



# Department of Defense INSTRUCTION

NUMBER 4165.57

May 2, 2011

*Incorporating Change 1, Effective March 12, 2015*

---

---

USD(AT&L)

SUBJECT: Air Installations Compatible Use Zones (AICUZ)

References: See Enclosure 1

1. PURPOSE. This Instruction:

a. Reissues DoD Instruction (DoDI) 4165.57 (Reference (a)) in accordance with the authority in DoD Directive (DoDD) 5134.01 (Reference (b)) to establish policy, assign responsibilities, and prescribe procedures for the DoD AICUZ program for air installations, in accordance with DoDD 4165.06 (Reference (c)).

b. Establishes policy and assigns responsibility for educating air installation personnel and engaging local communities on issues related to noise, safety, and compatible land use in and around air installations.

c. Prescribes procedures for plotting noise contours for land use compatibility analysis.

2. APPLICABILITY. This Instruction applies to:

a. ~~The Office of the Secretary of Defense~~ *OSD*, the Military Departments, the Office of the Chairman of the Joint Chiefs of Staff and the Joint Staff, the Combatant Commands, the Office of the Inspector General of the DoD, the Defense Agencies, the DoD Field Activities, and all other organizational entities within the DoD (hereafter referred to collectively as the "DoD Components").

b. Air installations of the DoD Components located within the United States.

c. Air installations of the DoD Components located outside of the United States, but for on-base planning purposes only and subject to the requirements of any applicable international agreement, including any basing agreement.

3. DEFINITIONS. See Glossary.

4. POLICY. It is DoD policy to:

a. Promote the health, safety, and welfare of persons in the vicinity of and on air installations by minimizing aircraft noise and safety impacts without degrading flight safety and mission requirements.

b. Promote long-term compatible land use on and in the vicinity of air installations by encouraging State and local governments to adopt enabling legislation and compatible land use regulations into their land use planning and control processes and by partnering with communities and other eligible entities to protect land through restrictive use and conservation easements.

c. Limit acquisition of real property interests to the minimum necessary to ensure the operational integrity of the air installation.

d. Incorporate AICUZ guidelines into on-base land use planning programs.

e. Integrate AICUZ compatible land use strategies into the test and training range environment in accordance with DoDD 3200.15 (Reference (d)).

f. Promote education and engagement with communities affected by military operations at air installations. DoDD 5410.18 (Reference (e)) provides policy for the conduct of public affairs community relations activities and programs throughout the DoD.

5. RESPONSIBILITIES. See Enclosure 2.

6. PROCEDURES. See Enclosure 3.

7. RELEASABILITY. ~~UNLIMITED~~ *Cleared for public release*. This Instruction is ~~approved for public release and is~~ available on the Internet from the DoD Issuances Website at <http://www.dtic.mil/whs/directives>.

8. EFFECTIVE DATE. *This Instruction: is effective upon its publication to the DoD Issuances Website.—This Instruction is effective May 2, 2011.*



Ashton B. Carter  
Under Secretary of Defense for  
Acquisition, Technology, and Logistics

Enclosures

1. References
2. Responsibilities
3. Procedures

Glossary

TABLE OF CONTENTS

ENCLOSURE 1: REFERENCES..... 5

ENCLOSURE 2: RESPONSIBILITIES.....6

    DEPUTY UNDER SECRETARY OF DEFENSE FOR INSTALLATIONS AND  
    ENVIRONMENT (DUSD(I&E)) .....6

    HEADS OF THE DoD COMPONENTS .....6

ENCLOSURE 3: PROCEDURES.....7

    GENERAL.....7

    AICUZ STUDY CONTENT .....8

    AIRCRAFT ACCIDENT POTENTIAL.....9

    APZS AND CLEAR ZONES FOR FIXED-WING AIRCRAFT.....910

    APZS AND CLEAR ZONES FOR ROTARY-WING AIRCRAFT .....10

    AIRCRAFT NOISE.....~~10~~11

    AICUZ UPDATES .....~~11~~12

    ACQUISITION OF INTERESTS IN LANDS .....~~11~~12

    JOINT LAND USE STUDY (JLUS).....14

    APPENDIXES

        1. APZ GUIDELINES .....15

        2. RECOMMENDED LAND USE COMPATIBILITY IN APZS .....16

        3. RECOMMENDED LAND USE COMPATIBILITY IN NOISE ZONES .....23

GLOSSARY .....29

    PART I. ABBREVIATIONS AND ACRONYMS .....29

    PART II. DEFINITIONS.....29

TABLES

    1. Land Use Compatibility in APZs.....16

    2. Land Use Compatibility in Noise Zones.....23

FIGURE

    Runway APZs and Clear Zones .....15

ENCLOSURE 1

REFERENCES

- (a) DoD Instruction 4165.57, "Air Installations Compatible Use Zones," November 8, 1977 (hereby cancelled)
- (b) DoD Directive 5134.01, "Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L))," December 9, 2005, *as amended*
- (c) DoD Directive 4165.06, "Real Property," October 13, 2004
- (d) DoD Directive 3200.15, "~~Sustainment of Ranges and Operating Areas (OPAREAs),~~" *January 10, 2003*—*Sustaining Access to the Live Training and Test Domain,*" *December 18, 2013*
- (e) DoD Directive 5410.18, "Public Affairs Community Relations Policy," November 20, 2001
- (f) DoD Instruction 4165.70, "Real Property Management," April 6, 2005
- (g) DoD Instruction 4165.71, "Real Property Acquisition," January 6, 2005
- (h) DoD Instruction 4165.72, "Real Property Disposal," December 21, 2007
- (i) *Title 10, United States Code*
- (j) *Part 211 of title 32, Code of Federal Regulations*
- (~~ik~~) Unified Facilities Criteria 3-260-01, "Airfield and Heliport Planning and Design," November 17, 2008
- (~~jl~~) Part 77 of title 14, Code of Federal Regulations
- (~~km~~) Federal Interagency Committee on Urban Noise, "Guidelines for Considering Noise In Land Use Planning and Control," June 1980
- (~~ln~~) Federal Interagency Committee on Noise, "Federal Agency Review of Selected Airport Noise Analysis Issues," August 1992
- (~~mo~~) Federal Highway Administration, "Standard Land Use Coding Manual," January 1965
- (~~np~~) DoD Instruction 4715.13, "DoD Noise Program," November 15, 2005
- (~~oq~~) Department of Defense Noise Working Group, "Improving Aviation Noise Planning, Analysis, and Public Communication with Supplemental Metrics," December 2009
- (~~p~~) ~~Sections 2391(b)(1), 2684a of title 10, United States Code~~
- (~~qr~~) DoD Directive 3030.01, "Office of Economic Adjustment (*OEA*)," March 5, 2006
- (~~rs~~) DoD Instruction 3030.3, "Joint Land Use Study (JLUS) Program," July 13, 2004

ENCLOSURE 2

RESPONSIBILITIES

1. DEPUTY UNDER SECRETARY OF DEFENSE FOR INSTALLATIONS AND ENVIRONMENT (DUSD(I&E)). The DUSD(I&E), under the authority, direction, and control of the Under Secretary of Defense for Acquisition, Technology, and Logistics, shall:

- a. Provide general oversight over the AICUZ program.
- b. Provide additional guidance as necessary.

