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VOL. I

FEDERAL NOISE PROGRAM REPORT SERIES

Department of Defense

AIR INSTALLATIONS COMPATIBLE USE ZONES (AICUZ) PROGRAM

April 1977

U.S. Environmental Protection Agency
Office of Noise Abatement and Control
Technology and Federal Programs Division
Washington, D.C. 20460

Federal Noise Program Reports

This report discusses some of the features and problems of the Department of Defense's program to control noise at military airfields: the Air Installations Compatible Use Zones (AICUZ) program. Its purpose is to serve as aid to persons concerned with noise abatement and control activities in the Federal Government. The report is the first in a series of documents discussing various Federal agency noise programs to be published by the Environmental Protection Agency in partial fulfillment of its responsibility under Section 4 of the Noise Control Act of 1972 (PL92-574).

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SECTION 1. INTRODUCTION

The military services within the Department of Defense (Navy, Marine Corps, Army and Air Force) are currently working to alleviate the noise problem at their airfields. Most of these efforts are grouped in a program entitled the Air Installations Compatible Use Zones (AICUZ).

Today, there is an increasing need for improved communication among people in the different Federal noise programs. This need is occasioned by the increasing complexity and interdependency of Federal noise programs. This very complexity making communication more necessary, at the same time, makes it more difficult.

This document is intended, therefore, to aid the Environmental Protection Agency (EPA) and other Federal agencies involved in noise abatement and land-use planning activities, by providing a framework for understanding the AICUZ program.

The Noise Control Act of 1972 designated EPA as the coordinator of Federal noise programs to ensure that they are consistent and mutually reinforcing. EPA believes that one way to facilitate coordination is to promote an understanding of other agencies programs by publishing a series of Federal noise program guides. This document covers some important features of DOD's AICUZ program, its problems and relationship to other agencies noise programs. It begins with a general discussion of the military airfield problem and general program requirements of the Secretary of Defense. It then discusses separately the Navy[1] and Air Force approaches to the problem. Detailed information regarding various aspects of these programs is contained in the Appendices.

The report does not discuss the Army program. The significant environmental noise problems at Army bases, unlike those at the air installations of the two services, do not involve fixed wing jet aircraft as much as helicopters. Weapons firing is also a major noise problem. The Army is developing a program utilizing AICUZ type contours to deal with these situations at its bases. It is, therefore, appropriate to address the entire Army noise program in a separate report in this series.

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[1]The Navy includes the U.S. Marine Corps.

SECTION 2. MILITARY AIRPORT NOISE AND DOD'S PROGRAM

THE GENERAL PROBLEM IN PERSPECTIVE

DOD recognizes that its aircraft/airport noise problem is a serious one. Many thousands of people live in military airport environs where the noise level exceeds L_{dN} = 75 dB.[1] Federal agencies agree that this noise exposure level is unacceptable for residential land use and is a contributor to hearing loss. Many more live in airfield environs where the noise level exceeds L_{dN} = 65 dB, a level which DOD agrees noise is clearly a social annoyance.[2]

Aside from the pure health and welfare aspects of the problem are some hard costs which DOD has faced in recent years. For example, due in part to actions of irate homeowners in military airport environs, several Air Force installations in the past have been forced to modify or cease their flying operations or to close entirely.

Some important factors bearing on the problem can be highlighted. The most obvious factor is that the nature of the DOD aircraft mission requires constant activity and change. Some years ago, DOD's strategy was to gain public acceptance of the noise of its aircraft by relying on the recognition that it served national defense and was "good" for the country (was, as the phrase went, "the sound of freedom"). However, in absence of guidance regarding acceptable sound levels, the once remote locations of many airfields became encroached upon by residential (and other) development that was incompatible with the noise levels from the bases. (Some, such as Andrews Air Force Base in Washington, D.C. are heavily encroached upon.)[3]

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1. L_{dn}, day-night sound level, is the energy-averaged equivalent level (L_{eq}) for 24 hours, adjusted to include a 10-dB penalty for noise exposures during night-time hours (10 p.m. to 7 a.m.).
2. The Environmental Protection Agency's "Levels" document defines noise problems to exist above L_{dn} = 55 dB, but does not address the questions of economic practicality and technological feasibility. DOD policy is to plot contours to L_{dn} = 65 dB.
3. The Air Force and the Navy have the most significant problems. The Army maintains six airfields capable of handling Air Force Troop Transport operations. As of mid-1976, noise contours had been plotted for five of the six airfields at Ft. Hood, Texas; Ft. Sill, Oklahoma; Ft. Bliss, Texas; Ft. Campbell, Kentucky and Ft. Benning, Georgia. The remaining installation is at Ft. Stewart, Georgia. Complaints have been received warranting special actions at Ft. Bliss, Oklahoma and Ft. Campbell.

