Planning and Development Services

City of Aurora

Planning Division
15151 E. Alameda Parkway, Ste. 2300
Aurora, Colorado 80012
303.739.7250

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April 23, 2020

Tim Schlichting
Prime West
7001 E. Belleview Avenue, Suite 650
Denver, CO 80237

Re: **Initial Submission Review:** High Point PA-64 Multi-Family - Site Plan and Final Plat
Application Number: DA-1746-22
Case Numbers: 2020-4009-00; 2020-3014-00

Dear Mr. Schlichting:

Thank you for your first submission, which we started to process on Monday, March 30, 2020. We reviewed it and attached our comments along with this cover letter. The review letter contains comments from all city departments and outside agencies.

Since many important issues still remain, you will need to make another submission. Please revise your previous work and send us a new submission on or before May 14, 2020.

Note that all our comments are numbered. When you resubmit, include a cover letter specifically responding to each item. The Planning Department reserves the right to reject any resubmissions that fail to address these items. If you have made any other changes to your documents other than those requested, be sure to also specifically list them in your letter.

As always, if you have any comments or concerns, please give me a call. I may be reached at 303-739-7220 or rloomis@auroragov.org.

Sincerely,

Ryan Loomis, Senior Planner
City of Aurora Planning Department

Attachments: Mile High Flood District, April 17, 2020; Xcel Energy Letter, April 16, 2020; DIA Letter w/Advisory Circular Attachment

cc: Diana Rael, Norris Design, 1101 Bannock Street, Denver, CO 80204
Ryan Loomis, Case Manager
Scott Campbell, Neighborhood Services
Cesarina Dancy, ODA
Filed: K:\$DA\1746-22rev1.rtf

Initial Submission Review

SUMMARY OF KEY COMMENTS FROM ALL DEPARTMENTS

- Modify location of Building 7 to address sidewalks and unit specific connections within the 25' special landscape buffer.
- Address parking and bicycle parking requests.
- Provide enhancements to architecture.
- Reduce use of ornamental grasses.
- Label dimensions of all sidewalks and indicate pavement materials.
- Address Real Property's comments, including errors in labeling.

PLANNING DEPARTMENT COMMENTS

1. Planning Comments (Ryan Loomis / rloomis@auroragov.org / 303-739-7220 / Comments in teal)

Redlines to Cover Sheet (Sheet 1):

1A. Please remove all AutoCAD SHX text from the Comment section of the Site Plan. Please note the next submittal will not be accepted if this is not fixed as it makes it difficult for reviewers to add comments.

1B. Please remove "01" from site plan title.

1C. Please note that the Vicinity Map needs to be revised and should be "zoomed in" to clearly show the project site location. Please also identify all adjacent roadways such as Lisbon St and 65th Ave. The vicinity map does not need to show Pena Blvd, for example.

1D. Please add signature lines for Planning and Zoning Commission and City Council in case the application needs to be reviewed by such. This is a standard requirement for all applications. Also include on the Plat Cover Sheet.

1E. Please show proper usable open space square footage. The UDO requires 20% usable open space, or 100,560.75 square feet. Please include an exhibit which shows the areas being counted towards meeting the usable open space.

1F. Continue to provide a brief summary of the number of parking spaces in the Data Block table. Below the Data Block, in a separate table, please provide a more detailed parking calculation that states the number required amount of guest parking, which is 1 space per 5 dwelling units for guest parking. Based on 365 units, this is 73 guest parking spaces. The items listed and required to show from Life & Safety can be incorporated in this table. Please also update the provided number in Letter of Introduction.

1G. Please provide breakdown of garage parking spaces, including the amounts found in attached/detached garages. It appears this information is only provided in Letter of Introduction.

1H. Indicate the appropriate handicap spaces required, which is 9 spaces required instead of 12.

1I. Note the required bicycle parking, which is 5% of required vehicle parking, or 22 bicycle parking spaces.

1J. In addition to the highlighted items above, provide the Master Plan Planning Area, building coverage, and sign data information under Project Data. The percentages for building coverage, hardscape coverage, open space coverage, and landscape coverage should also be included and should add up to 100%.

Redlines to Site Plan (Sheet 2 and 3):

1K. Please note that sidewalks and walkways to each individual unit are not permitted within the 25-foot special landscape buffer based on PROS standards. This will require shifting one building to the west to accommodate the sidewalk / walkways outside the setback.

1L. Show the typical garage dimensions.

1M. Show the number of parking spaces in each parking row by providing a circled number.

1N. Please refer to the Case Number for the Lisbon Street ISP under where they say "Lisbon Street By Others".

1O. Please show block lengths, as described below in Comment 1Q.

1P. Please provide a table showing building numbers, stories, etc. on Site Plan sheets, as mentioned in Comment 1R below.

Redlines to Downstream Utility Layout (Sheet 8)
1Q. This Sheet is a good example to show and demonstrate block length. Block lengths shall not exceed 700 feet. Please indicate dimensions for each block to centerlines of streets to ensure the project meets this requirement. Please also include on Site Plan Sheets 2 and 3.

Redlines to Hydrozone Plan (Sheet 14)
1R. The Planning comment on this Sheet is meant to be an example of an additional sheet that is being requested prior to Elevation sheets. Please include a table as shown. Please also include the example table showing building numbers, stories, etc. on Site Plan Sheets 2 and 3.

Redlines to Building Elevations (Refer to Sheets 16, Colored Elevations Sheet 1)
1S. See Comment 1R above for a new sheet being requested before Elevations.
1T. Please provide a third building elevation with the next submittal, which can be a modified or varied version of the proposed elevations. Similar colors or materials can be utilized, but it should include variation in the architectural features or placement of colors / materials. This will allow for more variety along the streetscape and to create a more urban environment, which is warranted based on the requested reduction in setback along Lisbon Street.
1U. Per Section 146.4.8.5.C, please incorporate a more defined cap on buildings as well as a defined base, as shown by examples. This is required by the draft High Point at DIA Architectural Standards as well.

1V. Please call out the building lengths for all buildings. Per Section 146.4.8.5.D, the maximum building length permitted is 200 feet. Otherwise, an Adjustment is required.
1W. Indicate scores for massing, materials, and human scale per UDO Section 146-4.8.7.D, Table 4.8-8. This scoring and table could be placed on the requested sheet mentioned in Comment 1R.
1X. Please include at least one change in setback or height of at least 3 feet along each 60 linear feet of façade, as required per Section 146-4.8.8.8.2.b. See example below:

1Y. Please note that the draft architectural standards for High Point at DIA states "building entries should be clearly articulated to show importance." The main entries on the ground floor (i.e. not the unit entries but the one where all upper floors enter) currently are not articulated. This should be improved with the next submittal. In addition, ground level entries on the elevations don't appear to show access doors but rather windows. Please see examples of how they should be shown. Porches should also be identified where applicable. Each entry needs to be accentuated by using a method showcased in Section 146-4.8.7.E, Table 4.8-9.

1Z. The rooftop mechanical equipment must be incorporated into the design of the parapet and must be screened. Please update with the next submittal.
1AA. Staff recommends incorporating a corner feature to buildings along public streets/views to enhance corners, as shown in the example below. This could also help screen mechanical equipment and provide more vertical articulation.

1BB. Staff highly recommends providing renderings of the buildings to help show aspects of the buildings that may be difficult to distinguish in a 2D drawing.
1CC. Please note that staff is more concerned with elevations fronting public streets and many of the above requests are more oriented toward those facades.

1DD. Per the draft architectural standards for High Point at DIA, “stucco shall not consume more than 40% of the façade.” The current percentages are 42% for 4-story and 51% for 3-story. Please revise to ensure compliance with the Master Plan.
1EE. Please verify that there is a minimum 20% brick on street-facing elevations per the High Point at DIA architectural standards.

Redlines to Exterior Materials Sheet
1FF. Staff requests utilizing a different color than white stucco. Based on experience from other projects in the city, white stucco tends to stain and show water marks over time.
1GG. Staff recommends providing an additional color to color palette that helps the building "pop" and provide more variety. Per the draft architectural standards for High Point at DIA, “the use of color should highlight forms and create visual appeal.” This could be a blue, red or green variety of color.

Redlines to Letter of Introduction
1HH. Please note that the letter of introduction incorrectly states that the FDP was approved in December 2019. It has not been approved yet and the letter of introduction should be updated as such.

2. Landscape Design Issues (Kelly Bish / kbish@auroragov.org / 303-739-7189 / Comments in bright teal)
Redlines to Landscape Cover Sheet (Sheet 9)
2A. Please clarify in notes if parking lots and vehicular drives are included.
2B. Remove old notes from the previous zoning code.
2C. Add information about the percentages of each tract area to overall landscape area.
2D. Please add building numbers on the plan for clarification.
2E. In the curbside landscape table, include the middle drive off of Lisbon Street.
2F. Please note no more than 40% of the curbside landscape along each street side can be ornamental grasses. Follow guidelines provided in note per redline comments.
2G. Within General Landscape Notes, please revise to remove construction related language and language regarding contractor direction.

Redlines to Schedules (Sheet 10)
2H. Please remove London Plane Tree from the list and select a tree that performs better in Aurora.