2. HEADS OF THE DoD COMPONENTS. The Heads of the DoD Components shall:

- a. Develop, implement, and maintain an AICUZ program for each air installation.
- b. Ensure that each air installation conducts and maintains an AICUZ study.
- c. Develop AICUZ for DoD-controlled joint military-civilian use airfields.
- d. Provide education and training for air installation leadership on aircraft noise and safety, land use compatibility, and community engagement.
- e. Acquire, manage, and dispose of real property interests associated with the AICUZ program consistent with DoDIs 4165.70, 4165.71, and 4165.72 (References (f), (g), and (h)).
- f. Review and approve AICUZ studies and updates for each air installation.

ENCLOSURE 3

PROCEDURES

1. GENERAL

a. ~~The~~ DoD Components shall ensure that their air installations engage State and local governments and communities to foster compatible land use and to help local governments and communities better understand the nature of aircraft operations and procedures in and around the air installation. DoD Components shall ensure participation in local comprehensive planning processes, engage the community, and seek effective land use controls such as, but not limited to, AICUZ overlay zoning ordinances, planned unit developments, subdivision regulations, and height regulations. Other strategies to achieve compatibility include use of building codes, transfer development rights, real property acquisition, buffer lands and restrictive easement acquisition, and disclosure ordinances.

b. Regional and local governments may not always have the authority to enact land use controls to achieve compatibility. In circumstances where incompatible development threatens the mission, acquisition of real property interests may be required to ensure compatibility.

c. ~~The~~ DoD Components shall ensure that their air installations establish effective working relationships with State, tribal, and local governments, including local planning commissions, special purpose districts, regional and State agencies, airport land-use commissions, and ~~other~~ Federal agencies to communicate the objectives of the AICUZ program and operational requirements. This Instruction does not impose any requirements on members of the public or State or local governments, nor does it prescribe any specific course of action for these groups to take in dealing with the DoD on land-use questions.

d. ~~The~~ DoD Components shall ensure that each of their air installations:

(1) Address land use compatibility on and in the vicinity of the air installation where:

(a) Aircraft operations may affect the public health, safety, or welfare.

(b) Certain uses or structures may obstruct the airspace, attract birds, create electromagnetic or thermal interference, or produce dust, smoke, steam, or light emissions (*to include glint or glare*) that may impact a pilot's vision, or otherwise be hazardous to or incompatible with aircraft operations.

*1. Analyze solar renewable energy projects that require OSD review, approval, or certification in accordance with sections 2922a or 2667 of Title 10, United States Code (Reference (i)), or the mission compatibility evaluation process in part 211 of Title 32, Code of Federal Regulations (CFR) (Reference (j)), using the Solar Glare Hazard Analysis Tool or other analysis tools.*

*2. For renewable energy projects that do not require OSD approval, or projects developed by private entities, glint and glare analysis using the Solar Glare Hazard Analysis Tool or other analysis tool is highly recommended to ensure mission compatibility and should be included as part of the project documentation as appropriate.*

(2) Apply these compatible land use guidelines:

(a) Limit concentrations of people and facilities in areas exposed to a higher risk from aircraft accidents.

(b) Promote compatibility with the noise exposure from air installation operations.

(c) Promote restrictions on land uses and heights of natural objects and man-made objects in the vicinity of air installations that may obstruct the airspace, attract birds, cause electromagnetic or thermal interference, or produce dust, steam, smoke, or light emissions (*to include glint or glare*) to provide for safety of flight and the public welfare.

*e. At joint bases with airfields that formerly shared a fence-line, the supporting DoD Component will be the lead to develop a single AICUZ study that covers all airfields. For joint bases that are geographically separate, the supporting Component will be the lead to develop a separate AICUZ study for each airfield.*

*ef. The* DoD Components shall ensure that their air installations use the land area and height standards defined in the Unified Facilities Criteria 3-260-01 (Reference (~~ik~~)) for purposes of identifying airspace obstructions and potential land use compatibility issues in accordance with part 77 of title 14, ~~Code of Federal Regulations~~CFR (Reference (~~j~~)).

## 2. AICUZ STUDY CONTENT

a. An AICUZ study shall include:

(1) A description of the aircraft noise and aircraft accident potential environment around the air installation for existing operations.

(2) A description of the long-term (5-10 year) aircraft noise and accident potential environment for projected aircraft operations that is consistent with the planning horizon used by State, tribal, regional, and local planning bodies.

(3) Recommendations for achieving compatible land use development considering aircraft noise, accident potential, bird or wildlife aircraft strike hazard (BASH), electromagnetic interference, dust, steam, smoke or light emissions, and heights of natural and man-made objects near the air installation that affect flight safety within the air installation's environs.

(4) Identification of existing and potential incompatible land uses.



b. Land use compatibility determinations concerning aircraft noise shall be derived from the Federal Interagency Committee on Urban Noise, “Guidelines for Considering Noise In Land Use Planning and Control” (Reference (~~km~~)) and as endorsed by the Federal Interagency Committee on Noise (FICON) in the “Federal Agency Review of Selected Airport Noise Analysis Issues” (Reference (~~ln~~)).

c. The Federal Highway Administration’s Standard Land Use Coding Manual (SLUCM) (Reference (~~mo~~)) shall be used for a standard descriptor of land uses. The SLUCM standards, including their codes and sub-codes, provide planners with detailed information describing specific land use categories. Based on the SLUCM codes, land use compatibility guidelines for Clear Zones and Accident Potential Zones (APZs) (as defined in Glossary and discussed in paragraph 3.f. of this enclosure) are shown in Appendix 1 to this enclosure. Suggested land use compatibility guidelines in aircraft noise zones are shown in Appendix 2. Additions to some land use categories have been incorporated into Tables 1 and 2 of Appendix 2 subsequent to issuance of the SLUCM to reflect additional land uses and to clarify the categorization of certain uses.

d. Areas of critical concern beyond the AICUZ footprint may be established.

*e. For joint bases that have significant ground-based noise sources (such as explosive ordnance disposal, artillery, or small arms ranges) in addition to an airfield, the AICUZ study will also discuss the sources, noise levels, and any management strategies in place to limit ground noise exposure to areas outside the installation.*

### 3. AIRCRAFT ACCIDENT POTENTIAL

a. Areas immediately beyond the ends of runways possess a measurably higher potential for aircraft accidents. For this reason, development should be restricted to certain types of land uses and densities.

b. Land use compatibility for APZs is founded on the concept of minimizing density of land use in the vicinity of air installations. In addition to limiting density, certain types of land uses such as residential development, educational facilities, and medical facilities are considered incompatible and are strongly discouraged in APZs. Appendix 2 to this enclosure provides a detailed land use compatibility matrix for local governments as well as DoD personnel for on-base planning. Table 1 of Appendix 2 provides land use compatibility recommendations for the Clear Zones and APZs I and II. To assist local governments in implementing land use controls in APZs, recommended floor area ratios (FAR) are provided for select commercial uses.

c. DoD fixed-wing runways are separated into two types, Class A and Class B, for the purpose of defining aircraft accident potential areas.

d. Specific details on runway types can be found in Reference (~~ik~~).

e. The descriptions of APZ boundaries in Appendix 1 to this enclosure are guidelines only. Their strict application would increase the safety of the general public but would not provide complete protection against the effects of aircraft accidents. Where it is desirable to restrict the density of development of an area, it is not usually possible to state that one density is safe and another is not. Air installations should work to create the greatest degree of safety that can be reasonably attained based on local circumstances. Local situations may differ significantly from the assumptions and data upon which these guidelines are based and may require individual study.

