

CHAPTER 5. COMPATIBLE LAND USE

1. INTRODUCTION AND DEFINITIONS.

a. **General.** The compatibility of existing and planned land uses in the vicinity of an airport is usually associated with the extent of the airport’s noise impacts. Activities that may alter aviation-related noise impacts and affect land uses subjected to those impacts typically involve:

(1) airport development actions to accommodate fleet mix changes or the number of aircraft operations;

(2) air traffic changes; or

(3) new approaches to the airport made possible by new navigational aids.

b. **Land use compatibility and noise.** If the noise analysis described in Chapter 17 of this Desk Reference concludes that there is no significant noise impact, a similar conclusion usually may be made about compatible land uses. Also, if the action would cause noise impacts that affect land uses such as social or induced socioeconomic effects (e.g., community disruption, relocation impacts, etc.), analyze those effects in the context of the affected resource(s). Therefore, describe those impacts in the appropriate chapter of the environmental document that addresses those resources. To avoid duplicating that information, the document’s Compatible Land Use chapter should cross-reference the pages in those chapters containing that information.

Note: Chapters 15 and 18 discuss induced socioeconomic and social impacts, respectively.

c. **Land use compatibility not related to noise.** Besides the effects of noise on land use compatibility, FAA should also assess the compatibility of land uses in the vicinity of an airport to ensure those uses do not adversely affect safe aircraft operations. Examples of such land uses that may adversely affect those operations include municipal landfills and wetland mitigation that attract wildlife species hazardous to aviation.

2. APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS.

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
49 USC Section 47106(a)(1) (Airport Improvement – Project grant application approval conditioned on satisfying project requirements)	Under this section, the Secretary of Transportation (the Secretary) may approve an application for a project grant. The Secretary may do so only if the project is consistent with the plans (existing when FAA approves the project) of public agencies authorized by the state to plan for development of the area surrounding the airport.	FAA

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
<p>49 USC Section 47107(a)(10) (Airport Improvement – Project grant application approval conditioned on assurances on airport operations)</p>	<p>For airport actions, the Compatible Land Use chapter of the environmental document must include documentation to support the required airport sponsor’s assurance under this section. That assurance must state that appropriate action, including adopting zoning laws, has been or will be taken to the extent reasonable. Such actions are needed to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including the landing and takeoff of aircraft. The assurance must be related to existing and planned land uses.</p>	<p>FAA</p>
<p>49 USC Sections. 47501 to 47510. (Noise Abatement) 14 CFR Part 150</p>	<p>These sections require the Secretary to:</p> <ul style="list-style-type: none"> • establish a single system showing a highly reliable relationship between projected noise and surveyed reactions of individuals to noise; • establish a single system to determine the reaction of individuals (at or near airports) to noise resulting from airport operations; and • identify land uses that are normally compatible with various exposures of individuals to noise levels. Regulations at 14 Code of Federal Regulations (CFR) Part 150 provide this information. 	<p>FAA</p>
<p>49 USC Section 44718, Subsection (d) (Limitation on Landfill Construction)</p>	<p>Birds attracted to municipal solid waste landfill facilities (MSWLF) near airports pose aviation hazards. MSWLFs built after Congress enacted Public Law 106-181 (April 5, 2000) cannot be located within 6 miles of a public airport:</p> <ul style="list-style-type: none"> • receiving Airport Improvement Program (AIP) grants; • chiefly serving general aviation aircraft; and • chiefly having regularly scheduled flights of aircraft with 60 seats or less. <p>Note: The State of Alaska is exempt from this requirement.</p>	<p>FAA</p>

APPLICABLE STATUTES AND IMPLEMENTING REGULATIONS	SUMMARY DESCRIPTION	OVERSIGHT AGENCY
<p>40 CFR Section 258.10 (Criteria for Municipal Solid Waste Landfills; Airport Safety)</p>	<p>The Environmental Protection Agency (EPA) recognizes that MSWLFs often attract large numbers of birds because these facilities provide food and cover. As a result, birds using MSWLFs could cause potential threats to aircraft safety. This regulation requires the following minimum separations between the airport and MSWLF:</p> <ul style="list-style-type: none"> • 5,000 feet for airports serving piston-powered aircraft; or • 10,000 feet for airports serving turbine-powered aircraft. <p>In addition, the owner/operator of a new MSWLF within a 5-statute mile radius of any airport runway serving either aircraft type has certain duties. The owner/operator must:</p> <ul style="list-style-type: none"> • notify the airport and FAA of the proposal; and • show and have proof in its operating manual that the MSWLF’s design and use will not pose aviation hazards. 	<p>FAA</p>
<p>Interagency Memorandum of Agreement (MOA) of July 2003 addressing wildlife hazards and airports.</p>	<p>FAA, the U.S. Air Force (USAF), U.S Army Corps of Engineers (Corps), EPA, U.S. Fish and Wildlife Service (FWS), and the Department of Agriculture Wildlife Services (WS) signed this MOA. The MOA provides guidelines to these agencies on how they will cooperatively address wildlife habitats near public use airports</p>	<p>FAA, USAF, Corps, EPA, FWS, and WS</p>