Redlines to Landscape Plan (Sheet 11 and 12)
2I. Please note no more than 40% of the curbside landscape along each street side can be ornamental grasses.
2J. Please provide a variety of shrub species as only two species are shown. Please provide a third shrub species in-lieu of grass along streets.
2K. Please use 5-gallon containers for grasses.
2L. Ensure street names are showing properly. Also expand view to show all sides of street. Also ensure notes are not cut-off, as shown on Sheet 12.
2M. Ensure plants within sight triangle are no higher than 26 feet.
2N. Please show locations of stop signs, fire hydrants and ensure street trees maintain a setback of minimum of 50 feet from stop signs.
2O. Ensure proper shrub counts in terminal islands/medians, which is 6 shrubs per 36 lineal feet.
2P. Please label carports and garages.
2Q. Please ensure trees are not placed on top of sewer lines.
2R. Provide alternative hatching in the parking area to reduce confusion with sod symbology.
2S. Please ensure all trees are labeled. Missing labels on Sheet 12.
2T. Medians shall have 1 tree per 30 linear feet. Please add two more trees as shown on Sheet 12.

Redlines to Landscape Details (Sheet 15)
2U. Include a detail for the proposed monument signage.

3. Addressing (Phil Turner / 303-739-7271 / pcturner@auroragov.org)
3A. Please submit a preliminary digital addressing .SHP or a .DWG file as soon as possible. This digital file is used for street naming, addressing and preliminary GIS analysis. Include the following layers as a minimum: (1) Parcels; (2) Street lines; and (3) Building footprints.
3B. Please ensure that the digital file is provided in a NAD 83 feet, State plane, Central Colorado projection so it will display correctly within our GIS system. Please provide a CAD file that is a 2013 CAD version. Please eliminate any line work outside of the target area. More information can be found at: http://tinyurl.com/AuroraCAD or by contacting CADGIS@auroragov.org.

4. Civil Engineering (Kristin Tanabe / 303-739-7431 / ktanabe@auroragov.org / Comments in green)
General Comments
4A. The Site Plan will not be approved by Public Works until the Preliminary Drainage Report is approved.

Redlines to Cover Sheet (Sheet 1):
4B. Please provide the requested note within General Notes section.

Redlines to Site Plan (Sheets 2 and 3):
4C. Please show and label curb ramps (typical all locations).
4D. Add a note that states that adjacent public improvements shall be completed prior to the issuance of a Certificate of Occupancy.
4E. Please provide dimensions for sidewalks.
4F. Please indicate the pavement material for the parking lot.

Redlines to Preliminary Grading Plan (Sheet 4 and 5):
4G. Please label slopes in landscape areas.
4H. Please note that offsite grading requires a letter from the property owner allowing grading on their site or a temporary easement. This should be provided with the next submittal.
4I. Add note indicating whether the storm sewer system is public or private and provide information on who will maintain it. See same note on Preliminary Utility Plan, Sheets 6 and 7.
4J. Please note that the minimum slope away from the buildings is 5% for 10-foot for landscape areas, and a minimum 2% for impervious areas.
4K. Please note that it is a maximum 4% slope for 65' when sloping down towards public street.

Plat
Redlines to Sheet 3
4L. Please note that easements shown on the Site Plan should also be identified on the Plat.

5. PROS (Michelle Teller / 303-739-7437 / mteller@auroragov.org / Comments in purple)
Key Issues:
5A. Please note that community park development fees will be required at time of building permit and will be a per unit fee of $488.62 if permits pulled in 2020.
5B. Sidewalks and unit specific connections to the park are not allowed within the 25’ special landscape buffer.
5C. Please note that clear pedestrian connections to the northern open space need to be identified.
5D. Please note that the adjacent open space to the north is required to be completed when adjacent infrastructure is completed (i.e. the surrounding roadways) per the Master Plan. As the access road on the north end of your site will likely be required to be completed with this project, the master developer shall coordinate with PROS on the design and timing of the open space to the north.

Site Plan:
Redlines to Site Plan (Sheets 2 and 3)
5E. Please label the adjacent Open Space and Neighborhood Park accordingly.
5F. Please note that safe pedestrian crossings need to be identified up to the open space. Please coordinate with PROS and Traffic Engineering.
5G. Please remove sidewalk/walkways from the 25' landscape buffer and consolidate park access points. Please also see same comments on Sheets 11 and 14.

Redlines to Downstream Utility Layout (Sheet 8)
5H. Please provide areas noted as Open Space PA-5d and Neighborhood Park PA-12a and label acreage.

6. Real Property (Maurice Brooks / 303-739-7294 / mbrooks@auroragov.org / Comments in pink)
Redlines to Cover Sheet (Sheet 1):
6A. Change Legal Description to Plat description.
6B. Please ensure correct Plat number.
6C. Revise note as stated within General Notes.

Redlines to Site Plan (Sheet 2):
6D. Provide actual street names, show right-of-way width, and provide recording information. See same note on subsequent pages.
6E. Dedicate all necessary easements by separate document and contact Andy Niquette to start the process. See same note on subsequent sheets.
6F. Add Lot 1, Block 1 and the name of the plat to each sheet.

Plat.
Redlines to Sheet 1
6G. Please provide the filing number. Please check with Adams County. This change is applicable to all sheets.
6H. Please provide Signatures on Cover Sheet instead of Sheet 2. If more room needed, move "Covenants" to the second page or reduce the size of the Vicinity Map.
6I. Please see edits needed with "Dedication" and "Legal Description" portions of Cover Sheet.
6J. Please see corrected note for "City of Aurora Approvals".
6K. Please make any other grammatical, or punctuation edits as necessary.

Redlines to Sheet 2
6L. Please provided added notes to "General Notes".

Redlines to Sheet 3
6M. Please note that the lot shown must have access to the public street right-of-way. before the plat will be approved.
6N. Please change the name to Aurora Fire Station Subdivision Filing No. 1.
6O. Please label "City of Aurora" at boundary with Denver.

7. Life Safety (Jeff Goorman / 303-739-7464 / jgoorman@auroragov.org / Comments in blue)
Redlines to Cover Sheet (Sheet 1):
7A. Please provide requested parking information in the Data Block.
7B. Please identify is buildings are sprinklered.
7C. Provide stated notes and edit Note 7 within General Notes.

Redlines to Site Plan (Sheet 2):
7D. Provide a separate sheet detail for the site plan sign package including location and sign detail.
7E. Show location of fire hydrants being installed by other along all adjacent streets.
7F. Show location of fire lane signs. Note alternating sides every 50'. TYP.
7G. Show location of accessible parking signs and concrete parking stops.
7H. Show locations of accessible parking within the detached garages.
7I. Please provide the locations of accessible ramps and show crosswalks in area where the accessible routes crosses the drive-aisle.
7J. Clarify appropriate accessible entrances and provide required accessible route demarcation.
7K. Please clarify building numbers with provided elevations. Clearly identify identical buildings using a Type designation, i.e., Type 1, Type 2, etc. with appropriate building number.
7L. Provide a dashed line between the fire lane and the pocket utility easement.
7M. Please provide 26-foot fire lane in area shown on site plan.
7N. Relocate all street lights to a position outside the fire lane easement. Provide this revision on appropriate sheets.
7O. Please show no encroachments into a fire lane.
7P. Provide mailbox kiosk detail to include accessibility.
7Q. Provide surrounding street names. Also label on appropriate sheets.

Redlines to Site Plan (Sheet 3):
7R. Provide accessible parking as shown.

Redlines to Preliminary Utility Plans (Sheet 6 and 7)
7S. Provide fire hydrants in appropriate locations as shown on plan.
7T. Ensure plan provides appropriate labeling of fire lines. Show locations of FDC and Riser Rooms in all buildings.
7U. Provide a Phasing Plan.
7V. Provide Knox boxes at appropriate locations as shown.

Redlines to Elevations (Sheet 16 and 17)
7W. Provide Knox boxes at appropriate locations as shown.
7X. Show locations of FDC and Riser Rooms in all buildings.
7Y. Provide accessible curb ramp detail.
7Z. Provide mailbox/mail kiosk accessibility detail.

Redlines to Site Photometric Plan (Sheet 18)
7AA. Provide a bold dash line to show accessible route throughout site to required entrances, site amenities, and transportation stops. A minimum 1-foot candle required along this route.

8. Aurora Water (Ryan Tigera / 303-326-8867 / rtigera@auroragov.org / Comments in red)
Redlines to Preliminary Utility Plan (Sheet 6 and 7)
8A. Please show the location of the irrigation meter with easement for common open spaces.
8B. Show the easement for sanitary sewer main if public.
8C. Please note that the 6-inch sanitary service requires a manhole for point of connection unless an 8-inch sewer main is installed with a 6-inch stub. Please coordinate with infrastructure design group for exterior utility network.
8D. Please note that the water line is to be in the center of the easement and 8-foot from curb and gutter.
8E. Please show meter pit easement. Note that the fire line needs to be located outside meter pit easement.
8F. Please note that meter pits need to be located in a landscaped area and 2 feet from any hardscape area.

Redlines to Downstream Utility Layout (Sheet 8)
8G. The sanitary sewer outfall must be constructed and accepted by Aurora Water prior to any upstream sanitary sewer infrastructure allowed to discharge in the Aurora Water sanitary sewer network.

Plat.
Redlines to Sheet 3
8H. Please clarify if utility easements will be shown on this plat.

Other
8I. The Storm Drain Development Fees are as follows: 11.50 acres x $1,242/acre = $14,283. These fees are due prior to recordation of the Subdivision Plat. Contact Melody Oestmann at 303-739-7244 or moestman@auroragov.org for more information.

9. Traffic (Brianna Medema / 303-739-7336 / bmedema@auroragov.org / Comments in gold)
9A. Please contact Brianna Medema directly for Traffic Engineering comments.

10. Xcel Energy (Donna George / 303-571-3306 / donna.l.george@xcelenergy.com)
10A. Please refer to provided letter from Donna George of Xcel Energy. Comments include:

- A request for 10-foot wide utility easements around the perimeter of the entire subdivision / Lot 1.0.
- Provide noted language or plat note on the preliminary and final plats for the subdivision.
- All utility easements need to be depicted graphically on the preliminary and final plats.
- The property owner/developer/contractor must complete the application process for any new natural gas or electric service via xcelenergy.com/InstallAndConnect. It is then the responsibility of the developer to contact the Designer assigned to the project for approval of design details.