*f. At joint bases where the Military Services' criteria for APZs and clear zones differ, the base will use the criteria of the Service operating the airfield unless that Service agrees to use the supporting Service's criteria.*

#### 4. APZS AND CLEAR ZONES FOR FIXED-WING AIRCRAFT

a. A Clear Zone is required at the ends of all active DoD runways.

b. APZs may be modified:

(1) Where multiple flight tracks exist and significant numbers of aircraft operations are on multiple flight tracks, modifications may be made to create APZs that conform to the multiple flight tracks.

(2) Where most aircraft do not overfly the APZs, modifications may be made to alter the straight APZs shown in Appendix 2 to this enclosure and adjust them to conform to the actual lines of flight.

(3) Where other unusual conditions exist, modifications may be made to alter APZs as necessary.

#### 5. APZS AND CLEAR ZONES FOR ROTARY-WING AIRCRAFT

*a. A clear zone and APZ are required for rotary-wing runways, helipads, landing lanes, and hoverpoints.*

*ab.* The dimension of Clear Zones for rotary-wing runways and helipads for visual and standard instrument flight rules (IFR) operations is 400 feet long (the width can vary). The Clear Zone length for Army and Air Force IFR same direction ingress and egress is 825 feet.

*bc.* The dimension of APZs for rotary-wing runways and helipads is 800 feet long.

*ed.* The dimensions for APZs and Clear Zones for rotary-wing runways and helipads are discussed in greater detail in Reference (ik).

## 6. AIRCRAFT NOISE

### a. General

(1) Long-term land use compatibility with noise resulting from the operation of military aircraft should minimize the effects on people, animals (domestic and wild), and structures on or in proximity to air installations. Appendix 3 to this enclosure provides a detailed land use compatibility matrix for DoD Component personnel to use for on-base planning and to engage with local governments to foster compatible land use development. Table 2 of Appendix 2 provides land use compatibility recommendations based on SLUCM codes and day-night average sound level (DNL) or community noise equivalent level (CNEL) noise areas on and around air installations.

(2) The A-weighted day-night average sound level (ADNL) noise descriptor shall be used to describe the aircraft noise environment around air installations, except in California, where the CNEL descriptor shall be used to describe the aircraft noise environment. If laws require some other aircraft noise descriptor, it may be used in addition to, or as a substitute for, ADNL. Supplemental noise metrics may also be used to augment the ADNL or CNEL analysis as noted by the FICON in Reference (~~km~~). Since land use compatibility guidelines are based on yearly average noise levels, aircraft noise contours should be developed based on average annual day (AAD) operations. However, where the DoD Component determines that AAD does not adequately represent the aircraft noise impacts at a particular air installation, average busy day (ABD) operations can be used with supporting rationale.

b. Reducing Noise Impacts. Reasonable, economical, and practical measures shall be taken to reduce and control the generation of aircraft noise from flying and flying-related activities. Typical measures normally include siting of engine test and run-up facilities in remote areas when practical, use of sound suppression equipment, and adjustment of aircraft flight paths to avoid developed areas when such adjustment can be accomplished safely and without significant impairment of operational effectiveness.

### c. Plotting Aircraft Noise Contours

(1) As a minimum, contours for DNL 65, 70, 75, 80, and 85 shall be plotted on maps for Air Force, Navy, and Marine Corps air installations as part of AICUZ studies. The Army shall apply Operational Noise Management Program DNL designations of 60-65, 65-75, and greater than 75 at its air installations. Contours below 65 DNL are not required but may be provided if local conditions warrant discussion of lower aircraft noise levels, such as in rural and desert areas, or where significant noise complaints have been received from areas outside DNL 65 contours.

(2) Utilize guidance and noise assessment and management techniques from the DoD Noise Program in accordance with DoDI 4715.13 (Reference (~~hp~~)) to support the AICUZ program.

(3) Supplemental noise metrics may be used to augment DNL and CNEL noise analyses to provide additional information to describe the noise environment in the vicinity of air installations. A detailed discussion of supplemental metrics and their application can be found in the DoD Noise Working Group's "Improving Aviation Noise Planning, Analysis, and Public Communication with Supplemental Metrics" (Reference (eq)).

7. AICUZ UPDATES. Land use planning involves long-range strategies to influence present and future uses of lands. Frequent AICUZ updates and changes in land use recommendations can undermine the neighboring community's willingness to incorporate DoD Component recommendations into local comprehensive plans or to enact land use controls. AICUZ study recommendations should be based on best available, realistic long-range projections of air installation operations in support of local, State, and regional government land use planning objectives. Examples of when AICUZ updates should be undertaken include major mission changes, increases in nighttime flying (flights between 10:00 p.m. and 7:00 a.m.), basing of significant numbers of additional or a new type of aircraft, and base realignment affecting flying operations.

#### 8. ACQUISITION OF INTERESTS IN LANDS

a. When local ~~development-land use~~ regulations do not provide sufficient protection for aircraft operations (e.g., preventing incompatible development or airspace obstructions), the DoD Component shall consider the acquisition of necessary real property interests *sufficient to protect the installation from encroachment*.

(1) Ownership in fee or of an appropriate restrictive use easement within the Clear Zone is preferred, unless State and local government development regulations will clearly have long-term effectiveness or acquisition is not practicable.

(2) The acquisition of restrictive use easements or interests in land outside the Clear Zone, such as APZs and noise zones, should only be pursued when State and local governments are unwilling or unable to enact land use controls to achieve land use compatibility in accordance with AICUZ guidelines and the operational integrity of the air installation is manifestly threatened. Acquisition of interests in land may also be pursued in such circumstances where long-term land use controls are considered to be ineffective and the DoD Component determines all possibilities of achieving compatible use zoning, or similar protection, have been exhausted.

b. Acquisition of real property interests shall follow the policy and procedures in References (c) and (f). Acquisition of real property interests from willing sellers pursuant to agreements with non-Federal governmental agencies and non-governmental organizations, authorized by section 2684a of ~~title 10, United States Code~~ (Reference (pi)), can be an effective means of preserving compatible land uses.

c. For real property acquisitions, in accordance with paragraph 4.c. above the signature of this Instruction, these types of rights should be considered, as appropriate:

(1) To make low and frequent flights over the land and to generate noises associated with:

- (a) Aircraft in flight, whether or not while directly over the land.
- (b) Aircraft and aircraft engines operating on the ground at the installation.
- (c) Aircraft engine test stand, test cell, and hush-house operations at the installation.

(2) To prohibit or limit the release into the air of any substance that would impair the visibility or otherwise interfere with the operations of aircraft, such as, but not limited to, steam, dust, and smoke.

(3) To prohibit or limit light emissions, either direct or indirect (reflective), visible or invisible, including lasers, that might interfere with pilot vision or performance of instruments, equipment and weapons systems.

(4) To prohibit electromagnetic emissions that would interfere with aircrew, aircraft, aircraft sensors, aircraft communications systems, or aircraft navigational equipment.