3. APPLICABILITY TO AIRPORT DEVELOPMENT ACTIONS. Airport development actions funded under the AIP and other airport actions subject to FAA approval, such as Airport Layout Plan (ALP) changes and Passenger Facility Charges (PFCs), have the potential to cause off-airport land use impacts. Typical actions causing such impacts include: airside/landside expansion (new or expanded terminal and hangar facilities, new or extended runways and taxiways, navigational aids [NAVAIDS], etc.); land acquisition for aviation-related use, new or relocated access roadways, remote parking facilities, and rental car lots; significant changes in aircraft operations; and significant construction activity.

4. PERMITS, CERTIFICATES, AND APPROVALS. None. However, an airport sponsor filing a project grant application for airport development must provide the following assurances to FAA.

a. Consistency with local land use planning. The sponsor must provide a letter from the public agency authorized by the state to plan for the area surrounding the airport. To comply with 49 USC Section 47106(a)(1) (see the table in section 2 of this chapter), the letter should state that the proposed action is consistent with land use plans existing at the time FAA approves the project. An appendix to the environmental document must include the letter. If the state has not designated an agency, consult the Airport Planning and Environmental Division, APP-400, Regional Counsel or the Airports Environmental Law Division, AGC-600.

b. Land uses in the airport area. The sponsor must provide a written assurance verifying action has been or will be taken to restrict land uses next to or near the airport as discussed in 49 USC Section 47107(a)(10)), described in the table in section 2 of this chapter. An appendix to the environmental document must include evidence that the sponsor has provided the requisite assurance for the proposed action. This evidence may be a letter.

FAA must ensure information regarding the necessary assurances appears in an appendix to the environmental document.

5. ENVIRONMENTAL COMPLIANCE PROCEDURES–ENVIRONMENTAL ANALYSIS.

a. General. When reviewing environmental documents, the responsible FAA official should ensure the land use compatibility issues noted below are addressed where appropriate.

b. Airport sponsor efforts to ensure compatible land uses. FAA recognizes that not all airport sponsors have land use control authority. FAA officials should contact the appropriate state and local planning organizations to encourage the development of appropriate compatible land use controls early in the project planning stage. Even airport

sponsors lacking jurisdictional control in the affairs of the community where the proposed airport action would occur are required, at a minimum, to use their best efforts to promote airport compatible land uses and zoning measures in airport-affected areas. These efforts focus on developing existing and future land uses next to or in the immediate vicinity of the airport that are compatible with airport operations. To do so, airport sponsors should work with land use authorities and review FAA's Airport Noise Compatibility Planning Toolkit for helpful information (e.g., buying land in fee or using its best effort to persuade local jurisdictions to impose airport-compatible zoning near the airport). It is FAA's responsibility to ensure that the assurances given by the airport sponsor regarding compatible land uses are reasonable.

(1) Land use assurances. The land use section of the environmental document should include documentation to support the required airport sponsor assurances noted in section 4.a. of this chapter.

(2) Landfills and other wildlife attractants. Due to aviation safety concerns, information regarding land uses that may attract wildlife is critical in FAA decision making. According to FAA AC 150/5200-33B, *Hazardous Wildlife Attractants on or near Airports*, these land uses often include:

- (a) solid waste landfills;
- (b) existing or proposed dredge spoil containment areas;
- (c) wastewater treatment facilities;
- (d) wetlands, wildlife refuges; or
- (e) other land uses that attract wildlife that is hazardous to aviation.

Information regarding potential wildlife attractants is helpful in determining if incompatible land uses other than those related to noise are or would be near the proposed action. The environmental document's Compatible Land Use chapter should disclose the presence of any of these land uses within the distances referenced by FAA AC 150/5200-33B:

- 5,000 feet of an airport serving piston-powered aircraft;
- 10,000 feet of an airport serving turbine-powered aircraft; and/or
- 5 statute miles of a runway end and a landfill that could cause hazardous bird species to fly across the airport's approach or departure airspace.

