautics Act* (R.S.C., 1985, c. A-2)

(b) Part III, division 3 of the *Canadian Aviation Regulations* (CARs) — Airport Wildlife Planning and Management

(c) Standard 322, Division 3 of the CARs — Airport Wildlife Planning and Management

(d) Transport Canada Publication (TP) 1247— Land Use in the Vicinity of Aerodromes

(e) TP 13549 Sharing the Skies

(f) TP 11500 Wildlife Procedures Manual

(g) *Airport Zoning Regulations made under the Aeronautics Act*.

2.2 Cancelled documents

(1) Not applicable.

2.3 Definitions and abbreviations

(1) The following **definitions** are used in this document:

(a) **Airport:** means an aerodrome in respect of which an airport certificate issued under Subpart 2 of Part III of the *Canadian Aviation Regulations* is in force

(b) **Aerodrome:** means any area of land, water (including the frozen surface thereof) or other supporting surface used, designed, prepared, equipped or set apart for use either in whole or in part for the arrival, departure, movement or servicing of aircraft and includes any buildings, installations and equipment situated thereon or associated therewith

(c) **Attractant:** means food or other resources that can change the behaviour of animals and draw them to a specific location

(d) **Roosting:** means when birds sleep or settle to rest

(e) **Wildlife Hazard:** means a hazard relating to the conduct of flight operations that results from the presence of birds and other animals, primarily in the vicinity of an aerodrome

(f) **Wildlife Risk:** means is the probability of a wildlife strike by a particular species multiplied by the severity of damage to the aircraft that might reasonably occur.

(g) **Loafing:** means when wildlife is displaying relaxed behaviors not specifically related to feeding, breeding, or predator evasion

(2) The following **abbreviations** are used in this document:

(a) **AC:** Advisory Circular

(b) **AZR:** airport zoning regulation

(c) **CAR:** Civil Aviation Regulation

(d) **ECCC:** Environment and Climate Change Canada

(e) **ICAO:** International Civil Aviation Organization

(f) **TC:** Transport Canada

3.0 Background

(1) Through consultation, Transport Canada has been made aware that certain stakeholders may not fully understand the applicability of airport zoning regulations as they relate to wildlife hazard. To determine whether a landowner may become in violation of an AZR, with regards to the wildlife hazard clause they must consider two factors: Has the land changed in usage, and does this change in land use create a wildlife attractant?

3.1 History and rationale

(1) Studies completed for Transport Canada in the 1990's and early 2000's recommended that airport zoning be broadened beyond consideration of only waste-handling facilities to include other land uses and their relative significance with respect to attracting birds that are hazardous to aircraft operations. This led to the introduction of broader clauses restricting wildlife hazards.

(2) Airport wildlife hazard zone dimensions and shapes are dependent on the flight paths for the critical phases of flight and the aircraft types that use, or may eventually make use of, a particular airport. The critical phases of flight are those which occur below 1,500 ft. AGL: takeoff, initial climb, approach, landing and missed approach. These altitudes are also most populated by hazardous bird species, and where bird/aircraft collisions are most likely to result in a catastrophic event. According to the International Civil Aviation Authority (ICAO), 70% of all wildlife strikes worldwide are reported to occur during these critical phases of flight.

(3) The consequence of a bird strike varies with the weight and density of the bird, the impact speed, and the number of birds that are struck during a bird-strike event. Therefore, information

regarding the physical characteristics of bird species and their nesting, feeding, flocking and flying characteristics are needed to establish a generalized category of risk for each species of group.

(4) Two facts underpin the consideration of risk associated with various land-uses near airports. These are: all lands attract birds of some kind and birds do not pose a threat unless they are airborne. There are key factors to consider when looking at the attractiveness of sites to birds/wildlife. Additionally, flock density, the species of birds, their abundance and their frequency to use a site can all pose different risks and affect how a site may become a hazard to aviation.

(5) The species of birds that are attracted to a particular land use is a key risk factor. Lands that attract the highest risk species of birds are of the greatest potential concern.

(6) The number of birds attracted by a particular land use is also a factor to consider. Sites that attract larger numbers of hazardous species are of more concern than those sites only attracting a few individuals.

(7) The behaviours of the birds attracted to the site are critical in determining whether a safety hazard is created. Because birds on the ground do not create a hazard, it is necessary to understand the behaviour over the site and/or when the birds are flying to and from the site. Some species soar or tower high into the air above the ground, increasing the potential risk. Sites that are used by feeding birds can attract birds from remote locations. Many birds that feed at a specific site (ex. a landfill or agricultural field) spend the night at communal roosts and make daily transit flights to and from the feeding site, which may be a great distance from the roost. While in transit, the birds may fly through the airport approach paths, or over the airport.