(5) To prohibit any use of the land that would unnecessarily attract birds, such as, but not limited to, operation of sanitary landfills, maintenance of feeding stations, or growing of certain types of vegetation attractive to birds.

(6) To prohibit and remove any buildings or other non-frangible structures.

(7) To top, cut to ground level, and to remove trees, shrubs, brush, or other forms of obstructions that the DoD Component determines might interfere with the operation of aircraft, including emergency landings.

(8) To ingress and egress upon, over, and across the land for the purpose of exercising the rights acquired or retained.

(9) To post signs on the land indicating the nature and extent of the Government's control over it.

(10) To prohibit land uses other than:

- (a) Agriculture (except such uses that would attract birds or waterfowl).
- (b) Livestock grazing (except managed intensive grazing, concentrated animal feeding operations, feedlots, dairy herds, and intensive animal husbandry).
- (c) Permanent open space (open space recreational use shall conform to the compatibility guidelines in Appendix 2 of this enclosure).

- (d) Existing water areas.
  - (e) Rights-of-way for fenced highways, without sidewalks or bicycle trails.
  - (f) Rights-of-way for railroads without terminals or platforms so long as rail traffic does not extend into the flight path.
  - (g) Communications and utility rights-of-way, provided all facilities are at or below grade.
- (11) To prohibit entry of persons onto the land except in connection with activities otherwise authorized.
  - (12) To control the height of structures to ensure that they do not become a hazard to flight.
  - (13) To install airfield lighting and navigational aids.

d. When disposal of non-DoD Federal property at or in the vicinity of an air installation will impact its mission, the Military Department exercising real property accountability for the air installation will seek to have the disposal agency retain compatible land use easements over the property to be disposed of for the benefit of the air installation.

#### 9. JOINT LAND USE STUDY (JLUS)

a. The Office of Economic Adjustment (OEA) administers the JLUS Program pursuant to section 2391(b)(1) of Reference (~~p~~*i*) and in accordance with DoDD 3030.01 (Reference (~~e~~*r*)) and DoDI 3030.3 (Reference (~~r~~*s*)) to promote consistent ongoing compatible use and outreach programs between installations and local communities.

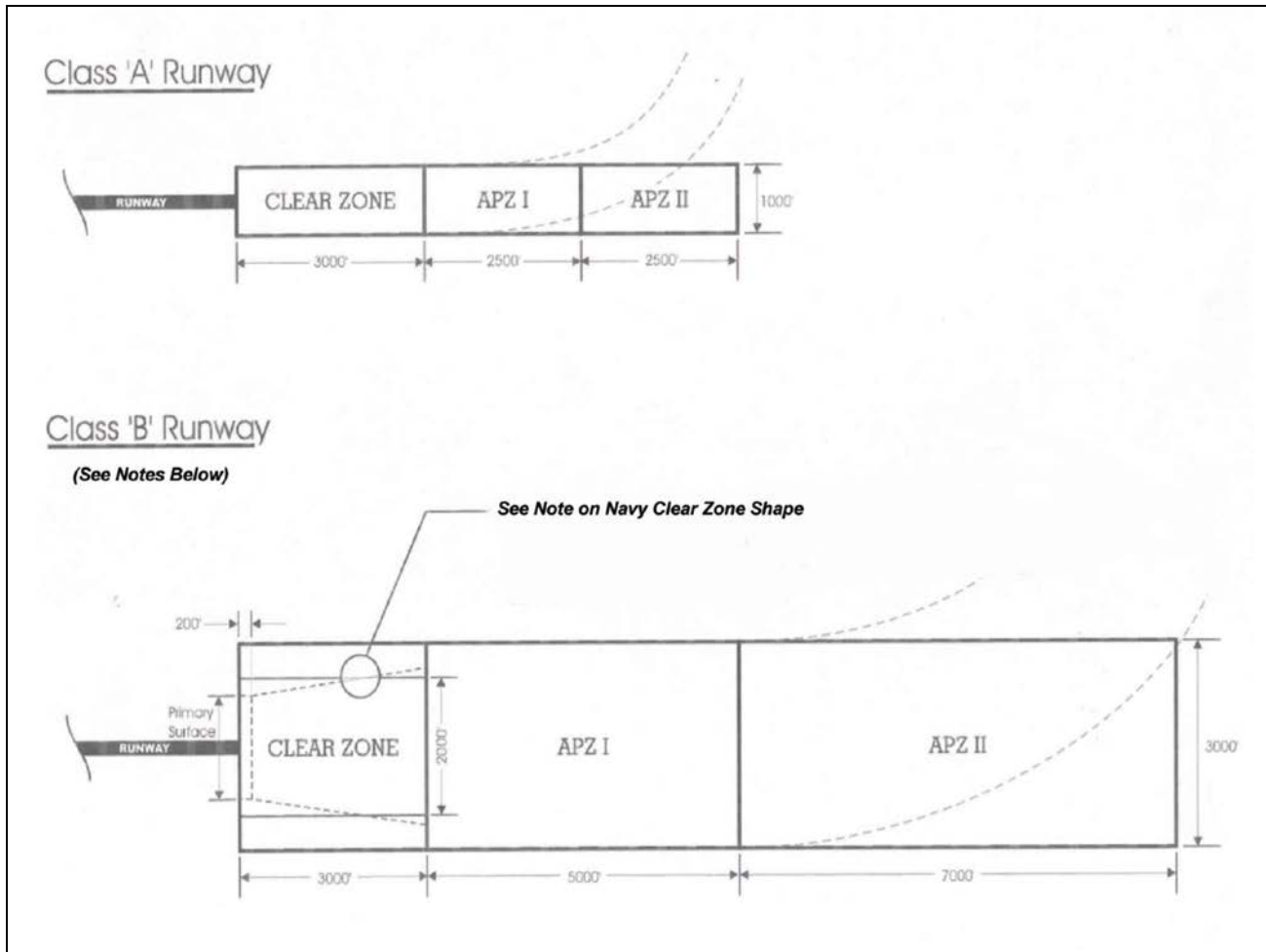
b. Each time an AICUZ is updated, the DoD Components shall consider whether further engagement with the neighboring local communities is needed through a JLUS to preserve the operational utility of the air installation.

APPENDIX 1 TO ENCLOSURE 3

APZ GUIDELINES

Guidelines for runway APZs and Clear Zones are depicted in the Figure.

Figure. Runway APZs and Clear Zones



**NOTES:**

1. Class B runway Clear Zones are rectangular in shape, with the width of 1000 feet for Department of Army airfields and 3000 feet for Department of Air Force airfields. Class B runway Clear Zones for Department of Navy airfields are trapezoidal in shape following the established approach and departure surface and width of the primary surface for existing runways and new runway construction.
2. Depictions of APZs in the figure are a nominal representation. Flight tracks may depart the runway centerline before the end of the Clear Zone. APZs for Class A or Class B runways can follow major flight paths including curved flight paths based on Military Service analysis.
3. The APZ I and APZ II width for a Class B runway at Department of Air Force and Department of Navy airfields is 3000 feet and is 1000 feet for a Class B runway at Department of Army airfields.

APPENDIX 2 TO ENCLOSURE 3RECOMMENDED LAND USE COMPATIBILITY IN APZs

Suggested land use compatibility guidelines in the Clear Zone and APZs are shown in Table 1. Additions to some land use categories have been incorporated into Table 1 subsequent to issuance of the SLUCM to reflect additional land uses and to clarify the categorization of certain uses. The compatible land use recommendations for the Clear Zone and APZs are provided for local governments as well as DoD personnel for on-base planning.

