

OPNAVINST 11010.36D

MCO 11010.16A

11 Apr 2022

**AIR
INSTALLATIONS
COMPATIBLE USE
ZONES
PROGRAM**

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DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
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N4/DC I&L (LF)
11 Apr 2022

OPNAV INSTRUCTION 11010.36D
MARINE CORPS ORDER 11010.16A

From: Chief of Naval Operations
Commandant of the Marine Corps

Subj: Air Installations Compatible Use Zones Program

Encl: (1) Air Installations Compatible Use Zones Program Responsibilities
(2) References
(3) Air Installations Compatible Use Zones Program Procedures and
Guidelines for Department of the Navy Air Installations

1. Purpose. Per enclosures (1) and (2), this instruction establishes policies, responsibilities and procedures for the Department of the Navy's (DON) Air Installations Compatible Use Zones (AICUZ) program. This is a complete revision of the previous instruction and should be reviewed in its entirety.

2. Cancellation. OPNAVINST 11010.36C and MCO 11010.16.

3. Background.

a. The Department of Defense (DoD) initiated the AICUZ program to promote

compatibility between air installations and the community by encouraging compatible land uses that safeguard the installation's operational capabilities.

b. The AICUZ program recommends land uses that will be compatible with noise levels, accident potential and obstruction clearance criteria associated with military operations at air installations. This includes incorporating civilian air operations at shared use airfields to the extent practical. Program implementation procedures for the U.S. Navy and U.S. Marine Corps (USMC) are contained in enclosure (3).

4. Policy. It is U.S. Navy and USMC policy to:

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

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b. Protect U.S. Navy and USMC air installation investments by safeguarding the installations' operational capabilities.

c. Inform the public about the AICUZ program and cooperative efforts to minimize aircraft noise and accident potential impact by promoting compatible land use and activities in the vicinity of air installations.

d. 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.

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

f. Promote education and engagement with communities affected by military operations at air installations.

g. Emphasize the importance of timely implementation of the AICUZ recommendations.

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

5. Scope and Applicability. This instruction applies to all U.S. Navy and USMC airfields within the U.S. and to airfields hosting U.S. Navy and USMC aviation activities which do not otherwise operate a DoD AICUZ program. AICUZ studies or portions thereof, may be developed for airfields outside the U.S. for on-base planning purposes only to the extent that the requirements of this Instruction and Order do not contravene existing status-of-forces agreements and other treaties or executive agreements with host nations or otherwise contravene mandatory policy guidance issued by a joint command or sub-unified command.

6. Execution.

a. The Deputy Chief of Naval Operations, Fleet Readiness and Logistics (CNO N4) is responsible for AICUZ policy, resourcing and oversight of the U.S. Navy AICUZ program. The

Deputy Commandant for Installations and Logistics (DC I&L) is responsible for USMC AICUZ policy and resourcing. The Assistant Deputy Commandant for Installations and Logistics (Facilities) (ADC I&L LF) and Commander, Marine Corps Installations Command (COMMCICOM) provides direct oversight, management and execution of the USMC AICUZ Program through COMMCICOM Assistant Chief of Staff (AC/S), Modernization and Development (G-7).

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b. Enclosure (1) assigns U.S. Navy and USMC AICUZ program roles and responsibilities.

7. Records Management.

a. Records created as a result of this instruction, regardless of format or media, must be maintained and dispositioned per the records disposition schedules located on the DON Assistant for Administration, Directives and Records Management Division portal page at <https://portal.secnav.navy.mil/orgs/DUSNM/DONAA/DRM/Records-and-Information-Management/Approved%20Record%20Schedules/Forms/AllItems.aspx>.

b. For questions concerning the management of records related to this instruction or the records disposition schedules, please contact the local records manager or the OPNAV Records Management Program (DNS-16).

8. Review and Effective Date. Per OPNAVINST 5215.17A, CNO N4 will review this instruction annually around the anniversary of its issuance date to ensure applicability, currency and consistency with Federal, DoD, Secretary of the Navy and Navy policy and statutory authority using OPNAV 5215/40 Review of Instruction. This instruction will be in effect for 10 years, unless revised or cancelled in the interim and will be reissued by the 10-year anniversary date if it is still required, unless it meets one of the exceptions in OPNAVINST 5215.17A, paragraph 9. Otherwise, if the instruction is no longer required, it will be processed for cancellation as soon as the need for cancellation is known following the guidance in OPNAV Manual 5215.1 of May 2016.



E. D. BANTA R. L. WILLIAMSON Deputy
Commandant Deputy Chief of Naval Operations Installations and Logistics (Fleet
Readiness and Logistics)

Releasability and distribution:

This instruction is cleared for public release and is available electronically only via DON Issuances Web site, <https://www.secnav.navy.mil/doni/default.aspx>.

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AICUZ PROGRAM RESPONSIBILITIES

1. Deputy Chief of Naval Operations, Fleet Readiness and Logistics (CNO N4) will:

a. Provide policy and resources for the U.S. Navy AICUZ program; including AICUZ studies, implementation efforts, acoustic data collection, the DoD Noise Program, training and program management;

b. Provide oversight to ensure the AICUZ program adequately addresses readiness sustainment and compatibility concerns and is coordinated with U.S. Navy environmental planning and compliance programs; and

c. Provide headquarters representative to the Defense Noise Working Group (DNWG).

2. Headquarters Marine Corps (HQMC) will:

a. DC I&L. On behalf of the Commandant of the Marine Corps (CMC), DC I&L will:

(1) Serve as the HQMC proponent for USMC AICUZ program policies and the principal AICUZ resource sponsor; and

(2) Coordinate with the Deputy Commandant for Aviation (DC A) and the Commanding General (CG), Training and Education Command (TECOM) on AICUZ and noise study aspects

when approving installation facilities' planning proposals.

b. ADC I&L (LF) and COMMCICOM will:

(1) Exercise program responsibility for the USMC AICUZ program as the program proponent and executive agent;

(2) Exercise approval authority over USMC AICUZ documents, new or updated AICUZ studies and other AICUZ footprint changes; and

(3) Emphasize to region commanding generals and installation commanding officers the importance of continual review of operational procedures to identify operational changes to reduce noise within the constraints of safety, mission effectiveness and financial feasibility.

c. MCICOM Assistant Chief of Staff (AC/S), Modernization and Development Directorate (G-7) will:

(1) Serve as the lead MCICOM section-level office for oversight of the AICUZ Program;

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(2) Develop, coordinate, maintain and update USMC AICUZ policies and procedures to provide enterprise-wide direction for program planning, preparation and execution;

(3) Fund, subject to availability, AICUZ studies and noise studies;

(4) Provide command direction, priorities and recommendations on AICUZ studies and waiver requests submitted by installation commanding officers and regions; and

(5) Promote an AICUZ education program in coordination with Commander, Naval Facilities Engineering Systems Command (COMNAVFACENGSSCOM).

d. Deputy Commandant, Aviation (DC A) will:

(1) Review and comment on all AICUZ studies and waivers;

(2) Serve as a subject matter expert (SME) for aviation and airspace issues during the AICUZ process and ensure AICUZ analyses consider existing and future airspace, air traffic control procedures and aviation weapons and ammunition requirements as it pertains to risk to safety and compatibility of development projects or resource use plans;

(3) Integrate AICUZ determinations and outcomes with USMC aviation operations, plans, acquisition and sustainment programs, as needed;

(4) Validate aircraft operation projections and estimates of future USMC aviation mission requirements to support analysis of current and projected operations; and

(5) Ensure all USMC Aviation initiatives and actions that meet AICUZ thresholds follow the AICUZ process.

e. Commanding General, Training and Education Command (CG TECOM) will review and comment on AICUZ studies and waivers.

f. MCICOM AC/S, Operations and Plans (G-3/5) will review and comment on all AICUZ studies.

g. MCICOM AC/S, Facilities Directorate (GF) will review and comment on all AICUZ studies.

3. Commander, Navy Installations Command (CNIC) will:

a. Establish and execute the U.S. Navy AICUZ program requirements and responsibilities;

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b. Fund, subject to available resources, AICUZ studies and noise studies;

c. Develop an integrated priority list for AICUZ studies, noise studies and updates in conjunction with mission component commands and the COMNAVFACENGYSYSCOM as required;

d. Provide CNO N4 with electronic copies of final AICUZ studies for situational awareness;

e. Approve final AICUZ studies or AICUZ footprint changes;

f. Provide an annual AICUZ program review brief to CNO N4 on the status of AICUZ documents and funding execution, with a summary of completed AICUZ study recommendations;

g. Ensure installation facilities planning proposals are consistent with AICUZ recommended land uses and safety zones, prior to approval; and

h. Promote an AICUZ education program in coordination with COMNAVFACENGYSYSCOM.

4. COMNAVFACENGYSYSCOM will:

a. Provide technical oversight and implementation guidance for the AICUZ program;

b. Integrate the AICUZ planning process into the shore infrastructure program overview plans for U.S. Navy and installation master plans for the USMC, recognizing on-installation and off-installation impacts and using detailed guidance and criteria in the areas of land use compatibility with respect to both noise and accident potential exposure;

c. Provide technical direction during facilities design to ensure buildings will be resilient to noise emanating from aircraft flight, maintenance and test operations;

d. Establish and maintain SME to coordinate AICUZ issues with regional commands and installations within their areas of responsibility;

e. Develop and implement an AICUZ training program for U.S. Navy and USMC personnel to provide the latest technical and planning guidelines for implementation of the AICUZ program;

f. Coordinate with the Commander, Naval Air Systems Command (COMNAVAIRSYSCOM), as appropriate, to schedule and develop the noise measurement program, as required; and

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g. Provide representation to the DNWG.

5. COMNAVAIRSYSCOM will coordinate with COMNAVFACENGSYSCOM, as appropriate, to schedule and develop the noise measurement program, as required. During the acquisition process, COMNAVAIRSYSCOM will program for the acoustic data acquisition for new weapons systems, noise measurements for new aircraft and aircraft or engine upgrades.

6. Commanding Generals, MCICOM regions and Commanders, CNIC regions will:

a. Exercise overall responsibility for ensuring every installation within their respective region has an up-to-date AICUZ study and for supporting installations in executing their implementation strategies;

b. Actively work with regional, state, local and tribal governments and planning officials to implement AICUZ recommendations; and

c. Provide guidance to ensure that AICUZ-related environmental documentation requirements are met and that environmental planning and resource management is in alignment with AICUZ compatibility recommendations to preserve military mission support.

7. Mission component commands will:

a. Coordinate with CNIC and COMMCICOM on mission requirements and priorities to support AICUZ requirements development, study efforts and implementation; and

b. Ensure that actions such as the introduction of new aircraft types or changes in flight corridors that could alter the AICUZ footprint or environmental documentation are coordinated with CNIC and COMMCICOM.

8. Air Installation Commanding Officers will:

- a. Oversee development of the installation AICUZ study and implement the AICUZ program per this instruction;
- b. Actively work with regional, state, local and tribal planning officials to implement AICUZ study recommendations;
- c. Notify the chain of command whenever local conditions or operations merit update or review of the AICUZ study;

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- d. Attend and promote staff attendance at seminars and training events sponsored by CNO N4 and COMMCICOM to increase awareness of current trends and techniques for AICUZ program development and implementation;
- e. Maintain a documentary file library on the AICUZ study implementation efforts of the installation and the local community;
- f. Justify the retention of real property or interests in real property or the need for the acquisition of interests in real property, required for AICUZ compliance and mission performance;
- g. Continually review operational procedures and evaluate potential operational alternatives or noise-reduction strategies to reduce noise within the constraints of safety, mission effectiveness and financial feasibility; and
- h. Maintain aircraft operational data per NAVAIR 00-80T-124, Naval Air Training and Operating Procedures Standardization U.S. Navy Shore Airfield Operations Manual.