(8) The frequency of visits by hazardous species to a particular land use is a key factor in determining risk. A site that is used daily is a higher risk than one infrequently used. A small landfill may be visited by hundreds of gulls every day, where a recently ploughed field may only attract many gulls for a few days during the year.

(9) The location of a hazardous site determines whether the land use creates a safety risk. A site may create a higher risk if it increases the frequency and behaviour of overflying birds over the airport. An attractant might be better located if it does not create a direct path from roosting to feeding over an airport property.

(10) This AC highlights the potential land uses that may increase high risk behaviours in birds, including transiting, soaring and increased number of birds / wildlife.

(11) As a member state to ICAO, Canada has a responsibility to take action to manage the risk from wildlife hazards in the vicinity of an airport. States are obligated under Annex 14 Volume 1 of the convention to take the following action with regards to wildlife strike hazard reduction:

- (a) 9.4.3. Action shall be taken to decrease the risk to aircraft operations by adopting measures to minimize the likelihood of collisions between wildlife and aircraft.
- (b) 9.4.4. The appropriate authority shall take action to eliminate or to prevent the establishment of garbage disposal dumps or any source which attracts wildlife to the aerodrome, or its vicinity, unless an appropriate wildlife assessment indicates that they are unlikely to create conditions conducive to a wildlife hazard problem. Where the elimination of existing sites is not possible, the appropriate authority shall ensure that any risk to aircraft posed by these sites is assessed and reduced to as low as reasonably practicable; and
- (c) 9.4.5. States should give due consideration to aviation safety concerns related to land developments in the vicinity of the aerodrome that may attract wildlife

(12) ICAO further defines this area of potential hazard in the vicinity of the aerodrome in Part 3 of the Airport Service Manual (DOC 9137).

(a) 4.4.2. A 13-km circle centred on the aerodrome reference point is recognized where land use should be assessed with regard to wildlife hazard management. However, the circle may be extended or reduced based on a wildlife evaluation of the aerodrome vicinity. States should consider all aviation safety concerns related to land development in the vicinity of the aerodrome to minimize the attraction of wildlife … Prior planning is necessary to ensure that incompatible land use is not allowed to become established.

(b) 4.4.7 The appropriate authority should encourage prohibiting or restricting the establishment of new or existing organic waste sites near aerodromes. If a waste management site in the vicinity of an aerodrome cannot be closed, it may be necessary to provide control measures at the site to reduce its attractiveness to hazardous wildlife.

(13) All airports in Canada are required to evaluate habitats and food sources located at or near the airport, as well as land uses in the vicinity, that might attract wildlife and affect the safe operation of the airport. This includes, if needed, arrangements for assessments, studies and monitoring as part of their wildlife hazard management plan (CAR 302.306).

(14) The current Canadian Aviation Regulations (CARs) do not directly address the risks from wildlife that originate outside airport property. For certain airports, Transport Canada has enacted Airport Zoning Regulations (AZR), under the Aeronautics Act, to prohibit the lands in the vicinity of the airport from being used in a manner that is incompatible with the safe operation of an airport. These zoning regulations place restrictions on land use, and many of them include restrictions with respect to wildlife hazards.

(15) While this AC is intended to provide guidance to those airports and municipalities that fall under the regulatory responsibilities of an airport zoning regulation, Transport Canada also strongly encourages aerodromes and airports without airport zoning regulations to use the principles of this guidance to aid with managing wildlife hazards

(16) Transport Canada’s aim with this AC is to provide various provincial and municipal bodies with more information on wildlife hazards with respect to aviation to ensure that adequate consultation is taking place when potential hazardous land uses are being proposed.

(17) The key to greater safety is coordination, collaboration and integration. By working together, airport operators, property and business owners, and governments at all levels can reduce land-use wildlife hazards and improve operational safety at aerodromes throughout Canada.

4.0 Wildlife management clauses

(1) The clauses for protecting against wildlife hazards have evolved over the years. Therefore, airport zoning regulations may contain one of the following clauses related to wildlife hazards:

(a) **Disposal of waste:** No owner or occupier of any land to which these Regulations apply shall permit that land or any part of it to be used for the disposal of any waste that is edible by or attractive to birds.

Alternative wording for disposal of waste clause:

(i) No owner or occupier of any land to which these Regulations apply shall permit that land or any part of it to be used for the disposal or accumulation of any waste, material or substance edible by or attractive to birds.