Table 1. Land Use Compatibility in APZs

SLUCM NO.	LAND USE NAME	CLEAR ZONE Recommendation <sup>1</sup>	APZ-I Recommendation <sup>1</sup>	APZ-II Recommendation <sup>1</sup>	DENSITY Recommendation <sup>1</sup>
10	Residential				
11	Household Units				
11.11	Single units: detached	N	N	Y <sup>2</sup>	Maximum density of 2 Du/Ac
11.12	Single units: semi-detached	N	N	N	
11.13	Single units: attached row	N	N	N	
11.21	Two units: side-by-side	N	N	N	
11.22	Two units: one above the other	N	N	N	
11.31	Apartments: walk-up	N	N	N	
11.32	Apartment: elevator	N	N	N	
12	Group quarters	N	N	N	
13	Residential hotels	N	N	N	
14	Mobile home parks or courts	N	N	N	
15	Transient lodgings	N	N	N	
16	Other residential	N	N	N	
20	Manufacturing <sup>3</sup>				
21	Food and kindred products; manufacturing	N	N	Y	Maximum FAR 0.56 IN APZ II
22	Textile mill products; manufacturing	N	N	Y	Maximum FAR 0.56 IN APZ II
23	Apparel and other finished products; products made from fabrics, leather and similar materials; manufacturing	N	N	N	
24	Lumber and wood products (except furniture); manufacturing	N	Y	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
25	Furniture and fixtures; manufacturing	N	Y	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
26	Paper and allied products; manufacturing	N	Y	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
27	Printing, publishing, and allied industries	N	Y	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
28	Chemicals and allied products; manufacturing	N	N	N	



Table 1. Land Use Compatibility in APZs, Continued

SLUCM NO.	LAND USE NAME	CLEAR ZONE Recommendation <sup>1</sup>	APZ-I Recommendation <sup>1</sup>	APZ-II Recommendation <sup>1</sup>	DENSITY Recommendation <sup>1</sup>
20	Manufacturing <sup>3</sup> (continued)				
29	Petroleum refining and related industries	N	N	N	
30	Manufacturing <sup>3</sup> (continued)				
31	Rubber and miscellaneous plastic products; manufacturing	N	N	N	
32	Stone, clay, and glass products; manufacturing	N	N	Y	Maximum FAR 0.56 in APZ II
33	Primary metal products; manufacturing	N	N	Y	Maximum FAR 0.56 in APZ II
34	Fabricated metal products; manufacturing	N	N	Y	Maximum FAR 0.56 in APZ II
35	Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks	N	N	N	
39	Miscellaneous manufacturing	N	Y	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
40	Transportation, communication, and utilities <sup>3,4</sup>				
41	Railroad, rapid rail transit, and street railway transportation	N	Y <sup>6</sup>	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
42	Motor vehicle transportation	N	Y <sup>6</sup>	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
43	Aircraft transportation	N	Y <sup>6</sup>	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
44	Marine craft transportation	N	Y <sup>6</sup>	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
45	Highway and street right-of-way	Y <sup>5</sup>	Y <sup>6</sup>	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
46	Automobile parking	N	Y <sup>6</sup>	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
47	Communication	N	Y <sup>6</sup>	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
48	Utilities <sup>7</sup>	N	Y <sup>6</sup>	Y <sup>6</sup>	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
48.5	Solid waste disposal (landfills, incinerators, etc.)	N	N	N	
49	Other transportation, communication, and utilities	N	Y <sup>6</sup>	Y	See Note 6 below
50	Trade				
51	Wholesale trade	N	Y	Y	Maximum FAR of 0.28 in APZ I & .56 in APZ II

Table 1. Land Use Compatibility in APZs, Continued

SLUCM NO.	LAND USE NAME	CLEAR ZONE Recommendation <sup>1</sup>	APZ-I Recommendation <sup>1</sup>	APZ-II Recommendation <sup>1</sup>	Density Recommendation <sup>1</sup>
50	Trade (continued)				
52	Retail trade – building materials, hardware and farm equipment	N	Y	Y	See Note 8 below
53	Retail trade <sup>9</sup> – including shopping centers, discount clubs, home improvement stores, electronics superstores, etc.	N	N	Y	Maximum FAR of 0.16 in APZ II
54	Retail trade – food	N	N	Y	Maximum FAR of 0.24 in APZ II
55	Retail trade – automotive, marine craft, aircraft, and accessories	N	Y	Y	Maximum FAR of 0.14 in APZ I & 0.28 in APZ II
56	Retail trade – apparel and accessories	N	N	Y	Maximum FAR of 0.28 in APZ II
57	Retail trade – furniture, home, furnishings and equipment	N	N	Y	Maximum FAR of 0.28 in APZ II
58	Retail trade – eating and drinking establishments	N	N	N	
59	Other retail trade	N	N	Y	Maximum FAR of 0.16 in APZ II
60	Services <sup>10</sup>				
61	Finance, insurance and real estate services	N	N	Y	Maximum FAR of 0.22 in APZ II
62	Personal services	N	N	Y	Office uses only. Maximum FAR of 0.22 in APZ II.
62.4	Cemeteries	N	Y <sup>11</sup>	Y <sup>11</sup>	
63	Business services (credit reporting; mail, stenographic, reproduction; advertising)	N	N	Y	Maximum FAR of 0.22 in APZ II
63.7	Warehousing and storage services <sup>12</sup>	N	Y	Y	Maximum FAR of 1.0 in APZ I; 2.0 in APZ II
64	Repair Services	N	Y	Y	Maximum FAR of 0.11 APZ I; 0.22 in APZ II
65	Professional services	N	N	Y	Maximum FAR of 0.22 in APZ II
65.1	Hospitals, nursing homes	N	N	N	
65.1	Other medical facilities	N	N	N	
66	Contract construction services	N	Y	Y	Maximum FAR of 0.11 APZ I; 0.22 in APZ II
67	Government Services	N	N	Y	Maximum FAR of 0.24 in APZ II
68	Educational services	N	N	N	
68.1	Child care services, child development centers, and nurseries	N	N	N	