11. Denver International Airport (Tim Hester / 303-342-2391 / tim.hester@flydenver.com)
11A. The site is found within/under the navigable airspace associated with DEN, as promulgated and regulated by the Federal Aviation Administration (FAA) under 14 CFR Part 77, Objects Affecting the Navigable Airspace. Based on Part 77 and the development site location, the proponent is required to file notice with the FAA, via the FAA Form 7460-1 process (Notice of Proposed Construction or Alteration), of any structure or temporary construction equipment (e.g., cranes) that penetrate Part 77 surfaces. The FAA website from which the need for the 7460 process can be determined ("Notice Criteria Tool") and/or the filing can be initiated is: https://oeaaa.faa.gov/oeaaa/external/portal.jsp.
11B. The proposed development falls within the DEN 10,000' Critical Space separation criteria for the final build-out of future DEN Runways. The Wildlife Biologists from USDA assigned to DEN assist in implementing DEN's Wildlife Hazard Management Plan and have requested coordination as this project progresses. USDA and DEN will provide assistance with the requirements outlined in the current version of FAA Advisory Circular 150/5200-33 (see attached). DEN also requests that the landscape plan include maintenance of trees and grasses to reduce attractants for wildlife such as raptor species, blackbirds/starlings, and geese. Fruit-producing trees and shrubs should be avoided. Water quality ponds/detention structures must be designed to meet a 40-hour drain time following a 100-year event.
11C. The multi-family development within PA-64 is in close proximity to the future 7R-25L runway at DEN. This location will be subject to overflights and single event noise exposure.

12. Mile High Flood District (David Skuodas / 303-455-6277)
12A. No comments. Please see the attached letter,

MILE HIGH FLOOD DISTRICT

2480 W. 26th Ave Suite 156-B | Denver, CO 80211
TEL 303 455 6277 | FAX 303 455 7880

www.mhfd.org

MAINTENANCE ELIGIBILITY PROGRAM (MEP)

MHFD Referral Review Comments

For Internal MHFD Use Only.	
MEP ID:	107686
Submittal ID:	10004630
MEP Phase:	Referral

Date: April 17, 2020

To: **Ryan Loomis**
Via email

RE: MHFD Referral Review Comments

Project Name:	High Point at DIA PA64
Location:	Aurora
Drainageway:	Not Applicable

This letter is in response to the request for our comments concerning the referenced project. We have reviewed this proposal only as it relates to maintenance eligibility of major drainage features, in this case:

- Not Applicable

We have the following comments to offer:

We have no comments on this project as it is not eligible for maintenance. The site is not adjacent to a major drainageway or mapped floodplain and does not include any proposed MHFD master plan improvements. We do not need to review future submittals.

We appreciate the opportunity to review this proposal. Please feel free to contact me with any questions or concerns.

Sincerely,

David Skuodas, P.E., CFM, LEED AP
Project Manager, Watershed Services
Mile High Flood District

Right of Way & Permits

1123 West 3rd Avenue
Denver, Colorado 80223
Telephone: **303.571.3306**
Facsimile: 303. 571.3284
donna.l.george@xcelenergy.com

April 16, 2020

City of Aurora Planning and Development Services
15151 E. Alameda Parkway, 2nd Floor
Aurora, CO 80012

Attn:

Re: High Point PA-64 Multi-Family, Case # DA-1746-22

Public Service Company of Colorado's (PSCo) Right of Way & Permits Referral Desk has reviewed the site plan and final subdivision plat for **High Point PA-64 Multi-Family** and request 10-foot wide utility easements around the perimeter of the entire subdivision / Lot 1.

PSCo requests that the following language or plat note is placed on the preliminary and final plats for the subdivision:

> *Utility easements are dedicated to the City of Aurora for the benefit of the applicable utility providers for the installation, maintenance, and replacement of electric, gas, television, cable, and telecommunications facilities. Utility easements shall also be granted within any access easements and private streets in the subdivision. Permanent structures, improvements, objects, buildings, wells, water meters and other objects that may interfere with the utility facilities or use thereof (Interfering Objects) shall not be permitted within said utility easements and the utility providers, as grantees, may remove any Interfering Objects at no cost to such grantees, including, without limitation, vegetation. Public Service Company of Colorado (PSCo) and its successors reserve the right to require additional easements and to require the property owner to grant PSCo an easement on its standard form.*

Public Service Company requests that all utility easements be depicted graphically on the preliminary and final plats. While these easements may accommodate certain utilities to be installed in the subdivision, some additional easements may be required as planning and building progresses.

The property owner/developer/contractor must complete the application process for any new natural gas or electric service via xcelenergy.com/InstallAndConnect. It is then the responsibility of the developer to contact the Designer assigned to the project for approval of design details.

Donna George
Right of Way and Permits
Public Service Company of Colorado dba Xcel Energy
Office: 303-571-3306 – Email: donna.l.george@xcelenergy.com

Mr. Ryan Loomis
Planning Department Case Manager
15151 E. Alameda Parkway, Ste. 2300
Aurora, Colorado 80012

Re: DA-1746-22 High Point PA-64 Multi-Family – Site Plan and Final Plat

Dear Mr. Loomis,

Denver International Airport received your referral later dated April 2, 2020 for DA-1746-22 High Point PA-64 Multi-Family – Site Plan and Final Plat. We appreciate the opportunity to comment on the proposal and DEN provides the following comments:

- The site is found within/under the navigable airspace associated with DEN, as promulgated and regulated by the Federal Aviation Administration (FAA) under 14 CFR Part 77, Objects Affecting the Navigable Airspace. Based on Part 77 and the development site location, the proponent is required to file notice with the FAA, via the FAA Form 7460-1 process (Notice of Proposed Construction or Alteration), of any structure or temporary construction equipment (e.g., cranes) that penetrate Part 77 surfaces. The FAA website from which the need for the 7460 process can be determined ("Notice Criteria Tool") and/or the filing can be initiated is: https://oeaaa.faa.gov/oeaaa/external/portal.jsp.
- The proposed development falls within the DEN 10,000' Critical Space separation criteria for the final build-out of future DEN Runways. The Wildlife Biologists from USDA assigned to DEN assist in implementing DEN's Wildlife Hazard Management Plan and have requested coordination as this project progresses. USDA and DEN will provide assistance with the requirements outlined in the current version of FAA Advisory Circular 150/5200-33 (see attached). DEN also requests that the landscape plan include maintenance of trees and grasses to reduce attractants for wildlife such as raptor species, blackbirds/starlings, and geese. Fruit-producing trees and shrubs should be avoided. Water quality ponds/detention structures must be designed to meet a 40-hour drain time following a 100 year event.
- The multi-family development within PA-64 is in close proximity to the future 7R-25L runway at DEN. This location will be subject to overflights and single event noise exposure.

DEN appreciates the opportunity to review and comment on the High Point PA-64 Multi-Family – Site Plan and Final Plat.

TIM HESTER, AICP
SENIOR AIRPORT PLANNER
Denver International Airport
Planning & Design
Airport Office Building| 7th Floor
8500 Peña Boulevard | Denver, CO 80249-6340
(303) 342-2391 | (720) 534-8750
TIM.HESTER@FLYDENVER.COM | WWW.FLYDENVER.COM
Click here to visit DEN on social media

U.S. Department
of Transportation

Federal Aviation Administration

Advisory Circular

Subject: HAZARDOUS WILDLIFE ATTRACTANTS ON OR NEAR AIRPORTS	**Date:** 8/28/2007	**AC No:** 150/5200-33B
	Initiated by: AAS-300	**Change:**

1. PURPOSE. This Advisory Circular (AC) provides guidance on certain land uses that have the potential to attract hazardous wildlife on or near public-use airports. It also discusses airport development projects (including airport construction, expansion, and renovation) affecting aircraft movement near hazardous wildlife attractants. Appendix 1 provides definitions of terms used in this AC.

2. APPLICABILITY. The Federal Aviation Administration (FAA) recommends that public-use airport operators implement the standards and practices contained in this AC. The holders of Airport Operating Certificates issued under Title 14, Code of Federal Regulations (CFR), Part 139, Certification of Airports, Subpart D (Part 139), may use the standards, practices, and recommendations contained in this AC to comply with the wildlife hazard management requirements of Part 139. Airports that have received Federal grant-in-aid assistance must use these standards. The FAA also recommends the guidance in this AC for land-use planners, operators of non-certificated airports, and developers of projects, facilities, and activities on or near airports.

3. CANCELLATION. This AC cancels AC 150/5200-33A, *Hazardous Wildlife Attractants on or near Airports*, dated July 27, 2004.

4. PRINCIPAL CHANGES. This AC contains the following major changes, which are marked with vertical bars in the margin:

a. Technical changes to paragraph references.

b. Wording on storm water detention ponds.

c. Deleted paragraph 4-3.b, *Additional Coordination.*

5. BACKGROUND. Information about the risks posed to aircraft by certain wildlife species has increased a great deal in recent years. Improved reporting, studies, documentation, and statistics clearly show that aircraft collisions with birds and other wildlife are a serious economic and public safety problem. While many species of wildlife can pose a threat to aircraft safety, they are not equally hazardous. Table 1

ranks the wildlife groups commonly involved in damaging strikes in the United States according to their relative hazard to aircraft. The ranking is based on the 47,212 records in the FAA National Wildlife Strike Database for the years 1990 through 2003. These hazard rankings, in conjunction with site-specific Wildlife Hazards Assessments (WHA), will help airport operators determine the relative abundance and use patterns of wildlife species and help focus hazardous wildlife management efforts on those species most likely to cause problems at an airport.