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REFERENCES

- (a) DoD Instruction 4165.57 of 31 Aug 2018
- (b) ASN (EI&E) memo dtd 8 Jul 2021
- (c) SECNAV M-5210.1
- (d) MCO 5210.11F of 7 Apr 2015
- (e) DoD Instruction 4715.13 of 28 Jan 2020
- (f) DNWG, "Improving Aviation Noise Planning, Analysis and Public Communication with Supplemental Metrics," of December 2009
- (g) U.S. Department of Transportation, Federal Highway Administration, Standard Land Use Coding Manual (SLUCM) of March 1965
- (h) Federal Interagency Committee on Urban Noise, Guidelines for Considering Noise in Land Use Planning and Control of June 1980
- (i) Federal Interagency Committee on Noise, Federal Agency Review of Selected Airport Noise Analysis Issues of August 1992
- (j) UFC 3-260-01 of 5 May 2020
- (k) UFC 2-100-01 CH-2 of 25 Oct 2019
- (l) UFC 3-210-01A CH-3 of 28 Sept 2020
- (m) SECNAVINST 11011.47D
- (n) MCO P11000.14 CH-1 of 3 May 1977
- (o) OPNAVINST 11010.40A
- (p) MCO 11011.23A of 20 JUL 2020
- (q) DoD Instruction 4715.24 CH-2 of 27 Mar 2019

(r) 10 U.S.C. § 2684a
(s) 41 CFR Part 102
(t) OPNAV-M 5090.1
(u) MCO 5090.2 of 11 Jun 2018
(v) 14 CFR Part 77
(w)NAVAIR 00-80T-114

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AIR INSTALLATIONS COMPATIBLE USE ZONES PROGRAM
PROCEDURES AND GUIDELINES
FOR
DEPARTMENT OF THE NAVY
AIR INSTALLATIONS

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 – AICUZ PROGRAM PROCESSES

1. The AICUZ Program Process. The process to implement the AICUZ program objectives at an installation includes:

a. Developing and Periodically Updating an AICUZ Study. AICUZ studies include a detailed analysis of current and future operations, accident potential, aircraft noise and land use compatibility. Chapter 4 provides details on the AICUZ study contents. The AICUZ study requires establishing Clear Zones, Accident Potential Zones (APZ) and noise contours.

(1) APZs and Clear Zones. APZs and Clear Zones are based upon the airfield type and operational dynamics as defined in Chapter 2 of this Enclosure. The AICUZ program provides recommendations for compatible land uses within APZs and Clear Zones.

(2) Noise Contours. The AICUZ study requires computerized modeling of aircraft activity and site specific operational data at the installation to develop noise contours as defined in Chapter 3.

b. Updating and Releasing the AICUZ Study to the Public. Public release of an AICUZ study document (outlined in Chapter 4) to disclose the AICUZ footprint and compatible land use recommendations to the community.

c. Implementing the AICUZ. Implementation of the AICUZ program both on-installation and off-installation (outlined in Chapter 5) requires coordination with Federal, state, tribal and local Governments as part of the installation's encroachment management program. Stakeholder engagement helps maintain public awareness of AICUZ matters and promotes compatible land uses within the AICUZ footprint.

d. Monitoring the AICUZ Program. Periodic local review and assessment of an installation's AICUZ program (outlined in Chapter 7) ensures that the AICUZ study continues to reflect the most current and representative information available on noise, accident potential and land use compatibility.

e. Conducting Technical Reviews. The internal technical assessment (outlined in Chapter 8) of operational data ensures the AICUZ study is current and accurate. Technical reviews quantify aircraft noise exposure, identify Clear Zones and APZs, evaluate operational alternatives and noise-reduction strategies and develop an on-station implementation plan. Installations should conduct a technical review of new or changed operations, aircraft platforms or other circumstances to determine the need to update the AICUZ study. Technical reviews are not intended for public release.

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2. Joint Bases. At joint bases where the Armed Forces Components' AICUZ criteria differ, the base must use the criteria of the supporting Component operating the airfield unless the supporting Component agrees to use the supported Component's criteria. The supported Component must not impose its criteria on the supporting Component airfield unless agreed to by the supporting Component.

3. Shared Use. At shared use airfields, the development of AICUZ studies should take into

account civilian operations to the maximum extent practical to document Navy and Marine Corps air operations and present them to the public for appropriate action.

a. **Civilian Flight Operations at Military Airfields.** AICUZ program requirements apply to DON owned runways, taxiways and other necessary facilities where non-military aircraft operations are conducted. The AICUZ study will include both military and non-military operations. At locations where a civil authority either owns or has a real estate interest in a runway(s) from the DON, the DON will prepare an AICUZ study that includes both civilian and military aircraft operations.

b. **Military Flight Operations at Civil Airfields.** For U.S. Navy and USMC air operations located on civilian airfields, the cognizant DON installation will provide data on unclassified military aircraft operations to the airfield operator with a request that they prepare an AICUZ study or equivalent. If the airfield operator does not agree, the installation will turn over all AICUZ related materials to the airfield operator and refer all land use compatibility matters to the airfield operator.

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 – DEVELOPMENT OF ACCIDENT POTENTIAL AND CLEAR ZONES

1. General. Clear Zones and APZs must be depicted on- and off- installation, over land and over water as part of the AICUZ footprint whether or not the DON owns a real property interest. Paragraph 2 of this chapter defines the procedures for developing Clear Zones and APZs for fixed-wing, rotary wing, tilt-rotor and short takeoff and vertical landing (STOVL) operations and non-standard and joint base activities.

2. Standard Fixed-Wing Aircraft Clear Zone and APZ Guidelines.

a. DoD fixed-wing runways are separated into two classes to define accident potential areas.

Class A runways are primarily used by light aircraft and do not have the potential for intensive use by heavy or high-performance aircraft. Typically, less than 10 percent of operations on these runways involve heavier aircraft and the runways are usually less than 8,000 feet long. Class B runways are all other fixed-wing runways. Figure 1 illustrates the standard geometry of the Clear Zone and APZs I and II for Class A runways and Figures 2 and 3 illustrate Class B runways. Due to the characteristics of flight operations at U.S. Navy and USMC air installations, the trapezoidal or “fan-shaped” Clear Zone will be used on Class B runways.

b. Fixed-wing Clear Zones and APZs are established in the area where impact is most likely to occur if an accident were to occur. A Clear Zone is required for all active fixed-wing runway ends. Establishing an APZ I is required where there is a minimum of 10,000 annual operations per runway and 5,000 fixed-wing annual operations per flight track (departures or approaches, but not both combined). When similar mode tracks align (e.g., straight-in arrival, overhead break arrival, arrival portion of a pattern operation), the operation counts are combined to determine if the number of annual operations requires designation of an APZ I. Fixed-wing aircraft Clear Zones and APZs are defined within subparagraphs 2b(1) through 2b(4):

(1) Clear Zones. The area immediately beyond the usual runway threshold and along primary flight paths is designated the “Clear Zone.” This is the area with the greatest potential for occurrence of aircraft accidents and should remain undeveloped. The Clear Zone is required for all active runway ends (see Figures 1 and 2). The Clear Zone is one contiguous area for purposes of applying land use recommendations in Appendix C, Table 2.

(2) APZ I. APZ I is the area beyond the Clear Zone that still possesses a measurable potential for accidents relative to the Clear Zone. Figures 1 and 2 illustrate the standard dimensions for APZ I, which could be modified per section 4 of this chapter.

(3) APZ II. APZ II is an area beyond APZ I (or Clear Zone, if APZ I is not used) that has a measurable potential for aircraft accidents relative to APZ I or the Clear Zone. APZ II is applied whenever APZ I is required by the number of annual operations listed in paragraph b (see Figures 1 and 2). APZ II can also be modified per section 4 of this chapter. If APZ I is not

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warranted, APZ II may still be used if an analysis indicates a need for it. In this case, rationale must be provided for the use of APZ II configured adjacent to the Clear Zone. Examples of such rationale include, but are not limited to, increased risk from the mix of aircraft types and airspeeds; multiple flight tracks; manned versus unmanned control systems; operational versus testing environments; high frequency of adverse weather conditions; or a number of annual operations per runway that is significant but does not warrant APZ I.

(4) The APZs in Figures 1 through 5 are notional depictions of standard and common non-standard APZs for Class A and Class B runways.

c. Fixed-wing aircraft Clear Zones are delineated using the criteria in subparagraphs 2c(1) and 2c(2) of this chapter according to runway type:

(1) Class A Runway. The Clear Zone is a rectangular area immediately beyond the end

of the runway and outward along the extended runway centerline for a distance of 3,000 feet. The Clear Zone measures 1,000 feet in width (see Figure 1).



Figure 1. Fixed-Wing APZS, Class A Runway

(2) Class B Runway. The Clear Zone is a trapezoidal area immediately beyond the end of the runway and outward along the extended runway centerline for a distance of 3,000 feet. As defined in reference (j), the Clear Zone measures 2,000 feet in width at the runway threshold and 2,784 feet in width at the outer edge. The flare starts at 200 feet from end of runways and the 3,000-foot Clear Zone length starts at runway end. For airfields constructed prior to 1981, the width at the start of the Clear Zone is 1,500 feet and the width at outer edge is 2,312 feet. Existing Clear Zones with dimensions established by previous criteria should be evaluated during the AICUZ update process for compliance with reference (j). Figure 2 shows pre-1981 APZ and Clear Zone dimensions for Class B runways.

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d. Fixed-wing aircraft APZs must be depicted based on flight tracks, as described in the situations:

(1) Where the predominant flight track is straight out and departs the runway on the extended runway centerline, Class A runway APZ I is 1,000 feet in width and 2,500 feet in length and Class B runway APZ I is 3,000 feet in width and 5,000 feet in length. APZ I should be rectangular or curved to conform to the shape of the predominant flight track (see Figures 1 and 2. Using other flight tracks will result in a non-standard APZ (see Paragraph 4).

(2) Where the predominant flight track curves departing the extended runway centerline, APZs must align to follow the flight track. The width of the curved APZ remains 3,000 feet for Class B runways and 1,000 feet for Class A runways. Using other flight tracks will result in a non-standard APZ (see paragraph 4).

(3) Where the flight track departs the Class B runway centerline prior to crossing the Clear Zone, APZ I must be 5,000 feet in length and APZ II must be 10,000 feet in length, measured from the point the flight path leaves the runway centerline, as depicted in Figure 3.

(4) Where the flight track passes through the side of the Class B runway Clear Zone, APZ I must be 5,000 feet long and the length of APZ II must be the difference between the total length of the Clear Zone and APZ I and APZ II (15,000 feet) less the distance the flight track traverses APZ I (5,000 feet) and the distance the flight track traverses the Clear Zone. The distances are measured beginning at the point the flight path leaves the runway centerline, as depicted in Figure 4.

(5) Where APZs overlap with Clear Zones or other APZs, the most restrictive zone must take precedence in the depiction.

(6) Where the operational criteria for application of APZ I are satisfied due to Field Carrier Landing Practice operations, APZ II will be applied to the entire Field Carrier Landing Practice track beyond APZ I, resulting in a closed loop for the entire pattern, with an APZ I applied to the opposite runway end, as shown in Figure 5. Field Carrier Landing Practice is typically an intense aircraft evolution conducted both day and night with several aircraft in the pattern at low altitude.

(7) Where multiple flight tracks exist for a specific operation (e.g., arrival, departure, Field Carrier Landing Practice, ground controlled approach) that intersect the runway centerline and 5,000 operations exist by combining numbers on similar mode flight tracks, APZs should be centered on the dominant flight tracks(s) with the most operations.

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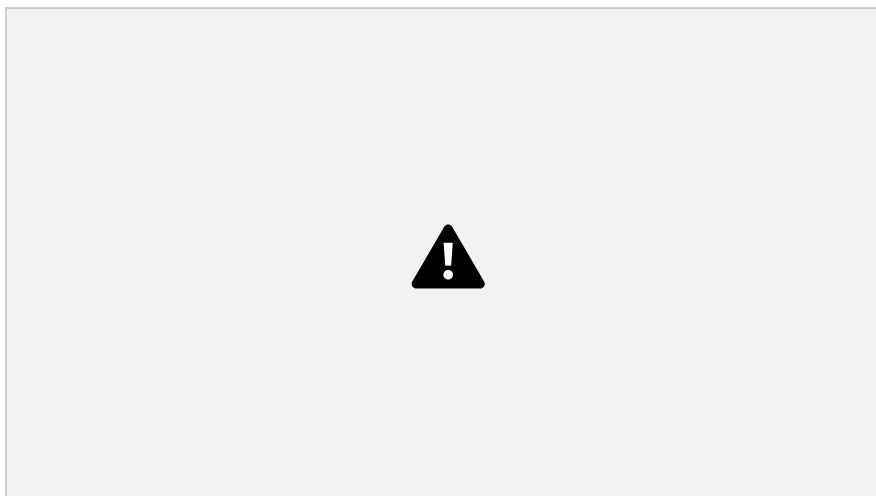


Figure 2. Fixed-Wing APZS, Class B Runway (Pre-1981)