Table 1. Land Use Compatibility in APZs, Continued

SLUCM NO.	LAND USE NAME	CLEAR ZONE Recommendation <sup>1</sup>	APZ-I Recommendation <sup>1</sup>	APZ-II Recommendation <sup>1</sup>	Density Recommendation <sup>1</sup>
60	Services <sup>10</sup> (continued)				
69	Miscellaneous	N	N	Y	Maximum FAR of 0.22 in APZ II
69.1	Religious activities	N	N	N	
70	Cultural, entertainment and recreational				
71	Cultural activities	N	N	N	
71.2	Nature exhibits	N	Y <sup>13</sup>	Y <sup>13</sup>	
72	Public assembly	N	N	N	
72.1	Auditoriums, concert halls	N	N	N	
72.11	Outdoor music shells, amphitheaters	N	N	N	
72.2	Outdoor sports arenas, spectator sports	N	N	N	
73	Amusements – fairgrounds, miniature golf, driving ranges; amusement parks, etc.	N	N	Y	
74	Recreational activities (including golf courses, riding stables, water recreation)	N	Y <sup>13</sup>	Y <sup>13</sup>	Maximum FAR of 0.11 in APZ I; 0.22 in APZ II
75	Resorts and group camps	N	N	N	
76	Parks	N	Y <sup>13</sup>	Y <sup>13</sup>	Maximum FAR of 0.11 in APZ I; 0.22 in APZ II
79	Other cultural, entertainment and recreation	N	Y <sup>11</sup>	Y <sup>11</sup>	Maximum FAR of 0.11 in APZ I; 0.22 in APZ II
80	Resource production and extraction				
81	Agriculture (except live stock)	Y <sup>4</sup>	Y <sup>14</sup>	Y <sup>14</sup>	
81.5, 81.7	Livestock farming <del>and breeding, including grazing and feedlots</del>	N	Y <sup>14:15</sup>	Y <sup>14:15</sup>	
82	Agriculture related activities	N	Y <sup>14/5</sup>	Y <sup>14/5</sup>	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II; <del>no activity which produces smoke, glare, or involves explosives</del>
83	Forestry activities <sup>16</sup>	N	Y	Y	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II, no activity which produces smoke, glare, or involves explosives
84	Fishing activities <sup>17</sup>	N <sup>17</sup>	Y	Y	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II, no activity which produces smoke, glare, or involves explosives

Table 1. Land Use Compatibility in APZs, Continued

SLUCM NO.	LAND USE NAME	CLEAR ZONE Recommendation <sup>1</sup>	APZ-I Recommendation <sup>1</sup>	APZ-II Recommendation <sup>1</sup>	Density Recommendation <sup>1</sup>
80	Resource production and extraction (continued)				
85	Mining activities <sup>18</sup>	N	Y <sup>18</sup>	Y <sup>18</sup>	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II, no activity which produces smoke, glare, or involves explosives
89	Other resource production or extraction	N	Y	Y	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II, no activity which produces smoke, glare, or involves explosives
90	Other				
91	Undeveloped land	Y	Y	Y	
93	Water areas <sup>19</sup>	N <sup>19</sup>	N <sup>19</sup>	N <sup>19</sup>	
<p><b>KEY TO TABLE 1 – LAND USE COMPATIBILITY IN APZS</b></p> <p>SLUCM – Standard Land Use Coding Manual, U.S. Department of Transportation</p> <p>Y (Yes) – Land uses and related structures are normally compatible without restriction</p> <p>N (No) – Land use and related structures are not normally compatible and should be prohibited.</p> <p>Yx – Yes with restrictions. The land uses and related structures are generally compatible. However, see notes indicated by the superscript.</p> <p>Nx – No with exceptions. The land uses and related structures are generally incompatible. However, see notes indicated by the superscript.</p> <p>FAR – Floor Area Ratio. A floor area ratio is the ratio between the square feet of floor area of the building and the gross site area. It is customarily used to measure non-residential intensities.</p> <p>Du/Ac – Dwelling Units an Acre. This is customarily used to measure residential densities.</p>					
<p><b>NOTES FOR TABLE 1 – LAND USE COMPATIBILITY IN APZS</b></p> <p>1. A “Yes” or a “No” designation for compatible land use is to be used only for general comparison. Within each, uses exist where further evaluation may be needed in each category as to whether it is clearly compatible, normally compatible, or not compatible due to the variation of densities of people and structures. In order to assist air installations and local governments, general suggestions as to FARs are provided as a guide to density in some categories. In general, land use restrictions that limit occupants, including employees, of commercial, service, or industrial buildings or structures to 25 an acre in APZ I and 50 an acre in APZ II are considered to be low density. Outside events should normally be limited to assemblies of not more than 25 people an acre in APZ I, and maximum assemblies of 50 people an acre in APZ II. Recommended FARs are calculated using standard parking generation rates for various land uses, vehicle occupancy rates, and desired density in APZ I and II. For APZ I, the formula is FAR = 25 people an acre/(Average Vehicle Occupancy x Average Parking Rate x (43560/1000)). The formula for APZ II is FAR = 50/(Average Vehicle Occupancy x Average Parking Rate x (43560/1000)).</p>					

Table 1. Land Use Compatibility in APZs, Continued

NOTES FOR TABLE 1 – LAND USE COMPATIBILITY IN APZS

2. The suggested maximum density for detached single family housing is two Du/Ac. In a planned unit development (PUD) of single family detached units where clustered housing development results in large open areas, this density could possibly be increased slightly provided the amount of surface area covered by structures does not exceed 20 percent of the PUD total area. PUD encourages clustered development that leaves large open areas.
3. Other factors to be considered: Labor intensity, structural coverage, explosive characteristics, air-pollution, electronic interference with aircraft, height of structures, and potential glare to pilots.
4. No structures (except airfield lighting and navigational aids necessary for the safe operation of the airfield when there are no other siting options), buildings, or above-ground utility and communications lines should normally be located in Clear Zone areas on or off the air installation. The Clear Zone is subject to the most severe restrictions.
5. Rights-of-way for fenced highways, without sidewalks or bicycle trails, are allowed.
6. No above ground passenger terminals and no above ground power transmission or distribution lines. Prohibited power lines include high-voltage transmission lines and distribution lines that provide power to cities, towns, or regional power for unincorporated areas.
7. Development of renewable energy resources, including solar and geothermal facilities and wind turbines, may impact military operations through hazards to flight or electromagnetic interference. Each new development ~~should to~~ shall be analyzed for compatibility issues on a case-by-case basis that considers both the proposal and potentially affected mission.
8. Within SLUCM Code 52, maximum FARs for lumberyards (SLUCM Code 521) are 0.20 in APZ-I and 0.40 in APZ-11. For hardware, paint, and farm equipment stores, SLUCM Code 525, the maximum FARs are 0.12 in APZ I and 0.24 in APZ II.
9. A shopping center is an integrated group of commercial establishments that is planned, developed, owned, or managed as a unit. Shopping center types include strip, neighborhood, community, regional, and super-regional facilities anchored by small businesses, a supermarket or drug store, discount retailer, department store, or several department stores, respectively. Included in this category are such uses as big box discount clubs, home improvement superstores, office supply superstores, and electronics superstores. The maximum recommended FAR for SLUCM 53 should be applied to the gross leasable area of the shopping center rather than attempting to use other recommended FARs listed in Table 1 under Retail or Trade.
10. Ancillary uses such as meeting places, auditoriums, etc., are not recommended.
11. No chapels or houses of worship are allowed within APZ I or APZ II.
12. Big box home improvement stores are not included as part of this category.
13. Facilities must be low intensity, and provide no playgrounds, etc. Facilities such as club houses, meeting places, auditoriums, large classes, etc., are not recommended.
14. ~~Livestock grazing is a compatible land use, but feedlots and intensive animal husbandry are excluded.~~ Activities that attract concentrations of birds creating a hazard to aircraft operations should be excluded.