Most public-use airports have large tracts of open, undeveloped land that provide added margins of safety and noise mitigation. These areas can also present potential hazards to aviation if they encourage wildlife to enter an airport's approach or departure airspace or air operations area (AOA). Constructed or natural areas—such as poorly drained locations, detention/retention ponds, roosting habitats on buildings, landscaping, odor-causing rotting organic matter (putrescible waste) disposal operations, wastewater treatment plants, agricultural or aquaculture activities, surface mining, or wetlands—can provide wildlife with ideal locations for feeding, loafing, reproduction, and escape. Even small facilities, such as fast food restaurants, taxicab staging areas, rental car facilities, aircraft viewing areas, and public parks, can produce substantial attractions for hazardous wildlife.

During the past century, wildlife-aircraft strikes have resulted in the loss of hundreds of lives worldwide, as well as billions of dollars in aircraft damage. Hazardous wildlife attractants on and near airports can jeopardize future airport expansion, making proper community land-use planning essential. This AC provides airport operators and those parties with whom they cooperate with the guidance they need to assess and address potentially hazardous wildlife attractants when locating new facilities and implementing certain land-use practices on or near public-use airports.

6. MEMORANDUM OF AGREEMENT BETWEEN FEDERAL RESOURCE AGENCIES. The FAA, the U.S. Air Force, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, and the U.S. Department of Agriculture - Wildlife Services signed a Memorandum of Agreement (MOA) in July 2003 to acknowledge their respective missions in protecting aviation from wildlife hazards. Through the MOA, the agencies established procedures necessary to coordinate their missions to address more effectively existing and future environmental conditions contributing to collisions between wildlife and aircraft (wildlife strikes) throughout the United States. These efforts are intended to minimize wildlife risks to aviation and human safety while protecting the Nation’s valuable environmental resources.

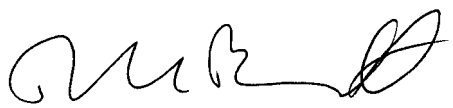

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Table 1. Ranking of 25 species groups as to relative hazard to aircraft (1=most hazardous) based on three criteria (damage, major damage, and effect-on-flight), a composite ranking based on all three rankings, and a relative hazard score. Data were derived from the FAA National Wildlife Strike Database, January 1990–April 2003.[1]

Species group	Ranking by criteria			Composite ranking[2]	Relative hazard score[3]
	Damage[4]	Major damage[5]	Effect on flight[6]		
Deer	1	1	1	1	100
Vultures	2	2	2	2	64
Geese	3	3	6	3	55
Cormorants/pelicans	4	5	3	4	54
Cranes	7	6	4	5	47
Eagles	6	9	7	6	41
Ducks	5	8	10	7	39
Osprey	8	4	8	8	39
Turkey/pheasants	9	7	11	9	33
Herons	11	14	9	10	27
Hawks (buteos)	10	12	12	11	25
Gulls	12	11	13	12	24
Rock pigeon	13	10	14	13	23
Owls	14	13	20	14	23
H. lark/s. bunting	18	15	15	15	17
Crows/ravens	15	16	16	16	16
Coyote	16	19	5	17	14
Mourning dove	17	17	17	18	14
Shorebirds	19	21	18	19	10
Blackbirds/starling	20	22	19	20	10
American kestrel	21	18	21	21	9
Meadowlarks	22	20	22	22	7
Swallows	24	23	24	23	4
Sparrows	25	24	23	24	4
Nighthawks	23	25	25	25	1

[1] Excerpted from the *Special Report for the FAA, "Ranking the Hazard Level of Wildlife Species to Civil Aviation in the USA: Update #1, July 2, 2003".* Refer to this report for additional explanations of criteria and method of ranking.

[2] Relative rank of each species group was compared with every other group for the three variables, placing the species group with the greatest hazard rank for $\geq$ 2 of the 3 variables above the next highest ranked group, then proceeding down the list.

[3] Percentage values, from Tables 3 and 4 in Footnote 1 of the *Special Report*, for the three criteria were summed and scaled down from 100, with 100 as the score for the species group with the maximum summed values and the greatest potential hazard to aircraft.

[4] Aircraft incurred at least some damage (destroyed, substantial, minor, or unknown) from strike.

[5] Aircraft incurred damage or structural failure, which adversely affected the structure strength, performance, or flight characteristics, and which would normally require major repair or replacement of the affected component, or the damage sustained makes it inadvisable to restore aircraft to airworthy condition.

[6] Aborted takeoff, engine shutdown, precautionary landing, or other.

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SECTION 1.

GENERAL SEPARATION CRITERIA FOR HAZARDOUS WILDLIFE ATTRACTANTS ON OR NEAR AIRPORTS.

1-1. INTRODUCTION. When considering proposed land uses, airport operators, local planners, and developers must take into account whether the proposed land uses, including new development projects, will increase wildlife hazards. Land-use practices that attract or sustain hazardous wildlife populations on or near airports can significantly increase the potential for wildlife strikes.

The FAA recommends the minimum separation criteria outlined below for land-use practices that attract hazardous wildlife to the vicinity of airports. Please note that FAA criteria include land uses that cause movement of hazardous wildlife onto, into, or across the airport's approach or departure airspace or air operations area (AOA). (See the discussion of the synergistic effects of surrounding land uses in Section 2-8 of this AC.)

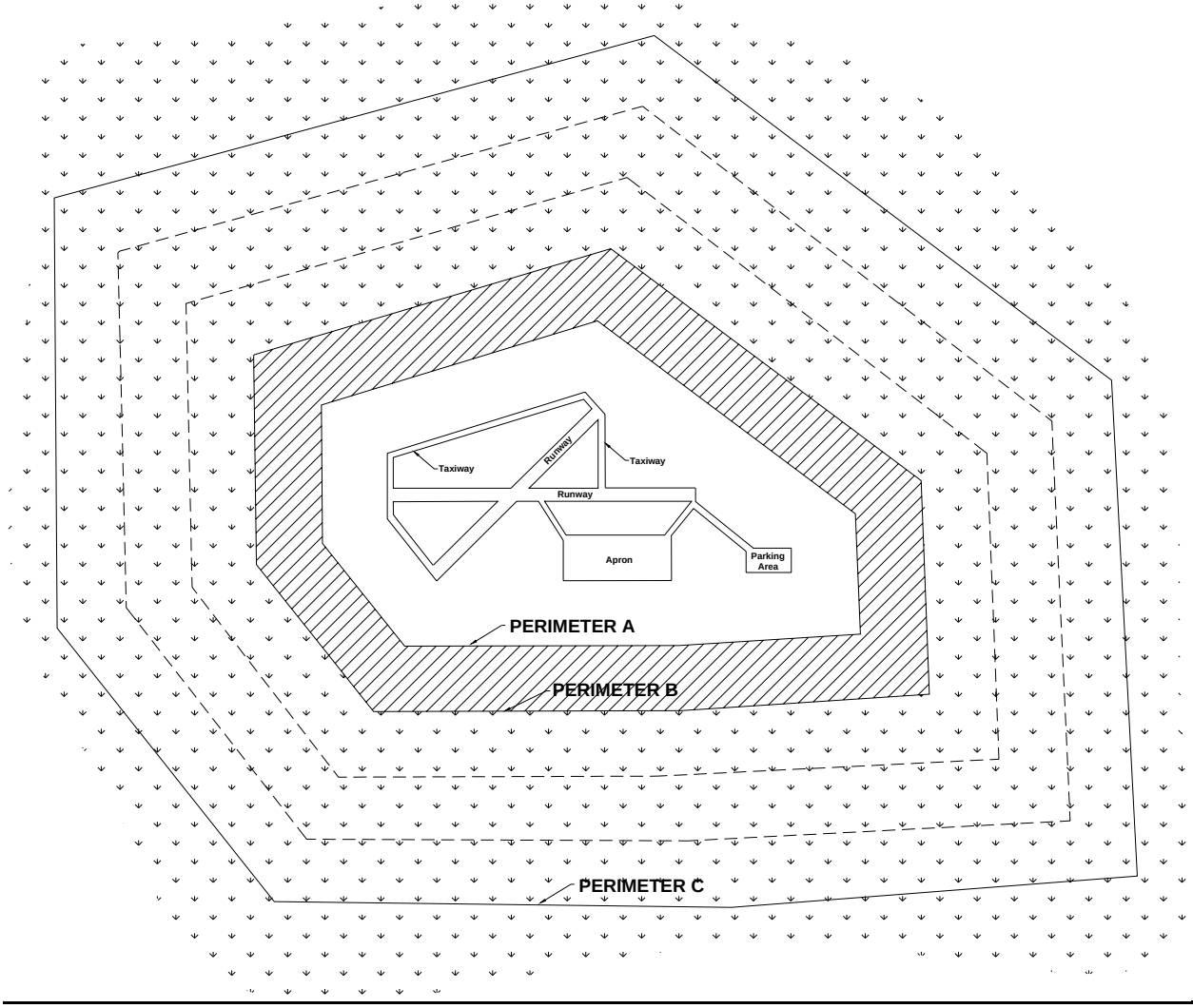
The basis for the separation criteria contained in this section can be found in existing FAA regulations. The separation distances are based on (1) flight patterns of piston-powered aircraft and turbine-powered aircraft, (2) the altitude at which most strikes happen (78 percent occur under 1,000 feet and 90 percent occur under 3,000 feet above ground level), and (3) National Transportation Safety Board (NTSB) recommendations.