The airfields and the planes they service also bear on the problem. In the United States, approximately 275 military airfields are located on 2.2 million acres. In addition, the military noise problem extends to civilian airports — about 86 civilian airports are serviced by Air Force planes.

Approximately 20,000 aircraft comprise the DOD inventory.[1] Figure 1 shows that almost all of those noted exceed Federal Aviation Administration (FAA) noise standards for civilian aircraft.[2] (Military helicopters are also noisy and the Army, in particular, is concerned.)

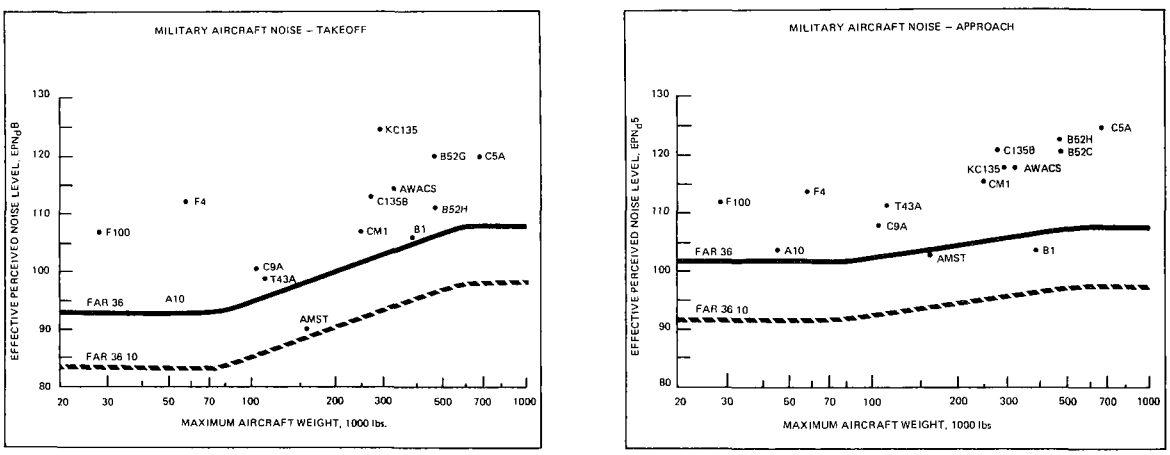

Figure 1. Military Aircraft Noise at Takeoff and Approach as Compared to Federal Aviation Administration's Civil Aircraft Noise Regulations (FAR Part 36)

1. The total inventory of DOD aircraft as of 1976 is 19,877: 8,244 Air Force, 7,107 Army, 4,526 Navy and Marine Corps. Of these, 48 percent are high-performance turbojets and 35 percent are helicopters.
2. EPA feels current FAA noise standards for certificated jet aircraft can and should be lowered.
3. Paul A. Shadady, "Military Aircraft Noise," American Institute of Aeronautics and Astronautics/Society of Automotive Engineers 9th Propulsion Conference, Las Vegas, Nevada, November 5-7, 1973.

Apart from policies that DOD imposes on itself, there are no legal requirements to restrict military aircraft operations and emissions.[1]

Public pressure, new laws, and increased self-awareness about noise have contributed to forcing DOD to seek solutions. Unlike civil operators, DOD exercises direct control over its aircraft, its airfields *and* its pilot and maintenance personnel. This is in stark contrast to the extremely diffuse, overlapping and complex control framework for commercial airports. In addition, many communities are heavily dependent upon military bases for their economic prosperity, and since DOD represents a consolidated political power, it can readily influence communities to take actions to control land development in the airport environs.

OVERVIEW OF DOD AIR INSTALLATIONS COMPATIBLE USE ZONE (AICUZ)

DOD has been concerned with noise from military airfields for a long time. The birth of the AICUZ program was formally announced in 1973 in a DOD directive[2] that outlined a program of objectives, priorities and actions to deal with the problem.

The *objectives* are to protect the integrity of military operations at DOD bases and to protect the safety, health, and welfare of the affected public.