(ii) No owner or occupier of any land or land under water to which these Regulations apply shall permit such land or any part thereof to be used for the disposal or accumulation thereon of any waste, material or substance edible by or attractive to birds.

(iii) No owner or lessee of land within the limits of the bird hazard zone, as described in Part VII of the schedule, shall permit any part of that land to be used for the disposal of waste that is attractive to birds.

(b) **Bird Hazard:** No owner or lessee of land within the limits of the bird hazard zone shall permit any part of that land to be used for activities or uses attracting birds that create a hazard to aviation safety.

(c) **Wildlife Hazard:** (1) A person must not use, or permit another person to use, any of the lands in respect of which these Regulations apply for activities or uses that attract wildlife — particularly birds — that may create a hazard for aviation safety.

(2) Despite subsection (1), a person may use, or permit another person to use, any of the lands in respect of which these Regulations apply as a site for an open water storage reservoir for a period of 48 hours or less.

5.0 Coordination, collaboration and integration

(1) Transport Canada recommends that airports establish a collaborative working relationship with municipalities or regional governments to share information on their wildlife hazards. This practice should be undertaken to help stakeholders understand how activities around the airport could impact airport operations and establish mutually beneficial mitigations. Transport Canada encourages stakeholders to look at how potential land uses could impact high risk species behaviour, and coordinate with airports to choose site locations that do not increase high risk activity near the airport.

(2) The responsibility of enforcing the Airport Zoning Regulations rests with Transport Canada. However, the affected airport is usually best placed to identify potential violations to Transport Canada.. Due to this, we would encourage airports and various land use authorities to create working agreements, memorandums of understandings or other collaborative procedures to assist in identifying high risk land uses and work together to find solutions that could include relocation or mitigation methods.

(3) Airport operators do not have a role in approving or denying various land use decisions by authorities. However, the airport operator should communicate possible land use violations to the land use authorities or landowners to encourage voluntary compliance with the regulations. It may be necessary for the airport operator to report possible land use violations to Transport Canada for enforcement. In order to prevent land use violations, Transport Canada recommends that a forum, committee or other form of standing communication be established to bring awareness to all stakeholders on wildlife hazards with respect to aviation. This recommendation is in line with ICAO recommended practices on local wildlife committees, found in DOC 9137.

(a) 2.6.2.1 The establishment of an Aerodrome Wildlife Committee is required to facilitate the communication, cooperation and coordination of hazardous wildlife management at and around the aerodrome.

(b) 2.6.2.4 The success in the communication and coordination from a local perspective (on and in the vicinity of the aerodrome), is reliant largely on the effective communication of the wildlife threat and recognized control measures adopted and agreed to by the local aerodrome wildlife committee.

(4) While Transport Canada understands that local land authorities may not have the proficiency in wildlife hazard management that airports are required to have, cooperative communication can allow airports to give that knowledge and understanding to the local land use authorities.

(5) Through the establishment of local committees, stakeholders may find that in many cases their goals and objectives align.

6.0 Wildlife Attractants

6.1 Waste Management Facilities

6.1.1 Definition

(1) As per the *Canadian Aviation Regulations*, a waste disposal facility means a landfill site, garbage dump, waste transfer and sorting facility, recycling and composting facility or commercial fish processing plant.

(2) Waste management facilities are not permitted in areas subject to an airport zoning regulation with the disposal of waste, bird hazard, or wildlife hazard clauses**.**

6.1.2 Rationale

(1) Landfills that accept foods liable to decay or edible waste are major attractants of hazardous birds. These have historically been the focus for airport zoning, and most of the airport zoning regulations that have clauses to protect against wildlife hazards do so through a disposal of waste clause to prevent these specific attractants. This is still the intent with the bird and wildlife hazard clauses, and waste facilities that allow wildlife access to food sources are prohibited under these clauses.

(2) Hazardous birds (like geese, gulls and birds of prey) can use the heat generated by garbage to soar in the sky without needing to expend additional energy. If a waste facility lies within an approach path, birds may drift into the line of approaching aircraft. Additionally, even if the site is not directly on an approach path, birds may move from roosting sites to these potential feeding sites over the airport, flying low and increasing the risk of becoming a hazard to aviation.

6.1.3 Recommendations

(1) Sites that can be fully enclosed, where edible waste is not available in any quantity to wildlife, may be acceptable under an airport zoning regulation. These sites must process the waste via compaction, incineration or similar matter and remove all material by fully enclosed vehicles, control odor by proper ventilation and filtration, and cannot handle or store any waste liable to decay outside or in a partially enclosed structure.