Table 1. Land Use Compatibility in APZs, Continued

NOTES FOR TABLE 1 – LAND USE COMPATIBILITY IN APZS

15. ~~Feedlots and intensive animal husbandry are included as compatible land uses.~~ *Factors to consider: labor intensity, structural coverage, explosive characteristics, and air pollutions.*
16. Lumber and timber products removed due to establishment, expansion, or maintenance of Clear Zone lands owned in fee will be disposed of in accordance with applicable DoD guidance.
17. Controlled hunting and fishing may be permitted for the purpose of wildlife management.
18. Surface mining operations that could create retention ponds that may attract waterfowl and present bird/wildlife aircraft strike hazards (BASH), or operations that produce dust or light emissions that could affect pilot vision are not compatible.
19. Naturally occurring water features (e.g., rivers, lakes, streams, wetlands) are pre-existing, ~~nonconforming~~ *incompatible* land uses. Naturally occurring water features that attract waterfowl present a potential BASH. Actions to expand naturally occurring water features or construction of new water features should not be encouraged. If construction of new features is necessary for storm water retention, such features should be designed so that they do not attract water fowl.

APPENDIX 3 TO ENCLOSURE 3RECOMMENDED LAND USE COMPATIBILITY IN NOISE ZONES

Suggested land use compatibility guidelines in noise zones are shown in Table 2. Additions to some land use categories have been incorporated into Table 2 subsequent to issuance of the SLUCM to reflect additional land uses and to clarify the categorization of certain uses. The land use compatibility recommendations are provided for local governments as well as DoD personnel for on-base planning.

Table 2. Land Use Compatibility in Noise Zones

LAND USE		SUGGESTED LAND USE COMPATIBILITY				
SLUCM NO.	LAND USE NAME	DNL or CNEL 65-69	DNL or CNEL 70-74	DNL or CNEL 75-79	DNL or CNEL 80-84	DNL or CNEL 85+
10	Residential	N <sup>1</sup>	N <sup>1</sup>	N	N	N
11	Household units	N <sup>1</sup>	N <sup>1</sup>	N	N	N
11.11	Single units: detached	N <sup>1</sup>	N <sup>1</sup>	N	N	N
11.12	Single units: semidetached	N <sup>1</sup>	N <sup>1</sup>	N	N	N
11.13	Single units: attached row	N <sup>1</sup>	N <sup>1</sup>	N	N	N
11.21	Two units: side-by-side	N <sup>1</sup>	N <sup>1</sup>	N	N	N
11.22	Two units: one above the other	N <sup>1</sup>	N <sup>1</sup>	N	N	N
11.31	Apartments: walk-up	N <sup>1</sup>	N <sup>1</sup>	N	N	N
11.32	Apartment: elevator	N <sup>1</sup>	N <sup>1</sup>	N	N	N
12	Group quarters	N <sup>1</sup>	N <sup>1</sup>	N	N	N
13	Residential hotels	N <sup>1</sup>	N <sup>1</sup>	N	N	N
14	Mobile home parks or courts	N	N	N	N	N
15	Transient lodgings	N <sup>1</sup>	N <sup>1</sup>	N <sup>1</sup>	N	N
16	Other residential	N <sup>1</sup>	N <sup>1</sup>	N	N	N
20	<b>Manufacturing</b>					
21	Food and kindred products; manufacturing	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
22	Textile mill products; manufacturing	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
23	Apparel and other finished products; products made from fabrics, leather, and similar materials; manufacturing	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
24	Lumber and wood products (except furniture); manufacturing	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
25	Furniture and fixtures; manufacturing	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
26	Paper and allied products; manufacturing	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
27	Printing, publishing, and allied industries	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N

Table 2. Land Use Compatibility in Noise Zones, Continued

Land Use		Suggested Land Use Compatibility				
SLUCM NO.	LAND USE NAME	DNL or CNEL 65-69	DNL or CNEL 70-74	DNL or CNEL 75-79	DNL or CNEL 80-84	DNL or CNEL 85+
20	Manufacturing (continued)					
28	Chemicals and allied products; manufacturing	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
29	Petroleum refining and related industries	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
30	Manufacturing (continued)					
31	Rubber and misc. plastic products; manufacturing	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
32	Stone, clay and glass products; manufacturing	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
33	Primary metal products; manufacturing	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
34	Fabricated metal products; manufacturing	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
35	Professional scientific, and controlling instruments; photographic and optical goods; watches and clocks	Y	25	30	N	N
39	Miscellaneous manufacturing	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
40	Transportation, communication and utilities					
41	Railroad, rapid rail transit, and street railway transportation	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
42	Motor vehicle transportation	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
43	Aircraft transportation	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
44	Marine craft transportation	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
45	Highway and street right-of-way	Y	Y	Y	Y	N
46	Automobile parking	Y	Y	Y	Y	N
47	Communication	Y	25 <sup>5</sup>	30 <sup>5</sup>	N	N
48	Utilities	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
49	Other transportation, communication and utilities	Y	25 <sup>5</sup>	30 <sup>5</sup>	N	N
50	Trade					
51	Wholesale trade	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
52	Retail trade – building materials, hardware and farm equipment	Y	25	30	Y <sup>4</sup>	N
53	Retail trade – including shopping centers, discount clubs, home improvement stores, electronics superstores, etc.	Y	25	30	N	N
54	Retail trade – food	Y	25	30	N	N



Table 2. Land Use Compatibility in Noise Zones, Continued

Land Use		Suggested Land Use Compatibility				
SLUCM NO.	LAND USE NAME	DNL or CNEL 65-69	DNL or CNEL 70-74	DNL or CNEL 75-79	DNL or CNEL 80-84	DNL or CNEL 85+
50	Trade (Continued)					
55	Retail trade – automotive, marine craft, aircraft and accessories	Y	25	30	N	N
56	Retail trade – apparel and accessories	Y	25	30	N	N
57	Retail trade – furniture, home, furnishings and equipment	Y	25	30	N	N
58	Retail trade – eating and drinking establishments	Y	25	30	N	N
59	Other retail trade	Y	25	30	N	N
60	Services					
61	Finance, insurance and real estate services	Y	25	30	N	N
62	Personal services	Y	25	30	N	N
62.4	Cemeteries	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4,11</sup>	Y <sup>6,11</sup>
63	Business services	Y	25	30	N	N
63.7	Warehousing and storage	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
64	Repair services	Y	Y <sup>2</sup>	Y <sup>3</sup>	Y <sup>4</sup>	N
65	Professional services	Y	25	30	N	N
65.1	Hospitals, other medical facilities	25	30	N	N	N
65.16	Nursing homes	N <sup>1</sup>	N <sup>1</sup>	N	N	N
66	Contract construction services	Y	25	30	N	N
67	Government services	Y <sup>1</sup>	25	30	N	N
68	Educational services	25	30	N	N	N
68.1	Child care services, child development centers, and nurseries	25	30	N	N	N
69	Miscellaneous	Y	25	30	N	N
69.1	Religious activities	Y	25	30	N	N
70	Cultural, entertainment and recreational					
71	Cultural activities (& churches)	25	30	N	N	N
71.2	Nature exhibits	Y <sup>1</sup>	N	N	N	N
72	Public assembly	Y	N	N	N	N
72.1	Auditoriums, concert halls	25	30	N	N	N
72.11	Outdoor music shells, amphitheaters	N	N	N	N	N
72.2	Outdoor sports arenas, spectator sports	Y <sup>7</sup>	Y <sup>7</sup>	N	N	N
73	Amusements	Y	Y	N	N	N