The *stated priorities* are: one, to reduce the noise through source and operational controls, and two, where these controls are inadequate, to take action to ensure land use compatibility in one or more of the following ways:

1) provide guidelines and work with local governments to achieve land use controls,
2) acquire land or restrictive easements,
3) change the installation's mission, and
4) close the installation.

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1. It is generally accepted that FAA noise regulations do not apply to strategic and military aircraft. The Air Force, however, has a policy requiring that, where military requirements permit, transport aircraft must be designed to comply with FAA noise standards. (See Appendix C)
2. DOD Instruction 4165.57, issued July 30, 1973, has since been revised and incorporated into the Code of Federal Regulations. The final rule was published in the *Federal Register* on January 4, 1977. (See Appendix C)

The *actions* to be taken include: 1) studying the problem at each airport to determine areas of noise impact of L_{dn} = 65 dB and over, 2) recommending a program of noise reduction and land use, and 3) working with local authorities to implement the recommendations.

Each service is to develop a schedule for implementing AICUZ and for setting priorities among the installations. The Office of the Secretary of Defense reviews the progress of the overall program and alone can decide whether particular installations should be closed.

Since the AICUZ program was established, the Air Force and Navy have studied the problem at many of their bases where problems have been identified. (See Appendix D for the current status of the AICUZ program.) Noise reduction measures other than land use have been employed. Such measures include: ground runup suppressors, construction of some "hush houses,"[1] flight operational restrictions and modifications, and easement acquisition. *In essence, however, the program primarily consists of technically assisting communities to enact land use planning and controls that will ensure that local development (of all kinds) is compatible with the noise levels (and accident threat) generated by the airfield.* While various communities have accepted the AICUZ land-use guidelines and have begun to incorporate them into their ordinances, there are inherent weaknesses in exclusive reliance upon land use solutions:

- They are preventive rather than remedial. That is, they help prevent further enchroachment but do not help existing situations.
- Communities are often unable to buy up properties as a noise abatement measure because of the large costs involved.
- They can be nullified by city councils who, subject to intense pressure from developers, may change their zoning laws.
- The military itself can introduce a noisier fleet of aircraft at a particular base.

1. A "hush house" is a constructed acoustical enclosure for jet aircraft engine ground run-ups.

SECTION 3. NAVY APPROACH TO THE PROBLEM

THE NAVY PROBLEM

The Navy operates 70 airfields[1] at 49 installations which are generally located in heavily populated coastal areas, and therefore, faces a substantial encroachment problem. In contrast to the Air Force, the Navy does not operate large bomber type jet aircraft.[2] However, Navy training designed to simulate night-carrier operations necessitates night operations that create special noise problems for nearby communities.

The Navy faces various constraints in achieving noise reduction by source and operational controls (page 3-2). New quieter aircraft are very slowly being introduced to the fleet. Therefore, no major reduction in the noise levels around most Naval Air Installations is likely in the near future.

NAVY REQUIREMENTS

Navy AICUZ policy is contained in its consolidated manual of Naval Environmental Protection instructions.[3] The policy:

- requires that each base study its noise problem, define accident potential zones and make actual measurements in connection with the development of noise contours,
- provides for purchases of land and easements, if necessary, to prevent rezoning, and
- specifies constraints and guidance for types of operational controls that may be employed.

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1. In addition, there is one joint civilian use airfield: U.S. Marine Corps Air Station, Yuma, Arizona.
2. Such aircraft (e.g., B-52) are the prime contributor to noise levels at some Air Force installations.
3. OPNAV INST 6240.3D, Environmental Protection Manual, 4/24/75. This manual consolidates all Navy AICUZ requirements since the DOD policy was initially implemented by the Navy in a SECNAV instruction in 1973. (See Appendix C)

The Navy's primary concern is accomplishing the study at each base and instilling confidence in the adjoining communities as to its recommendations. The Navy approach is to assure communities that the AICUZ studies can be relied upon for planning purposes. To assure easy implementation, it has a "no change" policy: barring a major change in operations at a Naval airfield (such as might result with the introduction of new aircraft or a change in the level of activity) the Navy does not intend to generate new noise contours at the base.[1]

Navy AICUZ Study

The Navy AICUZ study is intended to be a planning document. It consists of a detailed *study* of the noise impact and accident history of land areas adjacent to the airport and a *plan* (or series of plans) to alleviate the impact. Table 1 outlines the material included in a completed study. Organization varies slightly among studies, but each item of the outline is required to be included in the final study. These are the following critical features of an AICUZ study:

1) Compatible use zones;
2) The land use matrix;
3) The land use plan.