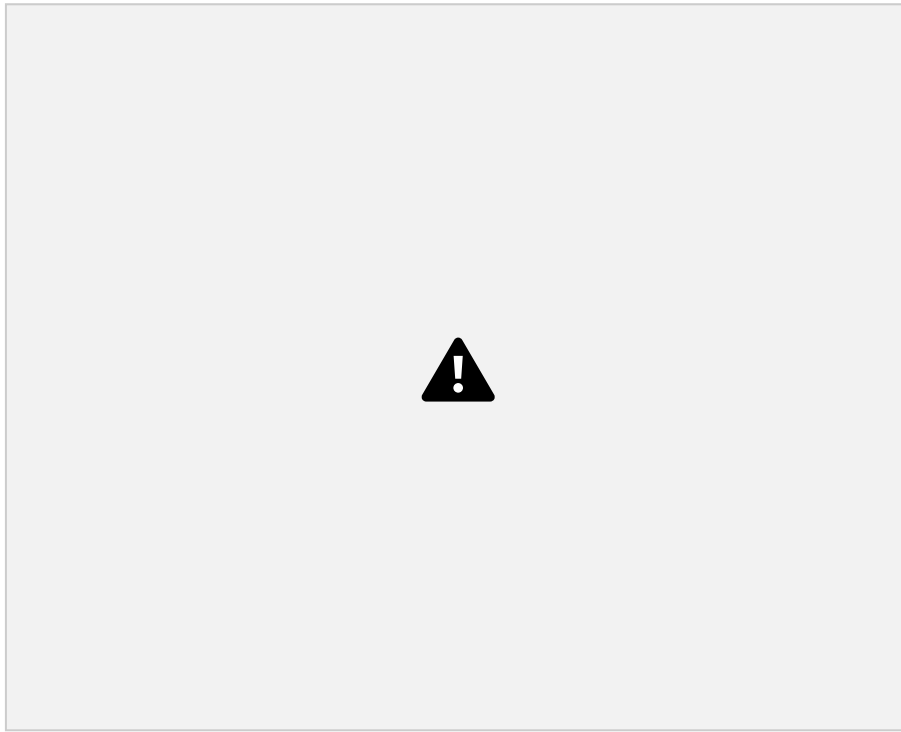


Figure 3. Flight Track Departs The Runway Centerline Prior To Crossing The Clear Zone, Class B Runway

Note: If scenarios apply to Class A runways, Class A runway APZ I and APZ II dimensions should be applied to APZ depictions.

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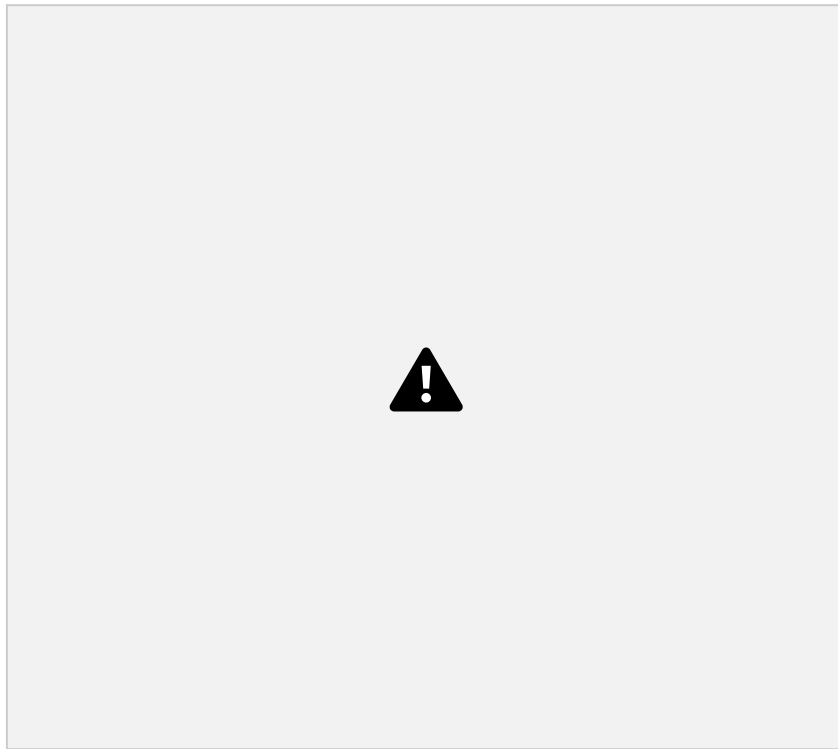
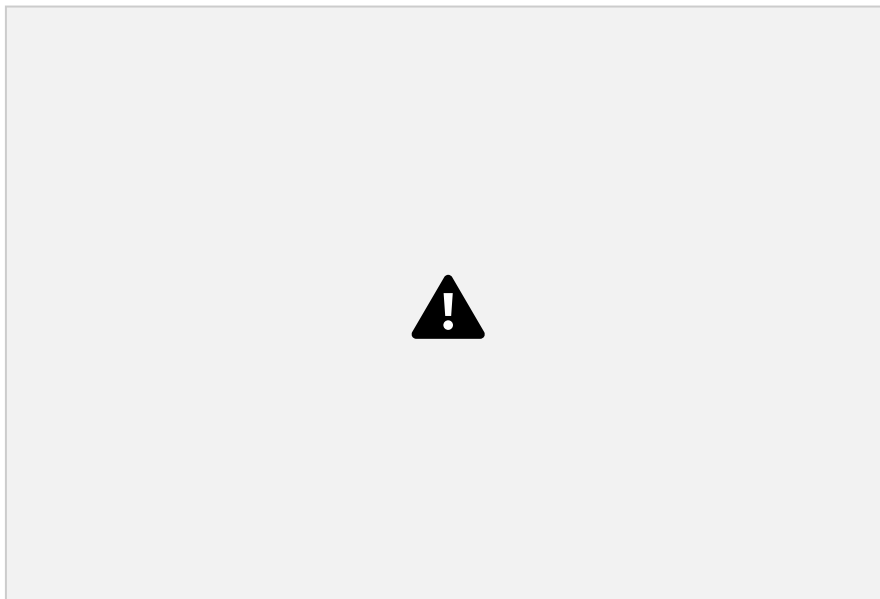


Figure 4. Flight Track Passes Through The Side Of The Clear Zone, Class B Runway

Note: If scenarios apply to Class A runways, Class A runway APZ I and APZ II dimensions should be applied to APZ depictions. Distances shown are representative only and actual distances are site specific.



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Figure 5. Fixed-Wing Closed-Loop APZS, Class B Runway

Note: If scenarios apply to Class A runways, Class A runway APZ I and APZ II dimensions should be applied to APZ depictions.

3. Rotary-Wing Aircraft Clear Zone and APZ Guidelines.

a. A Clear Zone is required for all visual flight rules (VFR) rotary-wing landing pads, landing zones or runways. APZ I is required for rotary-wing VFR landing pads, landing zones or runways at air installations and OLFs that support training and operational missions. Helipads provided to support administrative functions and hospitals that generate a low volume of helicopter operations do not need Clear Zones or APZ I, but these zones may be established based on unique operational factors. Instrument Flight Rules helicopter facilities have extensive primary surface areas and additional Clear Zones and APZs are not required.

b. The methods mentioned in subparagraphs 3b(1) through 3b(3) of this chapter must be used for development of Clear Zones and APZs for rotary-wing aircraft:

(1) Clear Zones. The Clear Zone for rotary-wing VFR facilities is the area under the VFR approach and departure surface. Clear Zones begin at the end of the primary surface. Clear Zones must be 400 feet long and 150 feet wide at the base and must flare to the point at which the outer width of the surface is 267 feet, as depicted in Figure 6.

(2) APZ I. APZ I is the area beyond the Clear Zone for the remainder of the approach and departure surface. APZ I must be 800 feet long and 267 feet wide at the base and must flare to the point at which the outer width of the surface is 500 feet. APZ I may curve to follow flight tracks, as depicted in Figure 6.

(3) APZ II. APZ II is normally not applied to helicopter flight paths unless the local command accident history or unique operational factors indicates the need for additional protection.

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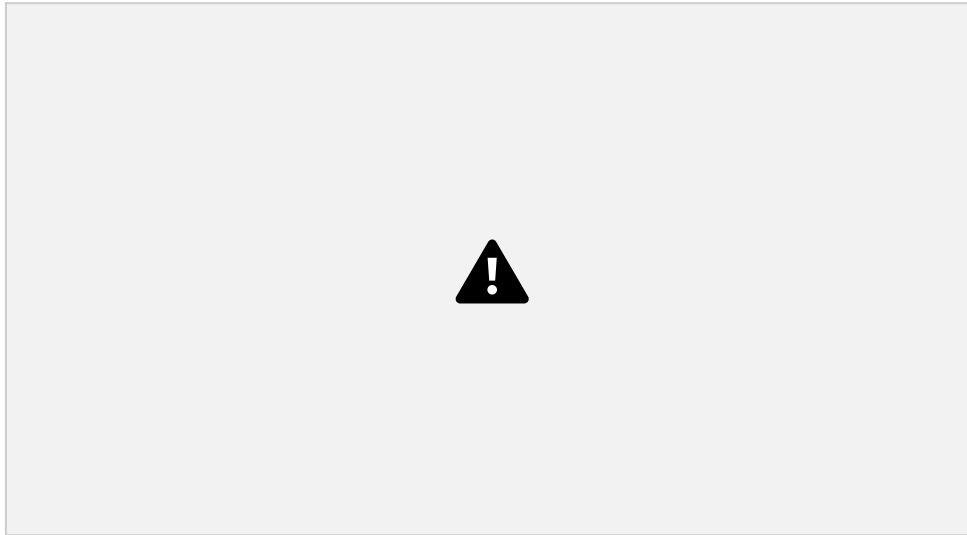


Figure 6. Rotary-Wing APZS

4. Non-Standard APZs for Fixed- and Rotary-Wing Facilities.

a. Non-standard APZs may be considered during the technical review process. Specific operational conditions may justify modification of the standard APZ geometry or application of standard APZ geometry where operations would not otherwise warrant. In these situations, the air installation will work with COMNAVFACENGYSYSCOM to develop the modified APZ dimensions and supporting rationale based on mission, operational tempo and community safety. Supporting rationale must be coordinated with CNIC Facilities and Environmental (N4)/MCICOM AC/S G-7 and approved by CNIC or COMMCICOM prior to any modification of an installation's APZ.

b. Situations in which non-standard or modified APZs may be considered include, but are not limited the situations mentioned in subparagraphs 4b(1) through 4b(6).

(1) Where the number of flight operations per flight track does not meet the operational threshold criteria to designate APZs.

(2) Where the number of flight operations exceed the threshold criteria to designate APZ's along multiple flight tracks.

(3) Where touch-and-go operations occur. These operations are similar to Field Carrier Landing Practice in that one or more aircraft fly a circuit around the airfield, perform a simulated carrier landing and immediately take off to perform another circuit. Unlike Field Carrier Landing Practice, touch-and-go operations are not graded for pilot deployment qualification; do not require frequent night flights; and can adopt flight tracks with a greater radius and elevation.

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(4) Where helipads use a single ingress and egress path (see reference (j)).

(5) Where other unusual conditions exist and can be documented.

(6) Where emerging missions and operations deviate from standard APZ guidance (e.g., Unmanned Aircraft System or depiction of APZs for Unmanned Carrier-Launched Airborne Surveillance and Strike).

5. STOVL Clear Zone and APZ Guidelines.

a. A Clear Zone and APZs are required for facilities that exclusively accommodate STOVL operations, regardless of the number of operations at the facility. The STOVL facilities include Fixed-Wing Simulated Landing Helicopter Assault (LHA) and Landing Helicopter Dock (LHD) facilities, Forward Operating Base (FOB), Fixed-Wing Vertical Landing (VL) pads and Tilt Rotor OLF runways.

b. The parameters mentioned in subparagraphs 5b(1) through 5b(4) must be used for STOVL-specific facilities:

(1) Fixed-Wing Simulated LHA and HD Facility. The Clear Zone for LHA and LHD must be 1,000 feet long by 300 feet wide for departures and 3,000 feet long by 300 feet wide for approaches. APZ I must be 2,500 feet long by 500 feet wide for departures and 2,500 feet long by 750 feet wide for approaches. APZ II must be 2,500 feet long by 1,000 feet wide for both departures and approaches.

(2) FOB. The Clear Zone for FOB must be 500 feet long by 300 feet wide. APZ I must be 2,500 feet long by 500 feet wide. APZ II must be 2,500 feet long by 1,000 feet wide.

(3) Fixed-Wing VL Pads. The Clear Zone must be 400 feet long by 300 feet wide. APZ I must be 800 feet long by 300 feet wide. APZ II is not required.

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(4) Tilt-Rotor OLF Runway. Clear Zones must be 400 feet long by 1,000 feet wide. APZ I must be 800 feet long by 1,000 feet wide, as shown in Figure 7. APZ II is not required.