6. DETERMINING IMPACTS.

a. Noise impacts on common land uses. Table 1 in 14 CFR Part 150, *Airport Noise Compatibility Planning*, and FAA's Airport Noise Compatibility Planning Toolkit, depict compatible land use guidelines for several land uses as a function of day-night average sound level (DNL) values (see Chapter 17, section 1.b for more information). The ranges of DNL values in Table 1 at the end of this chapter reflect the statistical variability of the responses of large groups of people to noise. However, note that a particular DNL level may not accurately assess an *individual's* perception of an actual noise environment. Compatible or noncompatible land use is determined by comparing the predicted or measured DNL values at a site to the values listed in Table 1.

b. Areas where the DNL 65 standard may not apply. Part 150 guidelines may be relied upon where the land uses specified in Table 1 are relevant to the value, significance, and enjoyment of the lands in question. However, FAA also recognizes that the guidelines do not adequately address the effects of noise on visitors to areas within a historic site, national park, or wildlife refuge protected under Section 4(f) of the DOT Act *and* where non-aircraft noise is very low and a quiet setting is a generally recognized feature or attribute of the site's significance (see Chapter 7 of this Desk Reference). Specifically, Part 150 land use categories:

(1) are not sufficient to determine the noise compatibility of areas within a national park or national wildlife refuge where noise is very low and a quiet setting is a generally recognized purpose and attribute, or to address noise effects on wildlife.

(2) may not be relevant to a wildlife refuge used for bird-watching; or

(3) bear little relevance to a historic village preserved specifically to evoke the atmosphere of rural life in an earlier era.

Note: See FAA Order 1050.1E, Appendix A, paragraphs 4.2c, 6.2h, 6.2i, 14.3, and 14.4b, and Chapter 17 of this Desk Reference for more information.

c. Noise impacts on wildlife habitat. Some airport projects could affect areas supporting wildlife or farm animals (e.g., refuges, farms, or ranches). Do not use Part 150 guidelines. They are based on human reactions to noise. As a result, guidelines should not be used to determine impacts on wildlife. Research shows aircraft noise causes inconsistent reactions and effects on various species according to the different life history stages of a species. For projects where aircraft noise impacts could affect wildlife or farm animals, review published studies addressing noise effects on the species of concern. If FAA expects the proposed activity would cause noise impacts on wildlife, the environmental document should cross-reference the environmental document's chapters discussing noise and/or biotic resources. This avoids repeating noise impact descriptions, their causes, the analyses used to determine impacts, the impacts, and their consequences.

d. Land use changes because of physical disturbances. Besides noise, physical land disturbances may alter existing land uses. For example, building a proposed runway may disrupt a community by taking or moving a highway or altering a wetland or biotic community. To avoid repeating information presented elsewhere in the environmental document, the document’s Compatible Land Use chapter should simply state airport-related physical disturbance would change existing land uses (i.e., filling a wetland to develop a taxiway) and refer readers to those pages of the document addressing the affected resources.

7. DETERMINING IMPACT SIGNIFICANCE.

a. General. The noise analysis completed per Chapter 17 of this Desk Reference provides information related to an action’s projected noise impacts. To avoid duplication, the environmental document’s Compatible Land Use chapter should cross-reference (or summarize) the information in the document’s Noise chapter addressing an alternative’s effects on compatible land uses. In addition, the Compatible Land Use chapter should discuss any land uses not related to noise as discussed in section 1.c of this chapter.

ORDER.1050.1E THRESHOLD	FACTORS TO CONSIDER
See significance threshold for noise	<p>The responsible FAA official determines if any alternative would have land use consequences such as:</p> <ul style="list-style-type: none"> • community disruption; • business relocations; • induced socioeconomic impacts; • wetland or floodplain impacts; or • critical habitat alterations. <p>Use the information from the factors addressing these specific issues to determine the severity of compatible land use effects.</p>

From: Table 7-1, FAA Order 5050.4B.

b. Mitigation. During the environmental review process, the public agency authorized by the state to plan for the areas surrounding the airport normally provide a letter addressing land use effects. The letter may include recommended measures to mitigate those effects. An appendix to the environmental document should include a copy of the letter. The environmental document should summarize the most important information in that letter, accurately cross-reference the appendix and pages in that appendix for further information, and the status of any recommended mitigation measures.

If the airport sponsor or FAA determines that some or all of the recommended mitigation measures are not reasonable under the circumstances, the environmental document should clearly explain the sponsor's or FAA's rationale for not adopting the mitigation.

8. ENVIRONMENTAL IMPACT STATEMENT CONTENT.

a. General. When the noise analysis completed per instructions in Chapter 17 of this Desk Reference indicates that a significant noise impact, pursuant to NEPA, would occur over noise sensitive land uses within the DNL 65 dB contour, the analysis in an EIS should include a discussion of noise impacts on those areas. Review information in sections 6.b. and c. of this chapter for information on situations where the DNL 65 dB standard may not apply.

b. Mitigation. Any mitigation measures to be taken in addition to those associated with other land use controls should be discussed. FAA Advisory Circular 150/5020-1, *Noise Control and Compatibility Planning for Airports*, presents guidance for airport operators and planners to help achieve compatibility between airports and their surrounding areas. The EIS should describe proposed mitigation when the public agency the state authorized to plan for the areas surrounding the airport normally provides that information. FAA or the sponsor should fully consider the mitigation and balance its benefits against those of the proposed action.