Compatible Use Zones

The AICUZ zone is a map of the installation and its surrounding land areas which has been divided into subzones. This map is formed by overlaying separate maps showing noise exposure contours and accident potential zones around the installation. Each AICUZ zone, therefore, is a combination of a noise exposure zone and an accident potential zone.

Noise contours are generated through use of a computer. The Navy verifies the results with actual measurements at selected locations in the airfields environs. Until recently, Navy studies used the Composite Noise Rating (CNR) and Noise Exposure Forecast (NEF) aircraft environment noise descriptors; more recent ones use the L_{dn} general environmental noise descriptor.[2] Inputs consist of flight operations and ground engine testing data including flight paths, number of flights, time of day, number and duration of ground run-ups and noise levels generated by each type of aircraft.

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1. Depending on activity size, however, the Navy does plan to update its studies on a 3 to 6 year cycle.
2. DOD policy now requires exclusive use of the L_{dn} descriptor (see Appendix C for appropriate reference).

Table 1. Navy AICUZ Study Outline

1 - AICUZ SUMMARY	- summary of incompatibility issue - description of problem near the installation/hgihlights of study results
2 - INTRODUCTION	- explanation of AICUZ concept/objectives/study assumptions - description of installtion/surround community/interrelationships
3 - EXISTING CONDITIONS	- installation history - operations (mission, aircraft type, flight paths, runway utilization, maintenance testing, safety record, future changes, and operations changes already made to reduce noise) - physical setting population local and regional governmental/planning structure economy - existing and projected land use patterns development pressures and trends land development regulations
4 - AICUZ DEVELOPMENT	noise environment (narrative and graphic discussion of noise exposure and land use suitability) - accident potential environment (narrative and graphic discussion of accident potential zones and land use suitability based on local conditions) - conceptual development of the AICUZ (combining of noise contours, accident potential zones and land use objectives matrix/ detailed compatibility rationale) - land development and building construction effects and legal aspects
5 - COMPATIBLE LAND USE	land use analysis (narrative and graphic discussion of compatibility relating to existing and projected land use) - methods of achieving compatibility (general discussion of all regulatory and acquisition strategies available)
6 - IMPLEMENTATION	recommended community/regional action (e.g. noise ordinance, zoning, building code amendments, tax incentives, utility restrictions, financial institution restrictions) - priorities for community action

Accident potential zones are not as accurately formulated. They are based on analyses of the accident histories of each type of aircraft operating from the installation and the accident history of the installation itself.

A baseline AICUZ map is required to be used to consider the predicted effects of source and operations controls. If changes are made,[1] a new AICUZ map will be drawn to reflect these effects before land use plans are developed.

Figure 2 shows the noise contours and accident potential zones for Naval Air Station Cecil Field, Florida. Note that the impacted area with the L_{dn} = 65 dB contour can cover a considerable area.

Land Use Matrix

The land-use matrix is the basic planning tool of the AICUZ study. It is a table that compares various land uses with the AICUZ zones to show which uses are compatible, compatible with restrictions, or incompatible in each zone. The land uses considered will vary depending on existing land uses and zoning in the vicinity of the installation.[2] In determining the relative compatiblity of a particular use in any zone, the Navy requires that such factors be considered as the density of development, concentration of people and noise attenuation requirements in local building codes. Figures 3 and 4 show the basic and expanded matrices for Naval Air Station Cecil Field. Naval land use matrices vary among installations. (Air Force matrices are uniform.) Figure 4 shows a portion of an expanded land use matrix for NAS Cecil Field. The "Land Use Objectives Amplified" in this case is a recent development not contained in most completed studies.[3] The numbers contained

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1. Although the Navy faces various constraints in making operational changes (see page 3-12), certain installations have reportedly made some significant ones. At Miramar NAS California, for example, a base where the problem of encroachment is particularly acute, the following operational changes have been made:
   - limit of four aircraft in field carrier landing practice pattern;
   - time limit on night operations;
   - securing after burners of departing aircraft prior to crossing the station boundary;
   - executing an "s" turn on departure to avoid developed areas.