(2) It is the responsibility of the landowner to ensure that proper mitigation techniques are undertaken to prevent attractiveness, as improper mitigation can result in a violation of the regulation.

(3) Where waste management sites are not prohibited, Transport Canada recommends that landowners do site assessments to determine that proposed projects are not designed in a way that create potential high risk flyover activities for birds from a potential feeding site to an existing site to sleep.

6.2 Stormwater Management / Sewage Treatment Ponds

6.2.1 Definition

(1) A stormwater management pond is an engineered structure constructed to gather rainfall and surface water runoff. The pond temporarily stores water and then releases it at a controlled rate.

(2) A dry stormwater management pond is a detention basin that does not have a permanent pool of water in the main basin. These ponds may fill with water during heavy rain events.

(3) A wet stormwater management pond is a detention basin that maintains a permanent pool of water between storm events.

(4) Sewage lagoons are large ponds used in the treatment of sewage, where wastewater is gathered and undergoes various processes before being returned to the water system.

(5) Wet stormwater management ponds are not permitted in areas subject to an airport zoning regulation with the wildlife hazard clause.

6.2.2 Rationale

(1) Dry stormwater management ponds are of little concern because they do not provide food for aquatic species and are not regularly used by birds. Under the wildlife hazard clause, these ponds are permitted if the water drains within 48 hours.

(2) Wet stormwater management ponds have permanent water that can attract various hazardous species, including geese, ducks and gulls depending on the shoreline and adjacent habitat. These ponds are not permitted under the wildlife hazard clause.

(3) Sewage lagoons can be habitat for geese, ducks, shorebirds, gulls and swallows. In the past few decades, sewage lagoons have become important bird habitats because they offer permanent water and are often left undisturbed for long periods of time.

6.2.3 Recommendations

(1) Stormwater management and sewage treatment ponds may not constitute a violation of certain airport zoning regulations if there are adequate mitigation measures in place to deter birds from using the site. These mitigation measures may include active deterrents at the site, or design features that limit bird interactions (for example, steep walled concrete ponds with fencing fully surrounding it). Further information on various methods of mitigation for wildlife can be found in Transport Canada's Publication 11500 Wildlife Control Procedures Manual.

(2) For stormwater or sewage treatment ponds that are not restricted by airport zoning, or for ponds that may be just outside of the zoning regulation risk areas, the following recommendations are made to decrease the attractiveness to birds

- (a) Covered with wiring or other methods
- (b) Steep slopes to minimize areas of shallow water
- (c) Fencing around larger ponds
- (d) Ponds / water with a smaller surface area
- (e) Ponds / water with greater water depth
- (f) Controls of water level fluctuations to reduce exposure of wet, bare soil

6.3 Parks /Greenspace / Protected wildlife areas

6.3.1 Definition

(1) Parks and greenspace are extensive areas that may contain lawns, forested areas or other areas either designed to be used recreationally for humans or to protect or increase regional biodiversity.

(2) Fairgrounds, exhibition grounds, racetracks and golf courses are also included as park-like areas.

(3) Wildlife refuges consist of large, open, often undisturbed ecosystems to protect plants and animals across the country. Wildlife refugees are often created to protect and encourage waterfowl and other large and potentially hazardous species.

Note: In the case of protected species and critical habitat, landowners should be aware of the legislative requirements to protect certain species. Species may be protected under the Environmental and Climate Change Canada's (ECCC) Migratory Bird Convention Act and pursuant regulations, the ECCC Species at Risk Act and various provincial and territorial acts.

6.3.2 Habitat Restoration

(1) Certain agencies (federal or provincial/territorial) may undertake habitat restoration to increase the health of various ecosystems. These agencies are encouraged to consult with the airport prior to undertaking new restoration activities to help select areas for restoration that are both beneficial for the local ecosystem but take into consideration the potential increased risks to aviation.

(2) If habitat restoration efforts include the change in land use of a specific area, habitat restoration that could create wildlife attractants may result in a violation of an airport zoning regulation.

6.3.3 Rationale

(1) Parks and other green spaces usually have extensive areas with lawns and often have picnic areas and ponds that attract semi-domesticated and wild waterfowl. Sports fields and other turf grass playing fields can provide foraging habitat for large flocks of waterfowl, such as geese. Municipal parks and picnic areas also provide birds and other wildlife an ideal area for resting and loafing, which might attract them to these areas regularly.