1-2. AIRPORTS SERVING PISTON-POWERED AIRCRAFT. Airports that do not sell Jet-A fuel normally serve piston-powered aircraft. Notwithstanding more stringent requirements for specific land uses, the FAA recommends a separation distance of 5,000 feet at these airports for any of the hazardous wildlife attractants mentioned in Section 2 or for new airport development projects meant to accommodate aircraft movement. This distance is to be maintained between an airport's AOA and the hazardous wildlife attractant. Figure 1 depicts this separation distance measured from the nearest aircraft operations areas.

1-3. AIRPORTS SERVING TURBINE-POWERED AIRCRAFT. Airports selling Jet-A fuel normally serve turbine-powered aircraft. Notwithstanding more stringent requirements for specific land uses, the FAA recommends a separation distance of 10,000 feet at these airports for any of the hazardous wildlife attractants mentioned in Section 2 or for new airport development projects meant to accommodate aircraft movement. This distance is to be maintained between an airport's AOA and the hazardous wildlife attractant. Figure 1 depicts this separation distance from the nearest aircraft movement areas.

1-4. PROTECTION OF APPROACH, DEPARTURE, AND CIRCLING AIRSPACE. For all airports, the FAA recommends a distance of 5 statute miles between the farthest edge of the airport's AOA and the hazardous wildlife attractant if the attractant could cause hazardous wildlife movement into or across the approach or departure airspace.

Figure 1. Separation distances within which hazardous wildlife attractants should be avoided, eliminated, or mitigated.



PERIMETER A: For airports serving piston-powered aircraft, hazardous wildlife attractants must be 5,000 feet from the nearest air operations area.

PERIMETER B: For airports serving turbine-powered aircraft, hazardous wildlife attractants must be 10,000 feet from the nearest air operations area.

PERIMETER C: 5-mile range to protect approach, departure and circling airspace.

SECTION 2.

LAND-USE PRACTICES ON OR NEAR AIRPORTS THAT POTENTIALLY ATTRACT HAZARDOUS WILDLIFE.

2-1. GENERAL. The wildlife species and the size of the populations attracted to the airport environment vary considerably, depending on several factors, including land-use practices on or near the airport. This section discusses land-use practices having the potential to attract hazardous wildlife and threaten aviation safety. In addition to the specific considerations outlined below, airport operators should refer to *Wildlife Hazard Management at Airports,* prepared by FAA and U.S. Department of Agriculture (USDA) staff. (This manual is available in English, Spanish, and French. It can be viewed and downloaded free of charge from the FAA's wildlife hazard mitigation web site: http://wildlife-mitigation.tc.FAA.gov.). And, *Prevention and Control of Wildlife Damage,* compiled by the University of Nebraska Cooperative Extension Division. (This manual is available online in a periodically updated version at: ianrwww.unl.edu/wildlife/solutions/handbook/.)

2-2. WASTE DISPOSAL OPERATIONS. Municipal solid waste landfills (MSWLF) are known to attract large numbers of hazardous wildlife, particularly birds. Because of this, these operations, when located within the separations identified in the siting criteria in Sections 1-2 through 1-4, are considered incompatible with safe airport operations.

a. Siting for new municipal solid waste landfills subject to AIR 21. Section 503 of the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (Public Law 106-181) (AIR 21) prohibits the construction or establishment of a new MSWLF within 6 statute miles of certain public-use airports. Before these prohibitions apply, both the airport and the landfill must meet the very specific conditions described below. These restrictions do not apply to airports or landfills located within the state of Alaska.

The airport must (1) have received a Federal grant(s) under 49 U.S.C. § 47101, et. seq.; (2) be under control of a public agency; (3) serve some scheduled air carrier operations conducted in aircraft with less than 60 seats; and (4) have total annual enplanements consisting of at least 51 percent of scheduled air carrier enplanements conducted in aircraft with less than 60 passenger seats.

The proposed MSWLF must (1) be within 6 miles of the airport, as measured from airport property line to MSWLF property line, and (2) have started construction or establishment on or after April 5, 2001. Public Law 106-181 only limits the construction or establishment of some new MSWLF. It does not limit the expansion, either vertical or horizontal, of existing landfills.

NOTE: Consult the most recent version of AC 150/5200-34, *Construction or Establishment of Landfills Near Public Airports,* for a more detailed discussion of these restrictions.

b. Siting for new MSWLF not subject to AIR 21. If an airport and MSWLF do not meet the restrictions of Public Law 106-181, the FAA recommends against locating MSWLF within the separation distances identified in Sections 1-2 through 1-4. The separation distances should be measured from the closest point of the airport's AOA to the closest planned MSWLF cell.

c. Considerations for existing waste disposal facilities within the limits of separation criteria. The FAA recommends against airport development projects that would increase the number of aircraft operations or accommodate larger or faster aircraft near MSWLF operations located within the separations identified in Sections 1-2 through 1-4. In addition, in accordance with 40 CFR 258.10, owners or operators of existing MSWLF units that are located within the separations listed in Sections 1-2 through 1-4 must demonstrate that the unit is designed and operated so it does not pose a bird hazard to aircraft. (See Section 4-2(b) of this AC for a discussion of this demonstration requirement.)

d. Enclosed trash transfer stations. Enclosed waste-handling facilities that receive garbage behind closed doors; process it via compaction, incineration, or similar manner; and remove all residue by enclosed vehicles generally are compatible with safe airport operations, provided they are not located on airport property or within the Runway Protection Zone (RPZ). These facilities should not handle or store putrescible waste outside or in a partially enclosed structure accessible to hazardous wildlife. Trash transfer facilities that are open on one or more sides; that store uncovered quantities of municipal solid waste outside, even if only for a short time; that use semi-trailers that leak or have trash clinging to the outside; or that do not control odors by ventilation and filtration systems (odor masking is not acceptable) do not meet the FAA's definition of fully enclosed trash transfer stations. The FAA considers these facilities incompatible with safe airport operations if they are located closer than the separation distances specified in Sections 1-2 through 1-4.

e. Composting operations on or near airport property. Composting operations that accept only yard waste (e.g., leaves, lawn clippings, or branches) generally do not attract hazardous wildlife. Sewage sludge, woodchips, and similar material are not municipal solid wastes and may be used as compost bulking agents. The compost, however, must never include food or other municipal solid waste. Composting operations should not be located on airport property. Off-airport property composting operations should be located no closer than the greater of the following distances: 1,200 feet from any AOA or the distance called for by airport design requirements (see AC 150/5300-13, *Airport Design*). This spacing should prevent material, personnel, or equipment from penetrating any Object Free Area (OFA), Obstacle Free Zone (OFZ), Threshold Siting Surface (TSS), or Clearway. Airport operators should monitor composting operations located in proximity to the airport to ensure that steam or thermal rise does not adversely affect air traffic. On-airport disposal of compost by-products should not be conducted for the reasons stated in 2-3f.

f. Underwater waste discharges. The FAA recommends against the underwater discharge of any food waste (e.g., fish processing offal) within the separations identified in Sections 1-2 through 1-4 because it could attract scavenging hazardous wildlife.

g. 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 and are acceptable.

h. Construction and demolition (C&D) debris facilities. C&D landfills do not generally attract hazardous wildlife and are acceptable if maintained in an orderly manner, admit no putrescible waste, and are not co-located with other waste disposal operations. However, C&D landfills have similar visual and operational characteristics to putrescible waste disposal sites. When co-located with putrescible waste disposal operations, C&D landfills are more likely to attract hazardous wildlife because of the similarities between these disposal facilities. Therefore, a C&D landfill co-located with another waste disposal operation should be located outside of the separations identified in Sections 1-2 through 1-4.

i. Fly ash disposal. The incinerated residue from resource recovery power/heat-generating facilities that are fired by municipal solid waste, coal, or wood is generally not a wildlife attractant because it no longer contains putrescible matter. Landfills accepting only fly ash are generally not considered to be wildlife attractants and are acceptable as long as they are maintained in an orderly manner, admit no putrescible waste of any kind, and are not co-located with other disposal operations that attract hazardous wildlife.

Since varying degrees of waste consumption are associated with general incineration (not resource recovery power/heat-generating facilities), the FAA considers the ash from general incinerators a regular waste disposal by-product and, therefore, a hazardous wildlife attractant if disposed of within the separation criteria outlined in Sections 1-2 through 1-4.

2-3. WATER MANAGEMENT FACILITIES. Drinking water intake and treatment facilities, storm water and wastewater treatment facilities, associated retention and settling ponds, ponds built for recreational use, and ponds that result from mining activities often attract large numbers of potentially hazardous wildlife. To prevent wildlife hazards, land-use developers and airport operators may need to develop management plans, in compliance with local and state regulations, to support the operation of storm water management facilities on or near all public-use airports to ensure a safe airport environment.

a. Existing storm water management facilities. On-airport storm water management facilities allow the quick removal of surface water, including discharges related to aircraft deicing, from impervious surfaces, such as pavement and terminal/hangar building roofs. Existing on-airport detention ponds collect storm water, protect water quality, and control runoff. Because they slowly release water

after storms, they create standing bodies of water that can attract hazardous wildlife. Where the airport has developed a Wildlife Hazard Management Plan (WHMP) in accordance with Part 139, the FAA requires immediate correction of any wildlife hazards arising from existing storm water facilities located on or near airports, using appropriate wildlife hazard mitigation techniques. Airport operators should develop measures to minimize hazardous wildlife attraction in consultation with a wildlife damage management biologist.