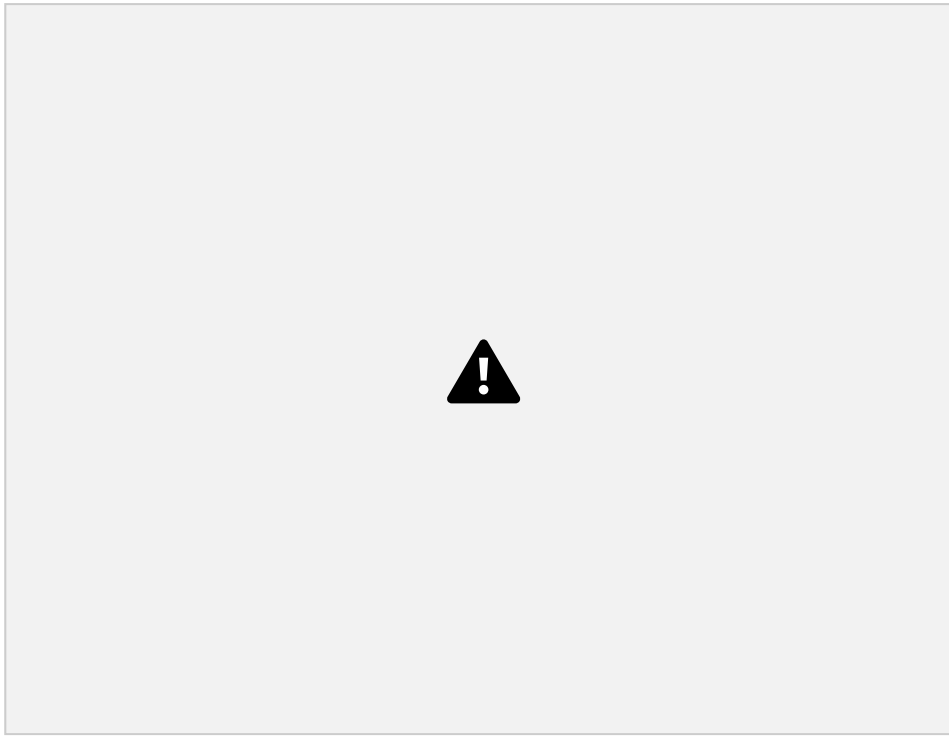


Figure 7. Tilt-Rotor

Outlying Landing Field Runway APZS

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 – DEVELOPMENT OF NOISE CONTOURS

1. General. Noise studies prepared for an AICUZ technical review are for internal planning purposes, except when prepared for analysis under the National Environmental Policy Act (NEPA). They can provide useful information that does not always result in the need to update the AICUZ study. Installation requests for noise studies, validated by the appropriate Navy or

Marine Corps region, are forwarded to CNIC (N4) or MCICOM AC/S G7, as applicable, for funding consideration. Noise studies prepared for NEPA analyses can be used in the technical review process (see chapter 8) to assess the need for an AICUZ update.

2. Noise Study Guidelines.

a. All noise contours should be developed by a computerized simulation of aircraft activity at the installation and reflect site-specific operational data (e.g., flight tracks, type and mix of aircraft, aircraft profiles [airspeed, altitude, power settings]) and frequency and times of flight operations and ground maintenance operations, including all engine run-ups.

b. Noise contours should be developed using future-year planning, reflecting expected operations in the next 5 to 10 years. Where future-year planning and projections of aircraft operations are not available or where little or no change is expected in the next 5 to 10 years, the installations may develop airfield noise contours from modeling of current-year operations. Modeling noise contours from current-year operations in addition to or in place of, projected operations will be coordinated with the Community Planning and Liaison Officer (CPLO), Regional CPLO (RCPLO), COMNAVFACENGSYSCOM AICUZ SME and mission component commands and approved by CNIC (N4) or MCICOM AC/S G7.

c. When modeling aircraft noise and resultant contours, use the metrics and methods mentioned within subparagraphs 2c(1) through 2c(6) of this chapter.:

(1) A-Weighted Day-Night Average Sound Level (ADNL) or Day-Night Average Sound Level (DNL). This noise descriptor will be used to describe the noise environment around airfields, except in California, where air installations will use the Community Noise Equivalent Level (CNEL) descriptor. If state or local laws require some other noise descriptor, it may be used in addition to DNL and CNEL.

(2) NOISEMAP and Rotorcraft Noise Model. This DoD suite of computer-based modeling tools will be used for developing noise contours for fixed-wing aircraft; the Rotorcraft Noise Model (RNM) program will be used for developing noise contours for rotary-wing and tilt-rotor aircraft operations. In the future, pending DoD approval, Advanced Acoustic Model will replace NOISEMAP and RNM.

(3) Average Annual Day. Since land use compatibility guidelines are based on yearly average noise levels, noise contours should be developed based on Average Annual Day (AAD) operations. The operations level on an AAD is calculated by dividing the total annual airfield operations by 365 days.

(4) Aircraft Noise Data Sources. COMNAVFACENGSYSCOM is responsible for providing aircraft noise technical data and technical guidance within the Navy and Marine Corps. DoD aircraft acoustical data for flight are available through the DoD NOISEFILE database maintained at the U.S. Air Force Research Laboratory at Wright-Patterson Air Force Base. The

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DNWG, established through reference (e), establishes DoD-wide procedures and guidelines for collecting acoustic data.

(5) Contour Mapping. At a minimum, contours for DNL and NEL 60, 65, 70, 75, 80 and 85 decibels (dB) must be plotted on maps for Navy and Marine Corps air installations as part of AICUZ studies. Contours below 60-dB DNL are not required, but may be provided if local community or command conditions warrant discussion of lower noise levels, such as in rural and desert areas or where significant noise complaints have been received in areas outside 60-dB DNL.

(6) Noise Metrics. Supplemental noise metrics may be used to augment DNL and CNEL noise analyses to provide additional descriptors of the noise environment in the vicinity of air installations, as noted by the Federal Interagency Committee on Noise. Reference (f) provides descriptions of supplemental metrics along with their proper application. Users should refer to this document for examples of the utility of supplemental metrics for airfield noise studies. Approval of use of supplemental metrics must be obtained from Commander, Navy Installations Command, Facilities and Environment (CNIC N4) or MCICOM AC/S G-7.

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– AICUZ STUDY REQUIREMENTS AND PUBLIC RELEASE

1. Approvals. Public distribution of updated AICUZ information requires CNIC Headquarters or COMMCICOM approval.

2. General.

a. AICUZ program objectives are met, in part, by publication of an AICUZ study. AICUZ studies are intended for public use and serve as a tool for the U.S. Navy and USMC to communicate AICUZ program objectives and installation-specific aircraft noise, accident potential and land use compatibility analysis with neighboring communities. As such, AICUZ studies should be as brief as possible, with clear and concise writing that can be understood by a member of the general public.

b. The public release document must provide comparative analysis and figure overlays of the previous AICUZ study's noise contours with the proposed noise contours developed during the technical review or during another noise study (as applicable). The comparison helps to identify changes to noise exposure based on changes or projected changes in aircraft operations and allows for targeted identification of incompatible land uses and activities. In instances where there are no previous AICUZ study noise contours or at the request of the installation, the current noise contours from the technical review or other sources can be used for comparison with the proposed noise contours. This action must be approved by CNIC (N4) or MCICOM AC/S G-7.

3. AICUZ Study Requirements. AICUZ studies must include, but not be limited to:

a. Description and Graphic Depiction of the AICUZ Footprint. The AICUZ footprint or AICUZ map, provides the basis for land use recommendations to encourage compatible development and to assure future mission sustainability at the installation. The description includes data on the acres contained in the Clear Zone, APZ I, APZ II and each noise contour, both on- and off-installation. AICUZ footprints depicted in the AICUZ study must not be modified without CNIC or COMMCICOM approval.

b. Aircraft Operations Overview. An overview of aircraft operations data to describe the current and future operational mission and current and projected operational data used to develop the AICUZ footprint. Supporting operational data includes the data mentioned in subparagraphs 3b(1) through 3b(3):

(1) Descriptions of aircraft types, types of operations and representative flight tracks, corridors or paths to include projected air operations activities.

(2) Descriptions and locations of previous aircraft accidents, mishap data and noise complaint data; and the noise inquiry hotline.

(3) As applicable, AICUZ studies should include a description of changes to operations that have been implemented since the previous AICUZ study to enhance noise management and minimize noise exposure and APZs (e.g., flight track modifications, altering hours of operation, construction of acoustical enclosures, changes in pattern altitudes). An explanation of factors that limit the capacity to consider operational alternatives for noise reduction should be included (e.g., airspace restrictions, natural features and topography, primary use runway, environmental factors).

c. Changes from the Prior AICUZ Study. AICUZ footprint changes should be described and illustrated, as these changes could influence the decision to implement land use control changes. Documentation may include an assessment of the difference from the prior AICUZ in the acres contained in the Clear Zone, APZ I, APZ II and each noise contour, both on- and off installation; and a discussion of which factors contributed to the change (e.g., aircraft, tempo of operation, operational procedures).

d. Compatible Land Use Analysis. AICUZ studies must include an analysis and graphic

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depiction of surrounding community zoning and existing and potential future land use incompatibilities within or adjacent to the AICUZ footprint. Land use compatibility guidelines for noise and APZs, as included in Appendix C, must be used to assess compatibility of land use in the AICUZ footprint. The compatible land use analysis must also include a description of land use controls currently in effect in the area surrounding the installation. Strict application of Clear Zone and APZ land use compatibility recommendations increases the safety of the general public, but cannot provide complete protection from aircraft accidents.

e. Areas of Critical Concern. As per reference (a), other areas of compatibility concern within the airfield environment, beyond the AICUZ footprint, may be graphically depicted in the AICUZ study to describe where land use controls may be desirable to protect long-term mission capability. The boundary of the area of concern should take into account natural and man-made features.

f. AICUZ Recommendations. The AICUZ study must include the information defined in subparagraphs 3f(1) through 3f(4) related to recommendations:

(1) A map depicting the AICUZ footprint, established safety clearances and height restrictions.

(2) If an incompatibility concern to public health and safety has been identified in the study, then a corresponding recommendation must be included.

(3) A recommendations summary table that illustrates the land use compatibility concerns, land use tools and areas of critical concern, along with the associated recommendations.

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(4) Land use compatibility recommendations within noise contours, shown in Appendix C, Table 1 and land use compatibility recommendations within APZs in Appendix C, Table 2. This information should be provided to government agencies with the recommendation that it be incorporated into the planning and regulatory processes. Examples of recommendations include specific community implementation strategies, sound-attenuated facility construction, acquisition of land or interests therein and Encroachment Partnering (EP).

g. Formatting. The AICUZ study must include an Executive Summary to facilitate review and utilization.

4. APZ Compatible Land Use Guidelines.

a. Land use compatibility guidelines for APZs are founded on the concept of minimizing density of land use in the vicinity of air installations. In addition to minimizing density, the APZ compatibility guidelines also recommend minimizing intensity of certain land uses that support high concentrations of people. Table 2 of Appendix C provides land use compatibility recommendations for the Clear Zones and APZs. The AICUZ study's land use compatibility analysis should reflect the standards in Appendix C, Tables 1 and 2 or local ordinances, whichever is more restrictive.

b. To assist local governments in incorporating density measures into land use controls for APZs, maximum floor area ratio (FAR) recommendations are included in Table 2 for certain commercial uses. FAR is the ratio between square feet of floor area and square feet of site area, based on parking generation requirements, vehicle occupancy rates and desired maximum density. FAR is commonly used to identify population density or intensity for non-residential structures or land uses. For APZs I and II, recommended FARs were calculated to achieve a maximum density of 25 and 50 people per acre, respectively. It is not realistic, however, to state that one numerical density is safe while another is not. The objective is to maximize the degree of safety that can be reasonably attained within local government land use controls.

c. Land use compatibility information and general guidance, by land use category, is presented in Appendix C, Table 1. Where specific local land uses are not adequately described in the standard guidance documents, refinement and interpretation of the basic data are encouraged, within the constraints of accepted land use planning practices and with assistance of COMNAVFACENGYSYSCOM, in coordination with CNIC (N4) or MCICOM AC/S G-7. Recommended acceptable land use within noise contours must also consider sound attenuation measures imposed by zoning, building code requirements or restrictive use easements. Further amplification is available from references (g), (h) and (i).

d. For land use planning purposes, the noise contour is presented at 5-dB increments (60– 64-dB DNL and CNEL, 65–69-dB DNL and CNEL, 70–74-dB DNL and CNEL, 75–79-dB DNL and CNEL, 80–84-dB DNL and CNEL and 85+-dB DNL and CNEL). Noise contours of 64-dB

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DNL/CNEL and below are essentially areas of low or no impact and no land use recommendations are presented herein. While presented as minimally impacted, residents living in areas with noise exposure less than 65-dB DNL and CNEL near an air installation may still be annoyed by aircraft noise and some may complain, so land use controls may be useful. Noise contours of 65–74-dB DNL and CNEL are of moderate impact, where some land use controls are needed. These land use controls could include zoning changes, the implementation of overlay zoning, building code modifications and other government-implemented tools. Noise contours of 75-dB DNL and CNEL and above are the most severely impacted and require the greatest degree of compatible land use controls.