(2) Fairgrounds, exhibition ground and racetracks can attract gulls and geese that feed on food discarded by customers, and loaf in the infield and on the extensive parking lots. The buildings and barns may attract pigeons or other small birds.

(3) Racetracks can become highly attractive nesting sites for geese as they are used more infrequently and are often located in more rural locations.

(4) Golf courses contain large expanses of short grasses that provide excellent feeding areas for geese.

6.3.4 Recommendations

(1) When contemplating park and greenspace areas, land use authorities should consider the location in relation to the airport and hazardous bird behaviours. Conversations with the airport operators may assist land use authorities in choosing an appropriate location and helping to have design features that may deter high risk species from utilizing the lands.

(2) Active dispersal methods may be required to prevent large areas of manicured grass from becoming a highly attractive site for high-risk species. Some suggested dispersal methods can be found in Transport Canada's Publication 11500 *Wildlife Control Manual*.

(3) Many golf courses already employ bird control measures, but new sites are not recommended near airport property, as they are likely to become attractive sites for high-risk species.

6.4 Agriculture

6.4.1 Definition

(1) Agricultural practices include the cultivation of fields used to grow crops, activities to process these crops, and the rearing of animals to provide food, wool or other products.

6.4.2 Rationale

(1) Agricultural fields are home to diverse crops and farming practices. Many species of bird have adapted to fit the ever-growing large scale farming operations seen around the country.

(2) Many agricultural crops provide attractive food sources. Various farming activities such as plowing and harvesting can often create abundant, easily accessed food.

(3) The risk posed by agricultural activities may be increased due to the proximity to an airport. Certain crops may be more attractive to specific high-risk species at the airport.

6.4.3 Recommendations

(1) It is difficult to generally rank crop attractiveness with respect to airport wildlife risk. Given the different hazardous species for airports, landowners are encouraged to participate in conversations with airport operators to become aware of which crops are proving the most attractive in certain regions. Airport operators may have information on stomach contents of struck or killed birds on the airport which can show the local food sources.

(2) Existing farms opting to change crops are not in violation of the regulation.

(3) Farming activities that change greatly in scale, (for example a hobby farm to a large-scale farm) and become an attractant to wildlife may find themselves in violation of the zoning regulation,

(4) While land use authorities are not responsible for choosing crops, they may be approving land use requests to increase or introduce new farming activities.

7.0 Legally Non-conforming Uses

(1) All land uses, natural growth, buildings and objects that exist on the day that an airport zoning regulation comes into force are considered legally non-conforming uses and are not subject to enforcement action.

(2) TC now requires airports to provide a list of buildings and land uses that exist when the regulation is made, as these are not subject to enforcement unless the use changes.

(3) Where land uses are legally non-conforming, modification of the use, such as a small expansion of a waste facility, may be acceptable. To determine whether enforcement action is appropriate, TC considers the purpose of the original use, then determines the following with respect to the change:

(a) Has the character of the original use of the property been altered by the change in the scale or intensity of the use? For example, a family farm which has a few pigs on the fringe of a town may continue as a legal non-conforming use, but if it sought to expand its pork operation into "factory" type intensive pig farming, this might be considered a violation of the AZR;

(b) Are the activities too different or remote from the original pre-existing use to be considered the same? For example where a custom picture-framing shop attempts to add an organic vegetable business, it might be considered a violation of the AZR.; and

(c) Are the new or modified activities closely related to the original use but creating, as compared to what occurred before, undue additional or aggravated impacts on the surrounding area? For example, the addition of a composting area to an existing recycling plant that attracts a larger number of birds.

(4) When deciding if changes in land use are legally non-conforming, in line with TC's mandate to promote and protect aviation, the department assesses the impacts, and the extent of those impacts, that the changed land use may be having on the safe operation of the airport.

(5) To determine whether a landowner may become in violation of an AZR, with regards to the wildlife hazard clause they must consider two factors: has the land changed in usage? And does this change in land use create a wildlife attractant?

(6) Should there be a change in land use, the landowner must refer to the above notes and conversations with other stakeholders to determine whether the site would be a wildlife attractant.

8.0 Information management

(1) Not applicable.

9.0 Document history

(1) Not applicable.

10.0 Contact us

For more information, please contact:
http://www.tc.gc.ca/eng/regions.htm

We invite suggestions for amendment to this document. Submit your comments to:
TC.FlightStandards-Normsvol.TC@tc.gc.ca

Original signed by

Jamie MacDermid
Director, Standards Branch
Civil Aviation