Where possible, airport operators should modify storm water detention ponds to allow a maximum 48-hour detention period for the design storm. The FAA recommends that airport operators avoid or remove retention ponds and detention ponds featuring dead storage to eliminate standing water. Detention basins should remain totally dry between rainfalls. Where constant flow of water is anticipated through the basin, or where any portion of the basin bottom may remain wet, the detention facility should include a concrete or paved pad and/or ditch/swale in the bottom to prevent vegetation that may provide nesting habitat.

When it is not possible to drain a large detention pond completely, airport operators may use physical barriers, such as bird balls, wires grids, pillows, or netting, to deter birds and other hazardous wildlife. When physical barriers are used, airport operators must evaluate their use and ensure they will not adversely affect water rescue. Before installing any physical barriers over detention ponds on Part 139 airports, airport operators must get approval from the appropriate FAA Regional Airports Division Office.

The FAA recommends that airport operators encourage off-airport storm water treatment facility operators to incorporate appropriate wildlife hazard mitigation techniques into storm water treatment facility operating practices when their facility is located within the separation criteria specified in Sections 1-2 through 1-4.

b. New storm water management facilities. The FAA strongly recommends that off-airport storm water management systems located within the separations identified in Sections 1-2 through 1-4 be designed and operated so as not to create above-ground standing water. Stormwater detention ponds should be designed, engineered, constructed, and maintained for a maximum 48–hour detention period after the design storm and remain completely dry between storms. To facilitate the control of hazardous wildlife, the FAA recommends the use of steep-sided, rip-rap lined, narrow, linearly shaped water detention basins. When it is not possible to place these ponds away from an airport's AOA, airport operators should use physical barriers, such as bird balls, wires grids, pillows, or netting, to prevent access of hazardous wildlife to open water and minimize aircraft-wildlife interactions. When physical barriers are used, airport operators must evaluate their use and ensure they will not adversely affect water rescue. Before installing any physical barriers over detention ponds on Part 139 airports, airport operators must get approval from the appropriate FAA Regional Airports Division Office. All vegetation in or around detention basins that provide food or cover for hazardous wildlife should be eliminated. If soil conditions and other requirements allow, the 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.

c. Existing wastewater treatment facilities. The FAA strongly recommends that airport operators immediately correct any wildlife hazards arising from existing wastewater treatment facilities located on or near the airport. Where required, a WHMP developed in accordance with Part 139 will outline appropriate wildlife hazard mitigation techniques. Accordingly, airport operators should encourage wastewater treatment facility operators to incorporate measures, developed in consultation with a wildlife damage management biologist, to minimize hazardous wildlife attractants. Airport operators should also encourage those wastewater treatment facility operators to incorporate these mitigation techniques into their standard operating practices. In addition, airport operators should consider the existence of wastewater treatment facilities when evaluating proposed sites for new airport development projects and avoid such sites when practicable.

d. New wastewater treatment facilities. The FAA strongly recommends against the construction of new wastewater treatment facilities or associated settling ponds within the separations identified in Sections 1-2 through 1-4. Appendix 1 defines wastewater treatment facility as “any devices and/or systems used to store, treat, recycle, or reclaim municipal sewage or liquid industrial wastes.” The definition includes any pretreatment involving the reduction of the amount of pollutants or the elimination of pollutants prior to introducing such pollutants into a publicly owned treatment works (wastewater treatment facility). During the site-location analysis for wastewater treatment facilities, developers should consider the potential to attract hazardous wildlife if an airport is in the vicinity of the proposed site, and airport operators should voice their opposition to such facilities if they are in proximity to the airport.

e. Artificial marshes. In warmer climates, wastewater treatment facilities sometimes employ 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. The FAA strongly recommends against establishing artificial marshes within the separations identified in Sections 1-2 through 1-4.

f. Wastewater discharge and sludge disposal. The FAA recommends against the discharge of wastewater or sludge on airport property because it may improve soil moisture and quality on unpaved areas and lead to improved turf growth that can be an attractive food source for many species of animals. Also, the turf requires more frequent mowing, which in turn may mutilate or flush insects or small animals and produce straw, both of which can attract hazardous wildlife. 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.

2-4. WETLANDS. Wetlands provide a variety of functions and can be regulated by local, state, and Federal laws. Normally, wetlands are attractive to many types of wildlife, including many which rank high on the list of hazardous wildlife species (Table 1).

NOTE: If questions exist as to whether an area qualifies as a wetland, contact the local division of the U.S. Army Corps of Engineers, the Natural Resources Conservation Service, or a wetland consultant qualified to delineate wetlands.

a. Existing wetlands on or near airport property. If wetlands are located on or near airport property, airport operators should be alert to any wildlife use or habitat changes in these areas that could affect safe aircraft operations. At public-use airports, the FAA recommends immediately correcting, in cooperation with local, state, and Federal regulatory agencies, any wildlife hazards arising from existing wetlands located on or near airports. Where required, a WHMP will outline appropriate wildlife hazard mitigation techniques. Accordingly, airport operators should develop measures to minimize hazardous wildlife attraction in consultation with a wildlife damage management biologist.

b. New airport development. Whenever possible, the FAA recommends locating new airports using the separations from wetlands identified in Sections 1-2 through 1-4. Where alternative sites are not practicable, or when airport operators are expanding an existing airport into or near wetlands, a wildlife damage management biologist, in consultation with the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, and the state wildlife management agency should evaluate the wildlife hazards and prepare a WHMP that indicates methods of minimizing the hazards.

c. Mitigation for wetland impacts from airport projects. Wetland mitigation may be necessary when unavoidable wetland disturbances result from new airport development projects or projects required to correct wildlife hazards from wetlands. Wetland mitigation must be designed so it does not create a wildlife hazard. The FAA recommends that wetland mitigation projects that may attract hazardous wildlife be sited outside of the separations identified in Sections 1-2 through 1-4.

(1) Onsite mitigation of wetland functions. The FAA may consider exceptions to locating mitigation activities outside the separations identified in Sections 1-2 through 1-4 if the affected wetlands provide unique ecological functions, such as critical habitat for threatened or endangered species or ground water recharge, which cannot be replicated when moved to a different location. Using existing airport property is sometimes the only feasible way to achieve the mitigation ratios mandated in regulatory orders and/or settlement agreements with the resource agencies. Conservation easements are an additional means of providing mitigation for project impacts. Typically the airport operator continues to own the property, and an easement is created stipulating that the property will be maintained as habitat for state or Federally listed species.

Mitigation must not inhibit the airport operator's ability to effectively control hazardous wildlife on or near the mitigation site or effectively maintain other aspects of safe airport operations. Enhancing such mitigation areas to attract hazardous wildlife must be avoided. The FAA will review any onsite mitigation proposals to determine compatibility with safe airport operations. A wildlife damage management biologist should evaluate any wetland mitigation projects that are needed to protect unique wetland functions and that must be located in the separation criteria in Sections 1-2 through 1-4 before the mitigation is implemented. A WHMP should be developed to reduce the wildlife hazards.

(2) Offsite mitigation of wetland functions. The FAA recommends that wetland mitigation projects that may attract hazardous wildlife be sited outside of the separations identified in Sections 1-2 through 1-4 unless they provide unique functions that must remain onsite (see 2-4c(1)). Agencies that regulate impacts to or around wetlands recognize that it may be necessary to split wetland functions in mitigation schemes. Therefore, regulatory agencies may, under certain circumstances, allow portions of mitigation to take place in different locations.

(3) Mitigation banking. Wetland mitigation banking is the creation or restoration of wetlands in order to provide mitigation credits that can be used to offset permitted wetland losses. Mitigation banking benefits wetland resources by providing advance replacement for permitted wetland losses; consolidating small projects into larger, better-designed and managed units; and encouraging integration of wetland mitigation projects with watershed planning. This last benefit is most helpful for airport projects, as wetland impacts mitigated outside of the separations identified in Sections 1-2 through 1-4 can still be located within the same watershed. Wetland mitigation banks meeting the separation criteria offer an ecologically sound approach to mitigation in these situations. Airport operators should work with local watershed management agencies or organizations to develop mitigation banking for wetland impacts on airport property.

2-5. DREDGE SPOIL CONTAINMENT AREAS. The FAA recommends against locating dredge spoil containment areas (also known as Confined Disposal Facilities) within the separations identified in Sections 1-2 through 1-4 if the containment area or the spoils contain material that would attract hazardous wildlife.

2-6. AGRICULTURAL ACTIVITIES. Because most, if not all, agricultural crops can attract hazardous wildlife during some phase of production, the FAA recommends against the used of airport property for agricultural production, including hay crops, within the separations identified in Sections 1-2 through 1-4. . If the airport has no financial alternative to agricultural crops to produce income necessary to maintain the viability of the airport, then the airport shall follow the crop distance guidelines listed in the table titled "Minimum Distances between Certain Airport Features and Any On-Airport Agricultural Crops" found in AC 150/5300-13, *Airport Design*, Appendix 17. The cost of wildlife control and potential accidents should be weighed against the income produced by the on-airport crops when deciding whether to allow crops on the airport.

a. Livestock production. Confined livestock operations (i.e., feedlots, dairy operations, hog or chicken production facilities, or egg laying operations) often attract flocking birds, such as starlings, that pose a hazard to aviation. Therefore, The FAA recommends against such facilities within the separations identified in Sections 1-2 through 1-4. Any livestock operation within these separations should have a program developed to reduce the attractiveness of the site to species that are hazardous to aviation safety. Free-ranging livestock must not be grazed on airport property because the animals may wander onto the AOA. Furthermore, livestock feed, water, and manure may attract birds.

b. Aquaculture. Aquaculture activities (i.e. catfish or trout production) conducted outside of fully enclosed buildings are inherently attractive to a wide variety of birds. Existing aquaculture facilities/activities within the separations listed in Sections 1-2 through 1-4 must have a program developed to reduce the attractiveness of the sites to species that are hazardous to aviation safety. Airport operators should also oppose the establishment of new aquaculture facilities/activities within the separations listed in Sections 1-2 through 1-4.

c. Alternative uses of agricultural land. Some airports are surrounded by vast areas of farmed land within the distances specified in Sections 1-2 through 1-4. Seasonal uses of agricultural land for activities such as hunting can create a hazardous wildlife situation. In some areas, farmers will rent their land for hunting purposes. Rice farmers, for example, flood their land during waterfowl hunting season and obtain additional revenue by renting out duck blinds. The duck hunters then use decoys and call in hundreds, if not thousands, of birds, creating a tremendous threat to aircraft safety. A wildlife damage management biologist should review, in coordination with local farmers and producers, these types of seasonal land uses and incorporate them into the WHMP.