5. Obstruction and Safety Clearances. Land uses in the vicinity of air installations are subject to aircraft safety clearances and height restrictions for flight safety. Local commands should ensure that on-station implementation plans, installation development plans, master plans and other similar internal on-station plans are consistent with these land use and height standards (as defined in reference (j) and per reference (v)). Additionally, the AICUZ study should analyze and discuss the compatibility of land uses within the AICUZ footprint or areas of critical concern that may cause the effects mentioned in subparagraphs 5a through 5e of this chapter.

a. Smoke, dust, steam or light emissions (to include glint or glare) that could obscure pilot vision.

b. Direct and indirect lighting that could interfere with pilot vision or use of night vision

devices, including, but not limited to searchlights, lasers, solar panels and fireworks.

c. Electromagnetic or thermal interference with aircraft navigation, air traffic control radar, navigational aids, communication systems or weapons systems.

d. Bird or wildlife hazards, including, but not limited to: landfills and waste transfer stations, wastewater treatment facilities, dredge disposal sites, seafood processing plants, poultry processing plants and impoundment or retention ponds.

e. Obstructions to low-level flight, such as wind energy turbines, towers or tall buildings or trees.

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– AICUZ IMPLEMENTATION

1. General. The primary objectives of the AICUZ implementation process are to: (1) educate the community about areas within the AICUZ footprint that can be affected by air operations; (2) share information with government agencies that regulate land use; and (3) implement land use recommendations within noise contours and APZs.

2. Implementation Overview.

a. Each Navy and Marine Corps installation in the U.S. listed in Appendix A has an AICUZ study and should actively implement its AICUZ program through proactive and continuous stakeholder engagement. Implementation of noise and safety studies at non-US installations should guide installation management and compatible use as much as possible within the limits of existing authorities, consistent with agreements or treaties with the host nation. US installations should continually inform government agencies, citizen groups and the general public about: (1) the requirements of military aviation; (2) installation operations; (3) current and planned efforts to ensure compatible land uses and activities; and (4) the local command's position on specific land use issues. Proactive program implementation can result in early recognition of potential incompatible land uses, thereby increasing opportunities to resolve them and reducing future implementation requirements.

b. Local command representatives should work toward achieving compatibility between the installation and the surrounding communities, primarily through the recommendation of locally implemented land use controls, maintaining a complaint response program for the surrounding communities and acquiring land or interests therein to protect operational capability. When all other mitigating options have been exhausted, command may consider assessing operational

modifications.

c. Although the emphasis of the AICUZ implementation effort is the AICUZ footprint, the installation can comment on land use issues outside of the footprint (i.e., areas of critical concern) that might impact development within the footprint or make it difficult to expand missions or accept new missions at the installation in the future. Nearby large-scale developments or infrastructure-system developments could make the AICUZ footprint more desirable for development or tall structures that could penetrate approach or departure or other imaginary surfaces. While all land uses and activities are compatible within the less-than-DNL and CNEL-65-dB noise contour, installations should work with government agencies and community leaders to foster less intense development in the area of critical concern.

d. Government agencies could choose to provide additional land use controls outside of the AICUZ footprint based on economic and social concerns. Such actions by government agencies should be encouraged, as they can effect long-term compatible land use. The ICO should convey

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to local land use agencies that U.S. Navy and USMC airfields are a major land use in the local community and merit special consideration and protection.

e. Land use planning must address long-range strategies involving present and future land use and development. Application of land use control strategies often does not result in immediate changes in land use in the areas subject to the specific requirements or restrictions. Additionally, since land use planning is a long-range process, communities cannot be expected to change their comprehensive plans continually to reflect frequent changes in U.S. Navy and USMC noise contours and APZs. Frequent changes can undermine support for the program and could be counterproductive to the goal of community support for the AICUZ program. Hence, it is imperative that AICUZ studies consider not only current, but also realistic 5- to 10-year projections of airfield operations when making land use planning recommendations. AICUZ studies remain valid until updated per the procedures outlined in Chapters 7 and 8.

f. Installations should review existing incompatible land uses at the time of publication of an AICUZ in coordination with local government agencies to recommend specific land use controls, such that future uses or changes to the parcel are made in a manner that is compatible with the AICUZ footprint.

3. On-Station Implementation.

a. It is U.S. Navy and USMC policy to incorporate AICUZ guidelines into on-base planning programs. On-station implementation activities are internal to the U.S. Navy and USMC and not included in AICUZ study public release documents. On-station incompatible land uses should be noted in internal documentation.

b. New facility sitings, construction and land use designations, as described in U.S. Navy installation development plans and USMC master plans or a specific Area Development Plan developed per references (k) and (l), should be consistent with the recommendations for CZs,

APZs and noise contours, as outlined in Appendix C. New facility siting, construction and land use designations not consistent with the AICUZ land use recommendations will require an AICUZ waiver submitted by the installation and approved by CNO N4 and COMMCICOM that explains the necessity of siting the function at the selected location and any mitigations that were considered to minimize the incompatibility.

c. Existing facilities, land uses and activities within the clear zone may continue.

Replacement facilities should be programmed outside of the clear zone. Alterations, minor additions or improvements of any scope to facilities currently in the clear zone will require an AICUZ Waiver that explains the necessity of that function remaining within the clear zone.

d. Existing facilities, land uses and activities within APZs may continue. Replacement facilities should be programmed outside of the APZ. Alterations, minor additions or

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improvements which exceed 10 percent of the plant replacement value or increase the density of personnel in the facility will require an AICUZ Waiver.

e. Existing facilities, land uses and activities within noise contours may continue.

Replacement facilities should be programmed outside of the noise contours. Alterations, minor additions or improvements which exceed 10 percent of the plant replacement value of existing facilities located within noise zones will require noise reduction (sound attenuation) measures unless such measures are already built in place.

4. Community Implementation.

a. The AICUZ program is predicated on promoting compatibility between air installations and neighboring communities through land use planning and control processes conducted by the responsible government agencies. Successful implementation of such a program depends on a close working relationship between installation and community leaders. This policy recognizes the local government's responsibility under its police power to protect the public health, safety and welfare. By enacting compatible land-use controls, the local government protects its citizens from exposure to high noise levels or accident potential or both.

b. Through controls such as zoning ordinances, building codes, subdivision regulations, permitting authority, disclosure statements, public acquisition, general and specific plans and airport land use compatibility plans, state and local governments can aid in achieving compatible land use in the areas surrounding military air installations.

c. Mandatory real estate disclosure to prospective buyers and lessees of residential properties within noise contours and APZs (and areas of critical concern as applicable) is also recommended. Air installations should make every attempt to work with governments to encourage enactment of such legislative initiatives at the state or local level, as appropriate.

d. Pursuit of an acquisition of interests in land within the AICUZ footprint may be appropriate if local, regional or state initiatives to prevent incompatible development prove unsuccessful or where analysis indicates other alternatives are not practicable to prevent

encroachment.

5. Community Planning and Liaison Officer Roles for AICUZ Implementation.

a. Consistent communication with the surrounding community is essential for AICUZ implementation. This communication provides information, ensures that the community knows how to most efficiently reach the installation, if needed and better enables the installation to exist compatibly with its surrounding community. This effort should be led by the ICO, with inputs and assistance from the CPLO, Public Affairs Office (PAO) and Communication Strategy and Operations (COMMSTRAT). While the PAO or COMMSTRAT, or both, typically handles

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issues related to media, the CPLO's role is related directly to day-to-day engagement and communications with relevant government offices, real estate professionals, developers, homeowners associations and private citizens who are engaging in the compatible development process. In communications related to the land development process, the importance of clear, consistent communication from the installation to the community should not be underestimated.

b. Records of important discussions, negotiations, testimony, etc., with and before local government officials, boards, etc., are maintained by the CPLO. The CPLO will ensure that documentation is available to indicate all reasonable and prudent efforts were made to preclude incompatible land use, including cooperation with local government officials and that all implementation tools have been exhausted. As discussed in Chapter 7, an important component of AICUZ implementation is the continual monitoring of nearby land use planning (e.g., rezoning applications, comprehensive or general plan updates, capital improvement plan updates). Furthermore, monitoring should include on-station operational activities, operational alternatives to reduce noise exposure, technical review findings, decisions or all of the above.

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– REAL PROPERTY GUIDANCE

1. General. When land use regulations do not provide sufficient protection for aircraft operations and local communities are unwilling or unable to provide such regulations, the Navy and Marine Corps will consider the acquisition of necessary real property interests sufficient to achieve land use compatibility within the AICUZ footprint to maintain operational integrity of the installation mission. Documentation of community unwillingness or inability to provide local regulations is required to support acquisition projects.

2. Guidelines for Acquisition Policy.

a. This instruction should not be used as sole justification for the acquisition or the retention of interests in land beyond that required to protect the government. References (m), (n), (o) and (q) assign responsibilities and provide policy for the acquisition, management and disposal by the Navy and Marine Corps of real property and real property interests, including through the EP program.

b. Land acquisition should be considered only in situations where governments are unwilling or unable to enact land-use controls within the AICUZ footprint or where long-term

land-use controls are considered to be tenuous, inadequate or unenforced.

c. The first priority for real property acquisition is the Clear Zone. The second real property acquisition priority is the APZs. The third real property acquisition priority is areas exposed to high noise from installation operations when all avenues of achieving compatible use zoning or similar protection have been explored and the operational integrity of the installation is threatened by incompatible use of these areas. The type of real property interest to be acquired, such as fee title or easement, is dependent on the goal to be achieved by the acquisition effort. As discussed in references (m) and (n), the minimum real property interest to achieve the acquisition goal should be acquired. While the focus of real property acquisition is usually on undeveloped land, it may be necessary to acquire real property interests of developed land due to installation mission and aircraft type changes or land use changes of developed land. See reference (a) for additional guidance on DoD AICUZ acquisition policy and references (m) and (n) for specific guidance on DON land acquisition policy, processes and approvals.

d. Regional commanders and ICOs are responsible for the oversight of real property assets as related to the readiness and effectiveness of the U.S. Navy and USMC installations. This responsibility is particularly relevant to documentation and enforcement of U.S. Navy and USMC interests in land outside the installation boundary as encroachment protection, whether that land is acquired in fee or by easement. Easements and other real estate interests should be periodically monitored to ensure consistency with terms set forth in those real estate documents.

3. Acquisition Methods. Installations typically may consider acquisition of interests in land

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through one of the ways mentioned in subparagraphs 3a through 3c of this chapter:

a. Military Construction (MILCON) Funding. Installations should ensure chain-of command support from the appropriate CNO or CMC resource sponsor and then submit a land acquisition request via its chain of command for inclusion on the MILCON IPL. Reference (m) provides further guidance.

b. Encroachment Partnering. The EP program (per references (o) through (r)) enables the U.S. Navy and U.S. Marine Corps to leverage funds from eligible entities to acquire interests in land (usually a restrictive use easement or conservation easement) from willing property owners to preserve areas of compatible land uses and natural habitats near the installation. Use of condemnation authority is not permitted under the EP program.

c. Minor Land Acquisition. Installations may be able to acquire low-cost interests in land using available operations and maintenance funding per references (m) and (n).

4. Real Property Utilization Survey Interface.

a. Reference (s) calls for continual review of Federal real property holdings and performing surveys to determine the level of their use. Properties found to be in excess of the requirements of the holding agency are reported for disposal. In the past, the AICUZ footprint has provided

protection to air installations, but increased pressure to dispose of excess property can dilute that protection. To avoid the forced disposal of lands required to protect the installation from encroachment, including property located outside the AICUZ footprint, air installations should ensure that required lands or easements are fully justified. Where disposal is directed, the Services will retain those rights and interests that are required for the protection of the installation's future operational integrity. Once property rights are relinquished, they are not easily, if ever, regained.

b. When disposal of non-DoD Federal property at or in the vicinity of an air installation could impact its mission, the U.S. Navy and USMC offices exercising real property accountability for the installation should seek to have the disposal agency retain compatible land use easements over the property to be disposed of for the benefit of the installation.