NEPA requires a Federal agency preparing an EIS to discuss mitigation in sufficient detail to disclose that environmental consequences have been fairly evaluated (*Robertson vs. Methow Valley*, 490 U.S. 332 (1989)). In addition, under 49 USC Section 47106(c)(1)(B), FAA may not approve Federal funding for major airport development projects unless the agency determines that no possible and prudent alternative to the project exists and that every reasonable step has been taken to minimize the adverse effect. Major airport development projects are those that involve the location of a runway, new airport, or major runway extension. For more information about the mitigation required, see FAA Order 5050.4B, paragraph 1203.(b)(4). In accordance with NEPA and 49 USC Section 47106(c)(1)(B), an EIS must discuss and adopt reasonable mitigation measures recommended by the public planning agency or agencies having jurisdiction for the area surrounding the airport. If feasible, provide an estimated schedule for undertaking accepted mitigation.

TABLE 1. LAND USE COMPATIBILITY WITH YEARLY DAY-NIGHT AVERAGE SOUND LEVELS

Land Use	Yearly Day-Night Average Sound Level (L _{dn}) in decibels					
	Below 65	65-70	70-75	75-80	80-85	Over 85
Residential						
Residential, other than mobile homes and transient lodgings	YES	NO (1)	NO (1)	NO	NO	NO
Mobile home parks	YES	NO	NO	NO	NO	NO
Transient lodgings	YES	NO (1)	NO (1)	NO (1)	NO	NO
Public Use						
Schools	YES	NO (1)	NO (1)	NO	NO	NO
Hospitals and nursing homes	YES	25	30	NO	NO	NO
Churches, auditoriums, and concert halls	YES	25	30	NO	NO	NO
Government services	YES	YES	25	30	NO	NO
Transportation	YES	YES	YES (2)	YES (3)	YES (4)	YES (4)
Parking	YES	YES	YES (2)	YES (3)	YES (4)	NO
Commercial Use						
Offices, business and professional	YES	YES	25	30	NO	NO
Wholesale and retail- building materials, hardware and farm equipment	YES	YES	YES (2)	YES (3)	YES (4)	NO
Retail trade-general	YES	YES	25	30	NO	NO
Utilities	YES	YES	YES (2)	YES (3)	YES (4)	NO
Communication	YES	YES	25	30	NO	NO
Manufacturing and Production						
Manufacturing, general	YES	YES	YES (2)	YES (3)	YES (4)	NO
Photographic and optical	YES	YES	25	30	NO	NO
Agriculture (except livestock) and forestry	YES	YES (6)	YES (7)	YES (8)	YES (8)	YES (8)
Livestock farming and breeding	YES	YES (6)	YES (7)	NO	NO	NO
Mining and fishing, resource production and extraction	YES	YES	YES	YES	YES	YES
Recreational						
Outdoor sports arenas and spectator sports	YES	YES (5)	YES (5)	NO	NO	NO
Outdoor music shells, amphitheaters	YES	NO	NO	NO	NO	NO
Nature exhibits and zoos	YES	YES	NO	NO	NO	NO
Amusements, parks, resorts, and camps	YES	YES	YES	NO	NO	NO
Golf courses, riding stables and water recreation	YES	YES	25	30	NO	NO

Numbers in parenthesis refer to notes; see continuation of Table 1 for notes and key.

NOTE: The designations in this table do not constitute a Federal determination that any use of land is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with local land use authorities. FAA determinations under Part 150 are guidelines and are not intended to substitute for land uses determined to be suitable by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

TABLE 1. LAND USE COMPATIBILITY WITH YEARLY DAY-NIGHT AVERAGE SOUND LEVELS

Key to Table 1	
YES	Land Use and related structures compatible without restrictions.
NO	Land Use and related structures are not compatible and should be prohibited.
NLR	Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
25, 30, or 35	Land use and related structures generally compatible; measures to achieve NLR of 25, 30 or 35 dB must be incorporated into design and construction of structure.
Notes for Table 1	
(1)	Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.
(2)	Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
(3)	Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
(4)	Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
(5)	Land use compatible provided special sound reinforcement systems are installed.
(6)	Residential buildings require an NLR of 25.
(7)	Residential buildings require an NLR of 30.
(8)	Residential buildings not permitted.
(End of Table 1)	