   Hush houses have also been constructed.
2. For example, the land use matrix for Naval Air Station Barbers Point, Hawaii, reflects open ventilation, commonly used in buildings in Hawaii.
3. The land use categories are taken from the Department of Commerce's *Standard Land Use Coding Manual.*

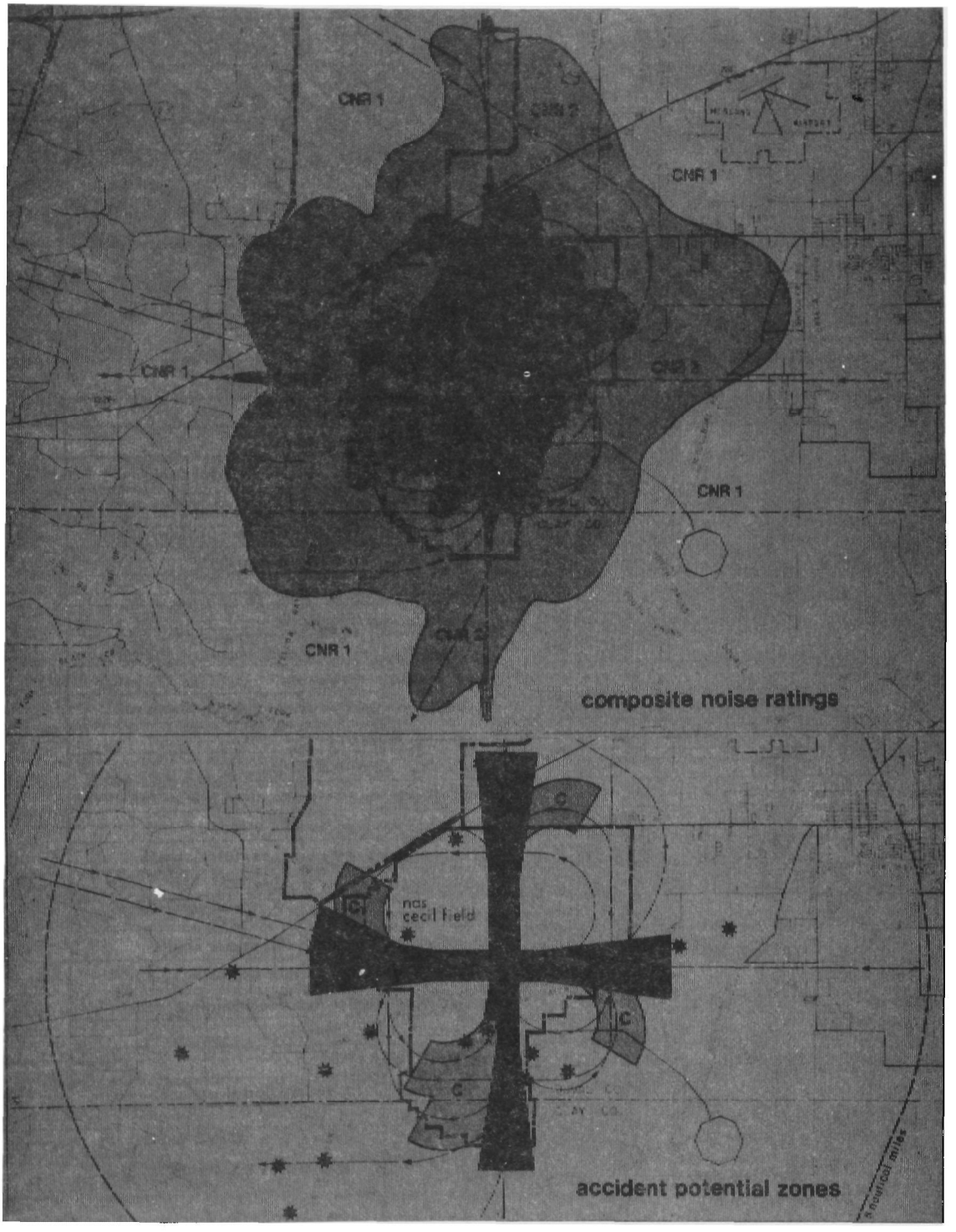

Figure 2. Composite Noise Rating and Accident Potential Zones:
Naval Air Station Cecil Field, Florida