5. Real Estate Interest Consideration for Clear Zones, APZs and Noise Contours. When it is necessary for the U.S. Navy and USMC to acquire interests in land, they should carefully assess the types of interests or rights necessary to meet the purpose of the AICUZ program, including, but not limited to:

a. The right to make low and frequent flights over said land and to generate noises associated with:

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(1) Aircraft in flight, whether or not while directly over said land;

(2) Aircraft and aircraft engines operating on the ground at said installation; and (3)

Aircraft engine test stand, test cell and hush-house operations at said installation.

b. The right 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 steam, dust and smoke.

c. The right to prohibit or limit light emissions, either direct or indirect (reflective), visible or invisible, including lasers, which might interfere with pilot vision, use of night vision devices or performance of instruments, equipment and weapons systems.

d. The right to prohibit electromagnetic and radio frequency emissions that would interfere with aircrew and aircraft sensors, communications systems or navigational equipment.

e. The right to prohibit any use of the land that would unnecessarily attract birds or wildlife, such as, but not limited to, operation of sanitary landfills, water impoundment or retention areas, maintenance of feeding stations or the growing of certain types of vegetation.

f. The right to prohibit and remove any buildings, towers or other tall structures that do not comply with the AICUZ study.

g. The right to top, cut to ground level and remove trees, shrubs, brush or other forms of

obstruction that the installation commander determines might interfere with the operation of aircraft, including emergency landings.

h. The right of ingress and egress upon, over and across said land for the purpose of exercising the rights acquired or retained.

i. The right to post signs on said land, indicating the nature and extent of the government's control over said land.

j. The right to allow only specific land uses and activities or the right to prohibit land uses other than those identified as compatible in Appendix C.

k. The right to prohibit entry of persons onto the land except in connection with authorized activities.

l. The right to disapprove or prohibit or both land uses and activities that are not per the established land use restrictions.

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m. The right to limit or control the height of structures to ensure that they do not become a hazard to flight.

n. The right to install airfield lighting and navigational aids.

o. The right to require sound attenuation in new construction or modifications to buildings in conformance with the AICUZ recommendations.

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 – AICUZ PROGRAM MONITORING

1. General. Each Navy and USMC air installation with an AICUZ study (see Appendix A) should review its AICUZ regularly to determine if and when a technical review and study update

are required. AICUZ studies are intended to support long-term compatible land use in the vicinity of air installations and as such, should be updated only when circumstances require such action. Frequent AICUZ study updates and changes in land use recommendations can undermine the neighboring communities' confidence and willingness to incorporate recommendations into comprehensive plans or to enact various land use controls.

2. Aircraft Operation Monitoring Requirements.

a. Each installation's air operations officer and, where applicable, the command exercising administrative control over the type of aircraft operating at the air installation, are responsible for maintaining the operational data required to develop noise-exposure contours consistent with reference (w). These data include aircraft operations at the airfield by aircraft type, runway use and operation (e.g., approach, departure, ground control approach, touch-and-go, Field Carrier Landing Practice). The AICUZ program office at COMNAVFACENGYSYSCOM can provide specific data requirements and format.

b. The ICO and CPLO should monitor local conditions to ensure the AICUZ study continues to reflect the best information available on noise and accident potential. Such parameters include, but are not limited to, the types and mix of aircraft operated or maintained; flight tracks; tempo and timing of operations; maintenance procedures; and operational alternatives for noise reduction.

3. NEPA Considerations.

a. The establishment of a new air installation, airfield, auxiliary field or OLF – or proposed changes to an existing installation's aircraft or flying mission – may constitute a significant federal action requiring NEPA compliance actions (see references (t) and (u)). If questions arise regarding NEPA compliance, the installation should consult its chain of command. Recommendations or questions can be forwarded to the U.S. Navy or MCICOM region for guidance, if appropriate. CNIC (N4) or MCICOM AC/S GF advises the region and installation on the need for NEPA documentation per references (t) and (u). If such documentation is required, it must be prepared prior to the implementation of any proposed operational change. Subsequent to the completion of the final NEPA documentation, the AICUZ study should be reviewed to determine if an update is required.

b. Independent updates to the AICUZ study or noise contours do not by themselves trigger the NEPA process, but it is important that the Technical Review is conducted in concert with

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environmental planners in the event the AICUZ review identifies actions requiring possible NEPA analysis.

4. Land use Compatibility Monitoring. Installations should continuously monitor land use and development, both on-base and surrounding the installation, for existing or future incompatibilities with aircraft operations. This includes monitoring government policy and planning documents at all levels for significant changes or modifications that could affect

AICUZ implementation. Land use compatibility monitoring is implemented through the Encroachment Management Programs as detailed in references (o) and (p).

5. Validation of the AICUZ Study and Program. On a triennial basis, the RCPLD or CPLD (and installation team) and a COMNAVFACENGYSYSCOM AICUZ SME should produce a letter for the record, endorsed by the ICO, to document findings of the monitoring process, including any changes that may have occurred that would potentially affect the AICUZ. The letter should determine whether the current AICUZ is still valid or a technical review is required. No standardized letter is required, but a recommended template is available upon request from NAVFAC HQ.

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 – TECHNICAL REVIEW

1. General. The technical review occurs when an AICUZ study is required or AICUZ monitoring indicates a need to update some or all parts of an existing AICUZ. The technical review is the process of analyzing operations, operational alternatives, noise-exposure contours and APZs. It also analyses noise-reduction strategies for impacted lands, both on- and off installation. The technical review results in the development or update of the AICUZ footprint and determines whether an updated AICUZ study is required. If a full AICUZ study is not required, the technical review remains an internal use document and is marked accordingly.

2. Technical Review Development. Technical reviews and footprint development must include:

a. Analysis of Current and Projected Operations. Future-year planning (normally 5 to 10 years forward) is necessary to consider the effects of projected changes in mission, aircraft and operational levels. Therefore, in addition to the analysis of current operations, the Technical Review will include an analysis of projected operations. Projections of aircraft types and operations must be based upon historical trends, available unclassified estimates of future mission requirements validated by the mission component command or both. Aircraft operation projections and estimates of future USMC aviation mission requirements must also be validated by DC A.

b. Analysis and Evaluation of Operational Procedures for Noise Reduction. Each review must include an analysis and evaluation of operational alternatives for noise reduction and a description of changes to operations that have been implemented since the previous AICUZ study to enhance noise management and minimize noise exposure and APZ impacts, as applicable. This analysis should include factors that limit the capacity to consider operational alternatives for noise reduction (e.g., airspace restrictions, natural features and topography, primary use runway, environmental factors). Evaluation of an operational alternative must balance limiting noise impacts with flight safety, operational capability, training requirements and cost. Proposed changes to operational procedures require coordination with the mission component commands and documentation by the installation as to the reasons for the change. Environmental documentation in compliance with NEPA may be required. Operational alternatives considered for noise reduction should, as appropriate, be included in the development of noise contours.

c. Imaginary Surfaces Assessment. The development of the AICUZ footprint should take into account the imaginary surfaces of the airfield and underlying natural and man-made features that can impact air operations (aviation surfaces as defined by reference (j)).

d. Noise Study and Development of Noise Contours. Preparation of an AICUZ noise study is the process of collecting data, modeling and presenting noise-exposure contours. The resultant noise contours are referred to as the “proposed” noise contours. The noise study defines the

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operational noise contours and operational data. The procedure for noise study development is defined in Chapter 3 of this Enclosure.

e. APZ Development. The accident potential concept describes the probable impact area, if an aircraft accident were to occur. This should be distinguished from the probability of an accident occurring. Probable impact area information uses DoD-wide historical accident data. These data are used to determine: (1) the sizes of the Clear Zone and APZs I and II; and (2) suggested land use guidelines for each zone. Application of this concept includes not only statistical considerations, but also operational considerations. Clear Zones and APZs, as depicted in this manual, are the minimum areas of prescribed land use protection.

3. Validation of Technical Review. Upon completion of the technical review, the COMNAVFACENGYSYSCOM project manager, CPLO and COMNAVFACENGYSYSCOM AICUZ SME review the results and provide a recommendation to the ICO on the need to update

the Clear Zone, APZs or noise contours and incorporate them into an AICUZ update. The ICO will endorse a validation letter to document the results of the technical review.

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APPENDIX A – NAVY AND MARINE CORPS INSTALLATIONS WITH AICUZ STUDIES BY REGIONAL COMMAND

The lists in this appendix are for reference purposes only and do not set policy on AICUZ study requirements.

1. U.S. NAVY.

MID-ATLANTIC REGION.

Naval Station (NS) Norfolk (Chambers Field, VA)
Naval Air Station (NAS) Oceana, VA
Naval Auxiliary Landing Field (NALF) Fentress, VA

NAVAL DISTRICT WASHINGTON.

NAS Patuxent River, MD
Naval Outlying Landing Field (NOLF) Webster Field, MD

NORTHWEST REGION.

NAS Whidbey Island, WA
NOLF Coupeville, WA

SOUTHEAST REGION.

NAS Corpus Christi, TX
NALF Waldron, TX
NALF Cabaniss, TX
NOLF Goliad, TX
NAS Fort Worth Joint Reserve Base (JRB), TX
NAS Jacksonville, FL
OLF Whitehouse, FL
NAS JRB New Orleans, LA
NAS Key West, FL
NAS Kingsville, TX
NALF Orange Grove, TX
NS Mayport, FL
NAS Meridian, MS
NOLF Joe Williams, MS
NAS Pensacola, FL
NOLF Saufley, FL

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NAS Whiting Field, FL
NOLF Brewton, AL
NOLF Evergreen, AL
NOLF Silverhill, AL

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NOLF Barin, AL
NOLF Wolf, AL
NOLF Summerdale, AL
NOLF Site X, FL
NOLF Santa Rosa, FL
NOLF Harold, FL
NOLF Pace, FL
NOLF Spencer, FL

NOLF Choctaw, FL

SOUTHWEST REGION.

Naval Air Weapons Station China Lake, CA
Naval Air Facility (NAF) El Centro, CA
NAS Fallon, NV
NAS Lemoore, CA
Naval Base Ventura County, CA
NAS North Island, CA
NOLF Imperial Beach

EUROPE AFRICA SOUTHWEST ASIA.

NAS Sigonella, Sicily, Italy*
Naval Support Activity (NSA) Naples, Italy*
NSA Souda Bay, Greece*
NS Rota, Spain*

HAWAII.

Pacific Missile Range Facility Barking Sands, HI

JAPAN.

NAF Atsugi, Honshu, Japan*
NAF Misawa, Honshu, Japan*
NAF Kadena, Okinawa, Japan*
Naval Support Facility Diego Garcia*

2. MARINE CORPS.

MARINE CORPS INSTALLATIONS EAST.

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Marine Corps Air Station (MCAS) Beaufort, SC
Townsend Bombing Range, GA
MCAS New River, NC
Marine Corps Outlying Landing Field (MCOLF) Camp Davis, NC
MCAS Cherry Point, NC
Marine Corps Auxiliary Landing Field Bogue Field, NC
MCOLF Atlantic, NC
MCOLF Oak Grove, NC

MARINE CORPS INSTALLATIONS NATIONAL CAPITAL REGION.

Marine Corps Air Facility Quantico, VA

MARINE CORPS INSTALLATIONS WEST.

MCAS Miramar, CA

MCAS Camp Pendleton, CA

MCAS Yuma, AZ

Marine Corps Air Ground Combat Center Twentynine Palms, CA

Mountain Warfare Training Center Bridgeport, CA

MARINE CORPS INSTALLATIONS PACIFIC.

Marine Corps Base (MCB) Hawaii, HI (MCAS Kaneohe Bay)

MCB Camp Butler (Ie Shima Auxiliary Airfield), Japan*

MCAS Futenma, Japan*

MCAS Iwakuni, Japan*

*Note: Installations outside the U.S. have only noise and safety studies. The development of an AICUZ footprint (i.e., Clear Zones and APZs) is for on-installation planning purposes only; AICUZ studies are not provided to foreign governments.