2-7. GOLF COURSES, LANDSCAPING AND OTHER LAND-USE CONSIDERATIONS.

a. Golf courses. The large grassy areas and open water found on most golf courses are attractive to hazardous wildlife, particularly Canada geese and some species of gulls. These species can pose a threat to aviation safety. The FAA recommends against construction of new golf courses within the separations identified in Sections 1-2 through 1-4. Existing golf courses located within these separations must develop a program to reduce the attractiveness of the sites to species that are hazardous to aviation safety. Airport operators should ensure these golf courses are monitored on a continuing basis for the presence of hazardous wildlife. If hazardous wildlife is detected, corrective actions should be immediately implemented.

b. Landscaping and landscape maintenance. Depending on its geographic location, landscaping can attract hazardous wildlife. The FAA recommends that airport operators approach landscaping with caution and confine it to airport areas not associated with aircraft movements. A wildlife damage management biologist should review all landscaping plans. Airport operators should also monitor all landscaped areas on a continuing basis for the presence of hazardous wildlife. If

hazardous wildlife is detected, corrective actions should be immediately implemented.

Turf grass areas can be highly attractive to a variety of hazardous wildlife species. Research conducted by the USDA Wildlife Services' National Wildlife Research Center has shown that no one grass management regime will deter all species of hazardous wildlife in all situations. In cooperation with wildlife damage management biologist, airport operators should develop airport turf grass management plans on a prescription basis, depending on the airport's geographic locations and the type of hazardous wildlife likely to frequent the airport

Airport operators should ensure that plant varieties attractive to hazardous wildlife are not used on the airport. Disturbed areas or areas in need of re-vegetating should not be planted with seed mixtures containing millet or any other large-seed producing grass. For airport property already planted with seed mixtures containing millet, rye grass, or other large-seed producing grasses, the FAA recommends disking, plowing, or another suitable agricultural practice to prevent plant maturation and seed head production. Plantings should follow the specific recommendations for grass management and seed and plant selection made by the State University Cooperative Extension Service, the local office of Wildlife Services, or a qualified wildlife damage management biologist. Airport operators should also consider developing and implementing a preferred/prohibited plant species list, reviewed by a wildlife damage management biologist, which has been designed for the geographic location to reduce the attractiveness to hazardous wildlife for landscaping airport property.

c. Airports surrounded by wildlife habitat. The FAA recommends that operators of airports surrounded by woodlands, water, or wetlands refer to Section 2.4 of this AC. Operators of such airports should provide for a Wildlife Hazard Assessment (WHA) conducted by a wildlife damage management biologist. This WHA is the first step in preparing a WHMP, where required.

d. Other hazardous wildlife attractants. Other specific land uses or activities (e.g., sport or commercial fishing, shellfish harvesting, etc.), perhaps unique to certain regions of the country, have the potential to attract hazardous wildlife. Regardless of the source of the attraction, when hazardous wildlife is noted on a public-use airport, airport operators must take prompt remedial action(s) to protect aviation safety.

2-8. SYNERGISTIC EFFECTS OF SURROUNDING LAND USES. There may be circumstances where two (or more) different land uses that would not, by themselves, be considered hazardous wildlife attractants or that are located outside of the separations identified in Sections 1-2 through 1-4 that are in such an alignment with the airport as to create a wildlife corridor directly through the airport and/or surrounding airspace. An example of this situation may involve a lake located outside of the separation criteria on the east side of an airport and a large hayfield on the west side of an airport, land uses that together could create a flyway for Canada geese directly across the airspace of the airport. There are numerous examples of such situations;

therefore, airport operators and the wildlife damage management biologist must consider the entire surrounding landscape and community when developing the WHMP.

SECTION 3.

PROCEDURES FOR WILDLIFE HAZARD MANAGEMENT BY OPERATORS OF PUBLIC-USE AIRPORTS.

3.1. INTRODUCTION. In recognition of the increased risk of serious aircraft damage or the loss of human life that can result from a wildlife strike, the FAA may require the development of a Wildlife Hazard Management Plan (WHMP) when specific triggering events occur on or near the airport. Part 139.337 discusses the specific events that trigger a Wildlife Hazard Assessment (WHA) and the specific issues that a WHMP must address for FAA approval and inclusion in an Airport Certification Manual.

3.2. COORDINATION WITH USDA WILDLIFE SERVICES OR OTHER QUALIFIED WILDLIFE DAMAGE MANAGEMENT BIOLOGISTS. The FAA will use the Wildlife Hazard Assessment (WHA) conducted in accordance with Part 139 to determine if the airport needs a WHMP. Therefore, persons having the education, training, and expertise necessary to assess wildlife hazards must conduct the WHA. The airport operator may look to Wildlife Services or to qualified private consultants to conduct the WHA. When the services of a wildlife damage management biologist are required, the FAA recommends that land-use developers or airport operators contact a consultant specializing in wildlife damage management or the appropriate state director of Wildlife Services.

NOTE: Telephone numbers for the respective USDA Wildlife Services state offices can be obtained by contacting USDA Wildlife Services Operational Support Staff, 4700 River Road, Unit 87, Riverdale, MD, 20737-1234, Telephone (301) 734-7921, Fax (301) 734-5157 *(http://www.aphis.usda.gov/ws/)*.

3-3. WILDLIFE HAZARD MANAGEMENT AT AIRPORTS: A MANUAL FOR AIRPORT PERSONNEL. This manual, prepared by FAA and USDA Wildlife Services staff, contains a compilation of information to assist airport personnel in the development, implementation, and evaluation of WHMPs at airports. The manual includes specific information on the nature of wildlife strikes, legal authority, regulations, wildlife management techniques, WHAs, WHMPs, and sources of help and information. The manual is available in three languages: English, Spanish, and French. It can be viewed and downloaded free of charge from the FAA's wildlife hazard mitigation web site: http://wildlife-mitigation.tc.FAA.gov/. This manual only provides a starting point for addressing wildlife hazard issues at airports. Hazardous wildlife management is a complex discipline and conditions vary widely across the United States. Therefore, qualified wildlife damage management biologists must direct the development of a WHMP and the implementation of management actions by airport personnel.

There are many other resources complementary to this manual for use in developing and implementing WHMPs. Several are listed in the manual's bibliography.

3-4. WILDLIFE HAZARD ASSESSMENTS, TITLE 14, CODE OF FEDERAL REGULATIONS, PART 139. Part 139.337(b) requires airport operators to conduct a Wildlife Hazard Assessment (WHA) when certain events occur on or near the airport.

Part 139.337 (c) provides specific guidance as to what facts must be addressed in a WHA.

3-5. WILDLIFE HAZARD MANAGEMENT PLAN (WHMP). The FAA will consider the results of the WHA, along with the aeronautical activity at the airport and the views of the airport operator and airport users, in determining whether a formal WHMP is needed, in accordance with Part 139.337. If the FAA determines that a WHMP is needed, the airport operator must formulate and implement a WHMP, using the WHA as the basis for the plan.

The goal of an airport's Wildlife Hazard Management Plan is to minimize the risk to aviation safety, airport structures or equipment, or human health posed by populations of hazardous wildlife on and around the airport.

The WHMP must identify hazardous wildlife attractants on or near the airport and the appropriate wildlife damage management techniques to minimize the wildlife hazard. It must also prioritize the management measures.

3-6. LOCAL COORDINATION. The establishment of a Wildlife Hazards Working Group (WHWG) will facilitate the communication, cooperation, and coordination of the airport and its surrounding community necessary to ensure the effectiveness of the WHMP. The cooperation of the airport community is also necessary when new projects are considered. Whether on or off the airport, the input from all involved parties must be considered when a potentially hazardous wildlife attractant is being proposed. Airport operators should also incorporate public education activities with the local coordination efforts because some activities in the vicinity of your airport, while harmless under normal leisure conditions, can attract wildlife and present a danger to aircraft. For example, if public trails are planned near wetlands or in parks adjoining airport property, the public should know that feeding birds and other wildlife in the area may pose a risk to aircraft.

Airport operators should work with local and regional planning and zoning boards so as to be aware of proposed land-use changes, or modification of existing land uses, that could create hazardous wildlife attractants within the separations identified in Sections 1-2 through 1-4. Pay particular attention 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. At the very least, airport operators must ensure they are on the notification list of the local planning board or equivalent review entity for all communities located within 5 miles of the airport, so they will receive notification of any proposed project and have the opportunity to review it for attractiveness to hazardous wildlife.

3-7 COORDINATION/NOTIFICATION OF AIRMEN OF WILDLIFE HAZARDS. If an existing land-use practice creates a wildlife hazard and the land-use practice or wildlife hazard cannot be immediately eliminated, airport operators must 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.

SECTION 4.