Table 2. Land Use Compatibility in Noise Zones, Continued

Land Use		Suggested Land Use Compatibility				
SLUCM NO.	LAND USE NAME	DNL or CNEL 65-69	DNL or CNEL 70-74	DNL or CNEL 75-79	DNL or CNEL 80-84	DNL or CNEL 85+
70	Cultural, entertainment and recreational (continued)					
74	Recreational activities (including golf courses, riding stables, water recreation)	Y	25	30	N	N
75	Resorts and group camps	Y	25	N	N	N
76	Parks	Y	25	N	N	N
79	Other cultural, entertainment and recreation	Y	25	N	N	N
80	Resource production and extraction					
81	Agriculture (except live stock)	Y <sup>8</sup>	Y <sup>9</sup>	Y <sup>10</sup>	Y <sup>10,11</sup>	Y <sup>10,11</sup>
81.5	Livestock farming	Y <sup>8</sup>	Y <sup>9</sup>	N	N	N
81.7	Animal breeding	Y <sup>8</sup>	Y <sup>9</sup>	N	N	N
82	Agriculture related activities	Y <sup>8</sup>	Y <sup>9</sup>	Y <sup>10</sup>	Y <sup>10,11</sup>	Y <sup>10,11</sup>
83	Forestry activities	Y <sup>8</sup>	Y <sup>9</sup>	Y <sup>10</sup>	Y <sup>10,11</sup>	Y <sup>10,11</sup>
84	Fishing activities	Y	Y	Y	Y	Y
85	Mining activities	Y	Y	Y	Y	Y
89	Other resource production or extraction	Y	Y	Y	Y	Y
<p>KEY TO TABLE 2 – LAND USE COMPATIBILITY IN NOISE ZONES</p> <p>SLUCM – Standard Land Use Coding Manual, U.S. Department of Transportation</p> <p>Y (Yes) – Land use and related structures compatible without restrictions.</p> <p>N (No) – Land use and related structures are not compatible and should be prohibited.</p> <p>Y<sup>x</sup> – Yes with restrictions. The land use and related structures generally are compatible. However, see note(s) indicated by the superscript.</p> <p>N<sup>x</sup> – No with exceptions. The land use and related structures are generally incompatible. However, see note(s) indicated by the superscript.</p> <p>25, 30, or 35 – The numbers refer to noise level reduction (NLR) levels. NLR (outdoor to indoor) is achieved through the incorporation of noise attenuation into the design and construction of a structure. Land use and related structures are generally compatible; however, measures to achieve NLR of 25, 30, or 35 must be incorporated into design and construction of structures. However, measures to achieve an overall noise reduction do not necessarily solve noise difficulties outside the structure and additional evaluation is warranted. Also, see notes indicated by superscripts where they appear with one of these numbers.</p> <p>DNL – Day-Night Average Sound Level.</p> <p>CNEL – Community Noise Equivalent Level (normally within a very small decibel difference of DNL)</p> <p>Ldn – Mathematical symbol for DNL.</p>						

Table 2. Land Use Compatibility in Noise Zones, Continued

NOTES FOR TABLE 2 – LAND USE COMPATIBILITY IN NOISE ZONES

1. General

a. Although local conditions regarding the need for housing may require residential use in these zones, residential use is discouraged in DNL 65-69 and strongly discouraged in DNL 70-74. The absence of viable alternative development options should be determined and an evaluation should be conducted locally prior to local approvals indicating that a demonstrated community need for the residential use would not be met if development were prohibited in these zones. Existing residential development is considered as pre-existing, ~~non-conforming-incompatible~~ land uses.

b. Where the community determines that these uses must be allowed, measures to achieve outdoor to indoor NLR of at least 25 decibels (dB) in DNL 65-69 and 30 dB in DNL 70-74 should be incorporated into building codes and be considered in individual approvals; for transient housing, an NLR of at least 35 dB should be incorporated in DNL 75-79.

c. Normal permanent construction can be expected to provide an 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, upgraded sound transmission class ratings in windows and doors, and closed windows year round. Additional consideration should be given to modifying NLR levels based on peak noise levels or vibrations.

d. NLR criteria will not eliminate outdoor noise problems. However, building location, site planning, design, and use of berms and barriers can help mitigate outdoor noise exposure particularly from ground level sources. Measures that reduce noise at a site should be used wherever practical in preference to measures that only protect interior spaces.

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. If project or proposed development is noise sensitive, use indicated NLR; if not, land use is compatible without NLR.

6. Buildings are not permitted.

7. Land use is compatible provided special sound reinforcement systems are installed.

8. Residential buildings require an NLR of 25 *dB*.

9. Residential buildings require an NLR of 30 *dB*.

Table 2. Land Use Compatibility in Noise Zones, Continued

NOTES FOR TABLE 2 – LAND USE COMPATIBILITY IN NOISE ZONES

10. Residential buildings are not permitted.

11. Land use that involves outdoor activities is not recommended, but if the community allows such activities, hearing protection devices should be worn when noise sources are present. Long-term exposure (multiple hours per day over many years) to high noise levels can cause hearing loss in some unprotected individuals.

## GLOSSARY

### PART I. ABBREVIATIONS AND ACRONYMS

AAD	average annual day
ABD	average busy day
ADNL	A-weighted day-night average sound level
AICUZ	air installations compatible use zone
APZ	Accident Potential Zone
BASH	bird or wildlife aircraft strike hazard
<i>CFR</i>	<i>Code of Federal Regulations</i>
CNEL	community noise equivalent level
dB	decibel
DNL	day-night average sound level
DoDD	DoD Directive
DoDI	DoD Instruction
Du/Ac	dwelling units an acre
FAR	floor area ratio
FICON	Federal Interagency Committee on Noise
IFR	instrument flight rules
JLUS	joint land use study
NLR	noise level reduction
OEA	Office of Economic Adjustment
PUD	planned unit development
SLUCM	Standard Land Use Coding Manual

### PART II. DEFINITIONS

These terms and their definitions are for the purposes of this Instruction.

A – weighted. An expression of the relative loudness of sounds in air as perceived by the human ear where the decibel values of sounds at low frequencies are reduced. By contrast, unweighted decibels make no correction for audio frequency.

air installation. Fixed-wing and rotary-wing military airfields.

APZ I. The area beyond the Clear Zone that possesses a significant potential for accidents.

APZ II. The area beyond APZ I having a measurable potential for accidents.

area of critical concern. An area within the airfield environment as defined by the DoD Component where land use controls may be desirable to protect long-term mission capability. The development of the final boundary of areas of critical concern shall also take into account natural and manmade features.

Class A runway. A runway primarily intended for small, light aircraft and that does not have the potential for development for heavy or high performance aircraft use, or for which no foreseeable requirements for such use exists. Ordinarily, less than 10 percent of the operations at airfields with Class A runways involve aircraft in the Class B category and the runway(s) are less than 8,000 feet long.

Class B runway. A runway primarily intended for high-performance and large, heavy aircraft. For example, runways that accommodate heavy aircraft or have the potential for development to heavy aircraft use.

Clear Zone. A surface on the ground or water beginning at the runway end and symmetrical about the runway centerline extended.

United States. The several States, the District of Columbia, the Commonwealths of Puerto Rico and the Northern Mariana Islands, American Samoa, Guam, Midway and Wake Islands, the United States Virgin Islands, any other territory or possession of the United States, and associated navigable waters, contiguous zones, and ocean waters of which the natural resources are under the exclusive management authority of the United States.