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APPENDIX B – GLOSSARY

1. Abbreviations and Acronyms.

AAD	Average Annual Day
AICUZ	Air Installations Compatible Use Zones
AIR OPSO	Installation Air Operations Officer
AL	Alabama
APZ	Accident Potential Zone
AZ	Arizona
CA	California
CFR	Code of Federal Regulations
CMC	Commandant of the Marine Corps
CNEL	Community Noise Equivalent Level
CNIC	Commander, Navy Installations Command
CNIC (N4)	CNIC Facilities and Environmental
CNO	Chief of Naval Operations
COMMCICOM	Commander, Marine Corps Installations Command
COMNAVAIRSYSCOM	Commander, Naval Air Systems Command
COMNAVFACENGSYSCOM	Commander, Naval Facilities Engineering Systems Command
CPLO	Community Planning and Liaison Officer
dB	Decibel(s)
DC A	Deputy Commandant for Aviation
DC I&L	Deputy Commandant for Installations and Logistics
DNL	Day-Night Average Sound Level
DNWG	DoD Noise Working Group
DoD	Department of Defense

DoDI	DoD Instruction
DoN	Department of Navy
Du/Ac	Dwelling Units Per Acre
EP	Encroachment Partnering
FAR	Floor Area Ratio

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FL	Florida
FOB	Forward Operating Base
HI	Hawaii
ICO	Installation Commanding Officer
JRB	Joint Reserve Base
LA	Louisiana
LDN	mathematical symbol for Day- Night Average Sound Level
LHA	Landing Helicopter Assault
LHD	Landing Helicopter Dock
MCAS	Marine Corps Air Station
MCB	Marine Corps Base
MCICOM	Marine Corps Installations Command
MCICOM AC/S G-7	MCICOM Assistant Chief of Staff, Modernization and Development
MCO	Marine Corps Order
MCOLF	Marine Corps Outlying Landing Field
MD	Maryland
MILCON	Military Construction

MS	Mississippi
N	No
NAF	Naval Air Facility
NALF	Naval Auxiliary Landing Field
NAS	Naval Air Station
Navy	United States Department of the Navy
NC	North Carolina
NEPA	National Environmental Policy Act
NLR	Noise-Level Reduction
NOISEFILE	database of noise data for various aircraft (DoD)
NOISEMAP	suite of computer-based modeling tools (DoD)
NOLF	Naval Outlying Landing Field
NS	Naval Station
NSA	Naval Support Activity
OCONUS	Outside the Continental United States

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OLF	Outlying Landing Field
OPNAV	Office of the Chief of Naval Operations
CNO N4	Deputy Chief of Naval Operations (Fleet Readiness and Logistics)
OPNAVINST	Office of the Chief of Naval Operations Instruction
PAO	Public Affairs Office

PUD	Planned Unit Development
RCPLO	Regional Community Planning and Liaison Officer
RNM	Rotorcraft-Noise Model
SC	South Carolina
SECNAVINST	Secretary of the Navy Instruction
SLUCM	Standard Land Use Coding Manual
SME	Subject Matter Expert
STOVL	Short Takeoff and Vertical Landing
TECOM	Training and Education Command
TX	Texas
U.S.	United States
U.S.C.	United States Code
UFC	Unified Facilities Criteria
USMC	United States Marine Corps
VA	Virginia
VFR	Visual Flight Rules
VIP	Very Important Person
VL	Vertical Landing
WA	Washington
Y	Yes

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2. Definitions.

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

A-Weighted. An expression of the relative loudness of sounds in air as perceived by the human

ear where the dB values of sounds at low frequencies are reduced. By contrast, unweighted dBs make no correction for audio frequency.

APZ I. Accident Potential Zone I is the area beyond the Clear Zone that possesses a significant potential for accidents.

APZ II. Accident Potential Zone II is the area beyond APZ I having a measurable potential for accidents.

AICUZ Footprint. The AICUZ noise contours and AICUZ APZs. This is the minimum area within which land use controls are considered necessary to promote compatible land development and to protect the health, safety and welfare of those living on or near a military airfield and to preserve the flying mission.

AICUZ Study. Conducted at all Navy and Marine Corps air installations to analyze aircraft noise, accident potential, land use compatibility and recommended strategies to address existing and potential conflicts between land use and military missions.

AICUZ Study Update. A full study update released to the public. If a major change in operations has necessitated an environmental review through NEPA, an AICUZ study update is normally issued subsequent to the completion of NEPA documentation.

AICUZ Waiver. A waiver approved by CNO N4 and COMMCICOM allowing on-station planned development, including renovations or the repurposing of existing facilities, that is inconsistent or in conflict with the AICUZ program land use standards.

Air Installation. Fixed-wing and rotary-wing military airfields and other installations noted in Appendix A.

Area of Critical Concern. An area outside the AICUZ footprint where land use controls may be desirable to protect long-term mission capability. The development of the final boundary of areas of critical concern must also take into account natural and man-made features.

Class A Runway. A runway primarily intended for small, light aircraft that has no 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

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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 for heavy aircraft use.

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

about the runway centerline extended.

Community Noise Equivalent Level (CNEL). A noise descriptor used in California to discuss the aircraft noise environment around air installations. Like DNL, CNEL represents an average noise environment. In addition to a 10-dB penalty for nighttime noise (10:00 p.m. to 7:00 a.m.), CNEL includes a 5-dB penalty for each aircraft operation during evening hours (7:00 p.m. to 10:00 p.m.).

Day-Night Average Sound Level (DNL). A noise descriptor used to discuss the aircraft noise environment around air installations. DNL is the standard federal metric used to describe the cumulative exposure of individuals to noise. It is the 24-hour average sound level in dB, derived from all aircraft operations during a 24-hour period that represents an airfield's average annual operational day. DNL adds a 10-dB noise penalty to each aircraft operation occurring during the nighttime hours of 10:00 p.m. to 7:00 a.m.

Imaginary Surfaces. Those areas surrounding a runway that must be kept clear of objects (natural or man-made) that could damage an aircraft. Imaginary surfaces include: primary surface, approach-departure surface, inner horizontal surface, conical surface, outer horizontal surface, transitional surface and the graded portion of the Clear Zone. Imaginary surfaces are defined in UFC 3-260-01 (reference (j)).

Land Use Controls. Land use controls consist of government ordinances, codes and permit requirements that restrict the private use of land and natural resources, to conform to public policies. There are several types of land use regulations, including subdivision regulations, zoning, form-based codes, building codes, housing codes, curb-cut permit systems, historic preservation laws and tree-cutting laws. The primary public land use control is zoning, where properties of the same type, such as residential or commercial, are designated for particular geographic zones. The most restrictive private land use control is deed restrictions, limiting what can be done on the property by the owner.

Mission Component Commands. Administrative units within the Navy and Marine Corps to which Service members are routinely assigned when mobilized to various assignments. These commands are the end users of the facilities and training areas that are the subject of

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encroachment-prevention activities founded on the AICUZ program. Examples include Fleet Forces Command, Naval Special Warfare Command and Naval Reserve Forces.

On-Station Implementation Plan. An element of the AICUZ program, this is a stand-alone document and is not intended for public release that analyzes on-station development and land and provides AICUZ-compatibility implementation recommendations.

Public Release. The CNIC and COMMCICOM approval and public process to present the AICUZ map and AICUZ compatible land use recommendations to the community.

Standard Land Use Coding Manual (SLUCM). A manual that reflects generic land use categories

for illustrating a basic and high-level understanding of land use compatibility across some common land use types. In 1965, the Federal Highway Administration and the Department of Housing (then the Bureau of Public Roads and the Urban Renewal Administration, respectively) published the SLUCM. The manual provided a detailed listing of land use categories with numeric codes assigned to them. The categories were based on the Standard Industrial Classification system. This coding procedure became the typically accepted standard method for land use coding in urban areas throughout the country (Source: American Planning Association).

Technical Review. The internal technical assessment of operational data to quantify aircraft noise exposure and identify APZs; assessment of operational alternatives and noise-reduction strategies for impacted lands, both on- and off- installation; development of an on-station implementation plan; and other internal efforts that are undertaken to keep the AICUZ program current and accurate. This is not intended for public release.

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

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APPENDIX C – LAND USE COMPATIBILITY RECOMMENDATIONS IN NOISE CONTOURS AND APZS

1. Recommended Land Use Compatibility in Noise Contours.

a. Table 1 provides compatibility recommendations based on yearly DNL or CNEL on and around installations. The primary land use objective is to discourage noise-sensitive land uses in areas of higher noise exposure.

b. The table is organized based on Standard Land Use Coding Manual (SLUCM) categories; however, it varies from SLUCM as the coding system does not differentiate based on noise sensitivity. Some uses warrant additional evaluation due to potential for annoyance and activity interference. General notes and specific footnotes at the bottom of the table provide additional information and considerations for compatibility determinations.

c. These recommendations are intended to support compatible land use planning both on

and off base; they do not constitute a Federal determination that any use of land is acceptable or unacceptable under local zoning.

Table 1. Land Use Compatibility Recommendations In Noise Contours

LAND USE NAME & SLUCM CATEGORY	A-WEIGHTED DNL/CNEL LEVELS					
	<65 DB				75-80-85 DB	
RESIDENTIAL USE GROUP (SLUCM CATEGORY 10)						
Residential uses, inclusive of all residential units i.e. any type of single or multiple dwelling units.	Y	N ¹	N ¹	N	N	N
Mobile home parks or courts	Y	N	N	N	N	N
Transient lodgings	Y	N ¹	N ¹	N ¹	N	N
MANUFACTURING USE GROUP (SLUCM CATEGORIES 20 & 30)						
Manufacturing and industrial uses	Y	Y	Y ²	Y ³	Y ⁴	N
Precision manufacturing	Y	Y	Y ²	Y ³	N	N
TRANSPORTATION, COMMUNICATION AND UTILITIES USE GROUP (SLUCM CATEGORY 40)						
Rail, motor vehicle, aircraft, marine and other transportation and communication systems and utilities	Y	Y	Y ²	Y ³	Y ⁴	N
Highway and street right-of-way, automobile parking	Y	Y	Y	Y	Y	N
Telephone, cellular and radio communication	Y	Y	Y ²	Y ³	N	N

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LAND USE NAME & SLUCM CATEGORY	A-WEIGHTED DNL/CNEL LEVELS					
	<65 DB				75-80-85 DB	

TRADE (SLUCM CATEGORY 50)						
Wholesale trade	Y	Y	Y ²	Y ³	Y ⁴	N
Building materials, hardware and farm equipment sales	Y	Y	Y ²	Y ³	Y ⁴	N
Mass retailing, super stores, strip malls, shopping centers, discount clubs, home improvement stores, etc.; eating and drinking establishments	Y	Y	Y ²	Y ³	N	N
SERVICES (SLUCM CATEGORY 60)						
Finance, insurance and real estate, personal, professional and miscellaneous services; religious activities	Y	Y	Y ²	Y ³	N	N
Cemeteries	Y	Y	Y ²	Y ³	Y ⁴	Y ⁵
Warehousing/storage & repair services	Y	Y	Y ²	Y ³	Y ⁴	N
Hospitals/medical, child care & development services, educational facilities	Y	Y ²	Y ³	N	N	N
Nursing homes	Y	N ¹	N ¹	N	N	N
Governmental	Y	Y	Y ²	Y ³	N	N
CULTURAL, ENTERTAINMENT AND RECREATIONAL (SLUCM CATEGORY 70)						
Cultural activities, auditoriums & concert halls	Y	Y ²	Y ³	N	N	N
Nature exhibits	Y	Y	N	N	N	N
Public assembly	Y	Y	N	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Outdoor sports arenas, spectator sports	Y	Y ⁶	Y ⁶	N	N	N
Amusements	Y	Y	Y	N	N	N
Outdoor recreational activities	Y	Y	Y ²	Y ³	N	N
Resorts, camps, parks & other c/e/r activities	Y	Y	Y ²	N	N	N

RESOURCE PRODUCTION AND EXTRACTION (SLUCM CATEGORY 80)						
Agriculture and forestry	Y	Y ⁷	Y ⁸	Y ⁹	Y ⁹	Y ⁹
Livestock farming, animal breeding	Y	Y ⁷	Y ⁸	N	N	N
Fishing, mining and other resource production or extraction	Y	Y	Y	Y	Y	Y

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KEY TO TABLE 1

Y (Yes) – Land use and related structures compatible without restrictions.

N (No) – Land use and related structures are not compatible and should be prohibited.

Yx – Yes with restrictions. The land use and related structures generally are compatible. However, see note(s) indicated by the superscript.

Nx – No with exceptions. The land use and related structures are generally incompatible. However, see note(s) indicated by the superscript.