FAA NOTIFICATION AND REVIEW OF PROPOSED LAND-USE PRACTICE CHANGES IN THE VICINITY OF PUBLIC-USE AIRPORTS

4-1. FAA REVIEW OF PROPOSED LAND-USE PRACTICE CHANGES IN THE VICINITY OF PUBLIC-USE AIRPORTS.

a. The FAA discourages the development of waste disposal and other facilities, discussed in Section 2, located within the 5,000/10,000-foot criteria specified in Sections 1-2 through 1-4.

b. For projects that are located outside the 5,000/10,000-foot criteria but within 5 statute miles of the airport's AOA, the 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. The FAA considers sensitive airport areas as those that lie under or next to approach or departure airspace. This brief examination should indicate if further investigation is warranted.

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

4-2. WASTE MANAGEMENT FACILITIES.

a. Notification of new/expanded project proposal. Section 503 of the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (Public Law 106-181) limits the construction or establishment of new MSWLF within 6 statute miles of certain public-use airports, when both the airport and the landfill meet very specific conditions. See Section 2-2 of this AC and AC 150/5200-34 for a more detailed discussion of these restrictions.

The Environmental Protection Agency (EPA) requires any MSWLF 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 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. (See 4-2.b below.)

When new or expanded MSWLF are being proposed near airports, MSWLF operators must notify the airport operator and the FAA of the proposal as early as possible pursuant to 40 CFR 258.

b. Waste handling facilities within separations identified in Sections 1-2 through 1-4. To claim successfully that a waste-handling facility sited within the separations identified in Sections 1-2 through 1-4 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 2-2.d. The FAA strongly recommends against any facility other than that as outlined in 2-2.d (enclosed transfer stations). The FAA will use this information to determine if the facility will be a hazard to aviation.

c. 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, no such facility has been able to demonstrate an ability to reduce and sustain hazardous wildlife to levels that existed before the putrescible-waste landfill began operating. For this reason, demonstrations of experimental wildlife control measures may not be conducted within the separation identified in Sections 1-2 through 1-4.

4-3. OTHER LAND-USE PRACTICE CHANGES. As a matter of policy, the FAA encourages operators of public-use airports who become aware of proposed land use practice changes that may attract hazardous wildlife within 5 statute miles of their airports to promptly notify the FAA. The FAA also encourages proponents of such land use changes to notify the FAA as early in the planning process as possible. Advanced notice affords the FAA an opportunity (1) to evaluate the effect of a particular land-use change on aviation safety and (2) to support efforts by the airport sponsor to restrict the use of land next to or near the airport to uses that are compatible with the airport.

The airport operator, project proponent, or land-use operator may use FAA Form 7460-1, *Notice of Proposed Construction or Alteration*, or other suitable documents similar to FAA Form 7460-1 to notify the appropriate FAA Regional Airports Division Office. Project proponents can contact the appropriate FAA Regional Airports Division Office for assistance with the notification process.

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.

a. Airports that have received Federal grant-in-aid assistance. Airports that have received Federal grant-in-aid assistance are required by their grant assurances to take appropriate actions to restrict the use of land next to or near the airport to uses that are compatible with normal airport operations. The FAA recommends that airport operators to the extent practicable oppose off-airport land-use changes or practices within the separations identified in Sections 1-2 through 1-4 that may attract hazardous wildlife. Failure to do so may lead to noncompliance with applicable grant assurances. The FAA will not approve the placement of airport

development projects pertaining to aircraft movement in the vicinity of hazardous wildlife attractants without appropriate mitigating measures. Increasing the intensity of wildlife control efforts is not a substitute for eliminating or reducing a proposed wildlife hazard. Airport operators should identify hazardous wildlife attractants and any associated wildlife hazards during any planning process for new airport development projects.

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

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

    1. **Air operations area.** Any area of an airport used or intended to be used for landing, takeoff, or surface maneuvering of aircraft. An air operations area includes such paved areas or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiways, or apron.

    2. **Airport operator.** The operator (private or public) or sponsor of a public-use airport.

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

    4. **Bird balls.** High-density plastic floating balls that can be used to cover ponds and prevent birds from using the sites.

    5. **Certificate holder.** The holder of an Airport Operating Certificate issued under Title 14, Code of Federal Regulations, Part 139.

    6. **Construct a new MSWLF.** To begin to excavate, grade land, or raise structures to prepare a municipal solid waste landfill as permitted by the appropriate regulatory or permitting agency.

    7. **Detention ponds.** Storm water management ponds that hold storm water for short periods of time, a few hours to a few days.

    8. **Establish a new MSWLF.** When the first load of putrescible waste is received on-site for placement in a prepared municipal solid waste landfill.

    9. **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.

    10. **General aviation aircraft.** Any civil aviation aircraft not operating under 14 CFR Part 119, Certification: Air Carriers and Commercial Operators.

    11. **Hazardous wildlife.** Species of wildlife (birds, mammals, reptiles), including feral animals and domesticated animals not under control, that are associated with aircraft strike problems, are capable of causing structural damage to airport facilities, or act as attractants to other wildlife that pose a strike hazard

    12. **Municipal Solid Waste Landfill (MSWLF).** A publicly or privately owned discrete area of land or an excavation that receives household waste and that is not a land application unit, surface impoundment, injection well, or waste pile, as those terms are defined under 40 CFR § 257.2. An MSWLF may receive

other types wastes, such as commercial solid waste, non-hazardous sludge, small-quantity generator waste, and industrial solid waste, as defined under 40 CFR § 258.2. An MSWLF can consist of either a stand alone unit or several cells that receive household waste.

13. **New MSWLF.** A municipal solid waste landfill that was established or constructed after April 5, 2001.

14. **Piston-powered aircraft.** Fixed-wing aircraft powered by piston engines.

15. **Piston-use airport.** Any airport that does not sell Jet-A fuel for fixed-wing turbine-powered aircraft, and primarily serves 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.

16. **Public agency.** A State or political subdivision of a State, a tax-supported organization, or an Indian tribe or pueblo (49 U.S.C. § 47102(19)).

17. **Public airport.** An airport used or intended to be used for public purposes that is under the control of a public agency; and of which the area used or intended to be used for landing, taking off, or surface maneuvering of aircraft is publicly owned (49 U.S.C. § 47102(20)).

18. **Public-use airport.** An airport used or intended to be used for public purposes, and of which the area used or intended to be used for landing, taking off, or surface maneuvering of aircraft may be under the control of a public agency or privately owned and used for public purposes (49 U.S.C. § 47102(21)).

19. **Putrescible waste.** Solid waste that contains organic matter capable of being decomposed by micro-organisms and of such a character and proportion as to be capable of attracting or providing food for birds (40 CFR §257.3-8).

20. **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.

21. **Retention ponds.** Storm water management ponds that hold water for several months.

22. **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 airport design, aircraft, type of operation, and visibility minimum.

23. **Scheduled air carrier operation.** Any common carriage passenger-carrying operation for compensation or hire conducted by an air carrier or commercial

operator for which the air carrier, commercial operator, or their representative offers in advance the departure location, departure time, and arrival location. It does not include any operation that is conducted as a supplemental operation under 14 CFR Part 119 or as a public charter operation under 14 CFR Part 380 (14 CFR § 119.3).

24. **Sewage sludge.** Any solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screenings generated during preliminary treatment of domestic sewage in a treatment works. (40 CFR 257.2)

25. **Sludge.** Any solid, semi-solid, or liquid waste generated form a municipal, commercial or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility or any other such waste having similar characteristics and effect. (40 CFR 257.2)

26. **Solid waste.** Any garbage, refuse, sludge, from a waste treatment plant, water supply treatment plant or air pollution control facility and other discarded material, including, solid liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved materials in domestic sewage, or solid or dissolved material in irrigation return flows or industrial discharges which are point sources subject to permits under section 402 of the Federal Water Pollution Control Act, as amended (86 Stat. 880), or source, special nuclear, or by product material as defined by the Atomic Energy Act of 1954, as amended, (68 Stat. 923). (40 CFR 257.2)

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

28. **Turbine-use airport.** Any airport that sells Jet-A fuel for fixed-wing turbine-powered aircraft.

29. **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 CFR Section 403.3 (q), (r), & (s)).

30. Wildlife. Any wild animal, including without limitation any wild mammal, bird, reptile, fish, amphibian, mollusk, crustacean, arthropod, coelenterate, or other invertebrate, including any part, product, egg, or offspring thereof (50 CFR 10.12, *Taking, Possession, Transportation, Sale, Purchase, Barter, Exportation, and Importation of Wildlife and Plants*). As used in this AC, wildlife includes feral animals and domestic animals out of the control of their owners (14 CFR Part 139, Certification of Airports).

31. 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 or the airport's AOA. These attractants can include architectural features, landscaping, waste disposal sites, wastewater treatment facilities, agricultural or aquaculture activities, surface mining, or wetlands.

32. Wildlife hazard. A potential for a damaging aircraft collision with wildlife on or near an airport.

33. Wildlife strike. A wildlife strike is deemed to have occurred when:

a. A pilot reports striking 1 or more birds or other wildlife;

b. Aircraft maintenance personnel identify aircraft damage as having been caused by a wildlife strike;

c. Personnel on the ground report seeing an aircraft strike 1 or more birds or other wildlife;

d. Bird or other wildlife remains, whether in whole or in part, are found within 200 feet of a runway centerline, unless another reason for the animal's death is identified;

e. The animal's presence on the airport had a significant negative effect on a flight (i.e., aborted takeoff, aborted landing, high-speed emergency stop, aircraft left pavement area to avoid collision with animal) (Transport Canada, Airports Group, *Wildlife Control Procedures Manual*, Technical Publication 11500E, 1994).

2. RESERVED.