GENERAL NOTES FOR ALL USES:

a. Compatibility designations in Table 1 generally refer to the principal use of the site. If other uses with greater sensitivity to noise are proposed, a determination of compatibility should be based on that use which is most adversely affected by noise and its contribution to the successful use of the property.

b. Where a proposed development falls within two DNL and CNEL noise zones, the land use recommendations of the higher noise should be used. For example, if a proposed development is exposed to 70 dB DNL and CNEL, land use recommendations for the 70-75 DNL and CNEL noise zones should be applied.

c. When appropriate, noise level reduction (NLR) may be necessary to achieve compatibility. NLR (outdoor to indoor) is achieved through the incorporation of sound attenuation into the design and construction of a structure. Measures to achieve an indoor noise reduction do not necessarily solve noise issues outside the structure and additional evaluation may be warranted. Building location, site planning, design and use of berms and barriers can help mitigate outdoor noise exposure, particularly from aircraft ground maintenance run-ups. Measures that reduce noise at a site should be used wherever practical in preference to measures that only protect interior spaces.

d. Land uses below 65db DNL are generally compatible. However, localities, when evaluating the application of these guidelines, should consider possible annoyance tied to land uses that involve predominately outdoor activities or where quiet is a basis for the use.

e. Land use that involves outdoor activities in areas above 80db DNL are not recommended. FOOTNOTES SPECIFIC TO CERTAIN USES:

1. Residential.

a. Although local conditions regarding the need for housing may require residential use in these zones, residential use is discouraged in DNL 65-70 and strongly discouraged above DNL 70. The absence of viable alternative development options should be determined and an evaluation should be conducted locally prior to local approvals. These evaluations should clearly demonstrate that the community's need for additional residential property could not be met if development were prohibited in these zones and that the expense of additional noise attenuation will not undermine affordable housing goals.

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 65-70 and 30 dB in DNL 70-75 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 75-80.

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.

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. Buildings where public is received, are not recommended.

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

7. Where residences are permitted, measures to achieve outdoor to indoor NLR of at least 25 dB should be incorporated into the design.

8. Where residences are permitted, measures to achieve outdoor to indoor NLR of at least 30 dB should be incorporated into the design.

9. Residences are not compatible.

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a. Table 2 provides compatibility recommendations based on historic aircraft mishap locations on or near air installations. The primary land use objective is to discourage people intensive land uses in areas of high accident potential.

b. While the table uses Standard Land Use Coding Manual categories for organization, it varies from SLUCM as the coding system does not differentiate based on population density. Some uses warrant additional evaluation due to the variation of densities of people, intensity of use or other characteristics that could impact safety of flight. Floor area ratio (FAR) recommendations are included within the table to guide suggested maximum density for non residential uses. General notes and specific footnotes at the bottom of the table provide additional information and compatibility considerations.

c. These recommendations are intended to support compatible land use planning both on and off base; they do not constitute a Federal determination that any use of land is acceptable or unacceptable under local zoning.

Table 2. Land Use Compatibility Recommendations In APZS

LAND USE NAME and SLUCM Category	CLEAR ZONE	APZ-I	APZ-II	MAXIMUM DENSITY
RESIDENTIAL USE GROUP (SLUCM CATEGORY 10)				
Residential uses, inclusive of all residential units i.e. any type of single or multiple dwelling units	N	N	Y ^{1,2}	Maximum density of 2 dwelling units per acre
Mobile home parks or courts	N	N	N	
Transient lodgings	N	N	N	
MANUFACTURING USE GROUP (SLUCM CATEGORIES 20 & 30)				
Food and kindred products; Textile mill products; manufacturing; Stone, clay, glass, primary metal and fabricated metal products; manufacturing	N	N	Y	Max FAR 0.56 in APZ II
Fabric products; leather and similar materials; chemicals and allied products; petroleum refining and related industries; Rubber and miscellaneous plastic products; manufacturing; Precision manufacturing	N	N	N	
Lumber and wood products; manufacturing furniture and fixtures;	N	Y	Y	Maximum FAR of 0.28 in APZ I & 0.56

LAND USE NAME and SLUCM Category	CLEAR ZONE	APZ-I	APZ-II	MAXIMUM DENSITY
paper and allied products; printing, publishing and allied industries Miscellaneous manufacturing				in APZ II
TRANSPORTATION, COMMUNICATION AND UTILITIES USE GROUP (SLUCM CATEGORY 40)				
Rail, motor vehicle, aircraft, marine etc. transportation, Highway and street right of-way, automobile parking and utilities, Telephone, cellular and radio communication	N ³	Y ⁴	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
Solid waste disposal, (landfills, incinerators, etc.)	N	N	N	
TRADE (SLUCM CATEGORY 50)				
Wholesale trade	N	Y	Y	Maximum FAR of 0.28 in APZ I & .56 in APZ II
Retail trade – building materials	N	Y	Y	Maximum FAR of 0.20 in APZ-I and 0.40 in APZ-11;
Retail trade – hardware, paint and farm equipment stores	N	Y	Y	Maximum FAR of 0.12 in APZ I and 0.24 in APZ II
Retail trade – including neighborhood centric shops	N	N	Y	Maximum FAR of 0.16 in APZ II
Mass retailing, super stores, strip malls, shopping centers ⁵ , discount clubs, home improvement stores, etc.; Eating and drinking establishments ¹²	N	N	N	

Retail trade – prepared and unprepared food such as groceries, bakeries, confectionaries, meat markets and fast food restaurants with drive-through service ¹²	N	N	Y	Maximum FAR of 0.24 in APZ II
Retail trade – automotive, marine craft, aircraft and accessories	N	Y	Y	Maximum FAR of 0.14 in APZ I & 0.28 in APZ II
Retail trade – apparel and accessories, furniture, home, furnishings and	N	N	Y	Maximum FAR of 0.28 in APZ II

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LAND USE NAME and SLUCM Category	CLEAR ZONE	APZ-I	APZ-II	MAXIMUM DENSITY
equipment				
Other retail trade	N	N	Y	Maximum FAR of 0.16 in APZ II
SERVICES (SLUCM CATEGORY 60)				
Finance, insurance, real estate, personal, professional and miscellaneous services (office uses only) services	N	N	Y	Maximum FAR of 0.22 in APZ II
Cemeteries	N	Y ⁶	Y ⁶	
Warehousing and storage services	N	Y	Y	Maximum FAR of 1.0 in APZ I; 2.0 in APZ II
Repair Services and contract construction		Y	Y	Maximum FAR of 0.11 APZ I; 0.22 in APZ II
Hospitals, nursing homes and other medical facilities; Educational services, Childcare services, child development centers and nurseries	N	N	N	

Government Services	N	N	Y	Maximum FAR of 0.24 in APZ II
CULTURAL, ENTERTAINMENT AND RECREATIONAL (SLUCM CATEGORY 70)				
Nature exhibits	N	Y ⁷	Y ⁷	
Cultural activities, auditoriums, concert halls, places of worship; Outdoor music shells, museums, outdoor displays, amphitheaters, sports arenas, spectator sports, resorts and group camps or other places of assembly	N	N	N	
Amusements – fairgrounds, miniature golf, driving ranges; amusement parks, etc.	N	N	Y ¹¹	50 people per acre
Recreational activities (including golf courses, riding stables, water recreation), parks	N	Y ⁷	Y ⁷	Maximum FAR of 0.11 in APZ I; 0.22 in APZ II
Other cultural, entertainment and recreation	N	Y ⁶	Y ⁶	
RESOURCE PRODUCTION AND EXTRACTION (SLUCM CATEGORY 80)				
Agriculture and Livestock farming, including grazing and feedlots	Y ⁸	Y ⁸	Y ⁸	

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LAND USE NAME and SLUCM Category	CLEAR ZONE	APZ-I	APZ-II	MAXIMUM DENSITY
Agriculture related activities	N	Y	Y	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II
Forestry activities ⁹	N	Y	Y	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II
Fishing activities	N ¹⁰	Y	Y	Maximum FAR of 0.28 in APZ I;

				0.56 in APZ II
Mining activities	N	Y	Y	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II
Other resource production or extraction	N	Y	Y	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II
OTHER (SLUCM CATEGORY 90)				
Undeveloped land	Y	Y	Y	
Water areas	N	N	N	

KEY TO TABLE 2

Y (Yes) – Land use and related structures compatible without restrictions.

N (No) – Land use and related structures are not compatible and should be prohibited.

Y^x – Yes with restrictions. The land use and related structures generally are compatible. However, see note(s) indicated by the superscript.

N^x – No with exceptions. The land use and related structures are generally incompatible. However, see note(s) indicated by the superscript.

GENERAL NOTES FOR ALL USES:

a. The suggested maximum occupancy for commercial, service or industrial buildings or structures in APZ I is 25 people per acre and 50 people per acre in APZ II. 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.

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b. Recommended FARs are calculated using standard parking generation rates from Institute of Transportation Engineers trip and parking generation guidance for various land uses, vehicle occupancy rates and desired density in APZ I and II. For APZ I, the formula is $FAR = 25 \text{ people per acre} / (\text{Average Vehicle Occupancy} \times \text{Average Parking Rate} \times (43560/1000))$. The formula for APZ II is $FAR = 50 / (\text{Average Vehicle Occupancy} \times \text{Average Parking Rate} \times (43560/1000))$.

c. 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. For pilot and public safety, the Clear Zone is subject to the most severe restrictions.

d. Safety of flight should be considered when evaluating development that includes explosive potential; generates smoke, steam, ash or dust; and steam, creates electronic interference; lighting or glare; or tall structures.

e. 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 be analyzed for compatibility on a case-by-case basis that considers both the proposal and potentially affected mission.

f. Water features and other activities that may present bird/wildlife aircraft strike hazards or activities that produce dust or light emissions that could affect pilot vision are generally not compatible and should be evaluated on a case-by-case basis.

g. Evaluation of potential land management actions occurring on public and private lands, such as prescribed burns, should identify the hazard (i.e. visual impairment) to aircraft flight safety and to de-conflict operations occurring at the base (i.e. scheduled exercises and training requirements).

h. This compatibility table identifies places of worship and Tribal ceremonies as a cultural gathering. However, religious institutions provide a wide variety of services and in these instances refer to the applicable category.

FOOTNOTES SPECIFIC TO CERTAIN LAND USES:

1. The suggested maximum density for detached single-family housing is two dwelling units per acre to encourage retention of farming and open space.

2. Where a parcel is partially located in an APZ II, clustered development is encouraged on the portion outside the APZ while maximizing open space within the APZ.

3. All roads within the Clear Zone are discouraged, but if required, they should not be wider than two lanes and the rights-of-way should be fenced (frangible) and not include sidewalks or bicycle trails. Nothing associated with these roads should violate obstacle clearance criteria.
4. Above ground passenger terminals and above ground power transmission or distribution lines are not recommended. Prohibited power lines include high-voltage transmission lines and distribution lines that provide power to cities, towns or regional power for unincorporated areas.
5. A shopping center is an integrated group of commercial establishments that is a 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. The maximum recommended FAR should be applied to the gross leasable area of the shopping center.
6. Land uses in the APZs should be passive open space; ancillary places of public assembly are not recommended.
7. Low occupancy facilities are compatible with these uses, however playgrounds and marinas are not recommended.
8. Activities that attract concentrations of birds creating a hazard to aircraft operations are not compatible.
9. Lumber and timber products removed due to establishment, expansion or maintenance of Clear Zone lands owned in fee will be disposed of per applicable DoD guidance.
10. Controlled hunting and fishing may occur for the purpose of wildlife management.
11. Amusement centers, family entertainment centers or amusement parks designed or operated at a scale that could attract or result in concentrations of people, including employees and visitors, greater than 50 people per acre at any given time are incompatible in APZ II. Measures that reduce noise at a site should be used wherever practical in preference to measures that only protect interior spaces.
12. "Eating and drinking establishments" are distinguished from retail trade or fast food based on the predominant purpose of the restaurant to provide food and beverage to persons seated on premises. This includes cafes, tea rooms and outdoor cafes that involve low customer turnover and greater numbers of people dining on-site. Restaurants with drive-through service that offer quick, "fast-food" service, often accomplished by a limited menu of already prepared items and that have typically high customer turnover and lower numbers of customers dining on-site fall within the retail trade or fast food category.

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	CHAPTER	ACTION	APPROVAL AUTHORITY	
			NAVY	USMC
1	Chapter 2 (4.a)	Non-standard APZs for rotary-wing and fixed-wing aircraft	CNIC	COMMCICOM
2	Chapter 3 (2.b)	Modeling noise contours from current-year operations	CNIC (N4)	MCICOM AC/S G-7
3	Chapter 3 (2.c.6)	Use of supplemental noise metrics in noise studies	CNIC (N4)	MCICOM AC/S G-7
4	Chapter 4 (1)	Public distribution of AICUZ documents	CNIC	COMMCICOM
5	Chapter 4 (2.c)	Use of current (non-AICUZ) noise contours for comparison with proposed noise contours in developing AICUZ studies	CNIC (N4)	MCICOM AC/S G-7
6	Chapter 4 (3.a)	Modifying description and graphic depiction of AICUZ footprint	CNIC	COMMCICOM
7	Chapter 4 (4.c)	Refinement and interpretation of the basic land use planning practices	NAVFAC, per CNIC (N4) direction	NAVFAC, per MCICOM AC/S G-7 direction
8	Chapter 5 (3.b)	AICUZ Waiver Request	CNO N4	COMMCICOM

Appendix D