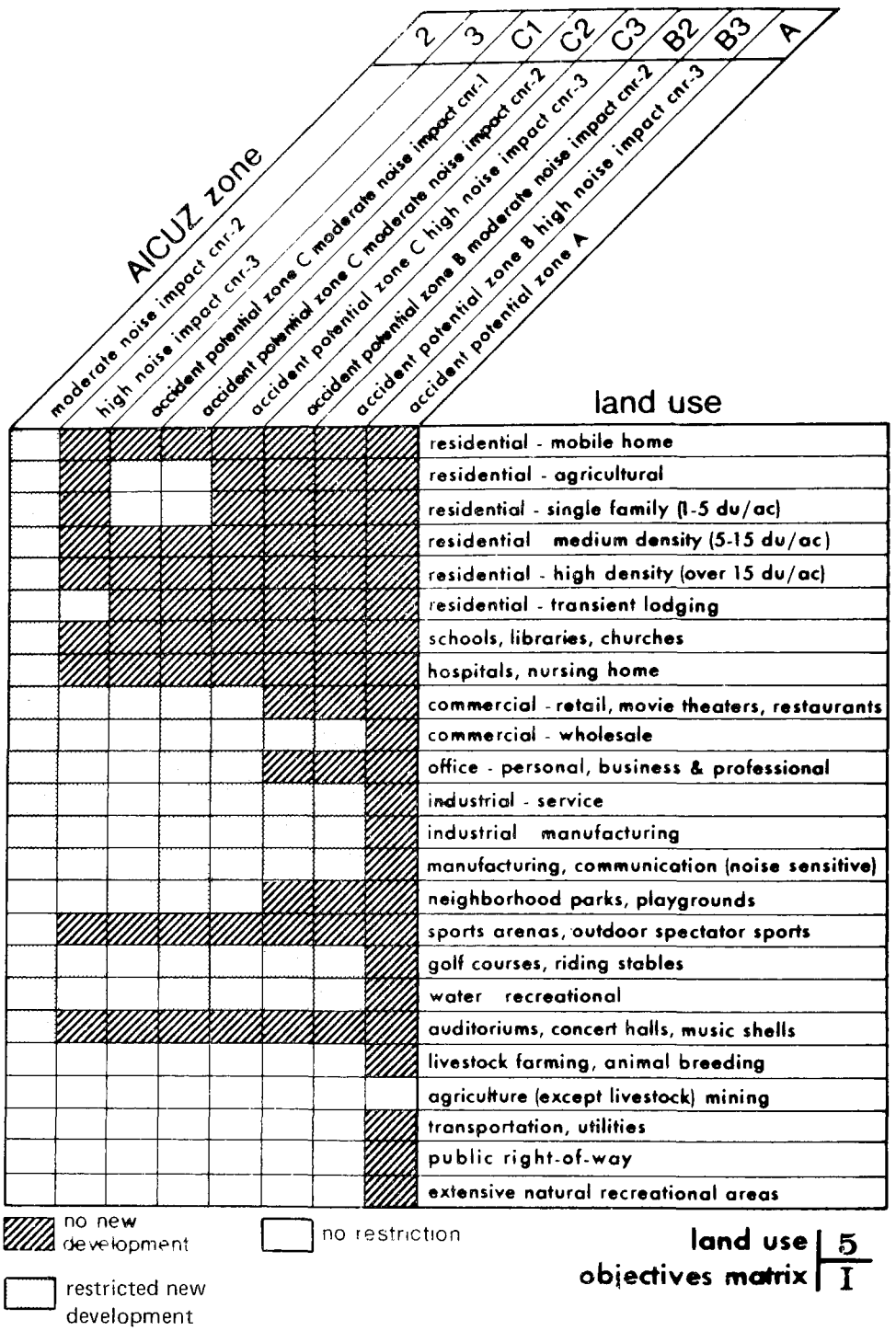

Figure 3. Basic Land Use Matrix: Naval Air Station Cecil Field, Florida

NAVY
AICUZ LAND USE
OBJECTIVES AMPLIFIED

NO NEW DEVELOPMENT
RESTRICTED NEW DEVELOPMENT
NO RESTRICTIONS

LAND USE	AICUZ AREA							
CATEGORY	A	B-3	B-2	C-3	C-2	C-1	3	2
RESIDENTIAL								
SINGLE FAMILY					30[1,2]	1		30[2]
TWO-FOUR FAMILY								30[2]
MULTI-FAMILY APTS								30[2]
GROUP QUARTERS								30[2]
RESIDENTIAL HOTELS								30[2]
MOBILE HOMES/COURTS								30[2]
TRANSIENT LODGING							35[2]	30[2]
OTHER RES/RES AGRIC.					30[1,2]	1		30[2]
INDUSTRIAL MANUFACTURING[3]								
FOOD & KINDRED PROD'T				4	5		4	5
TEXTILE MILL PRODUCTS							4	5
APPAREL							4	5
LUMBER/WOOD PRODUCTS		4	5	4	5		4	5
FURNITURE/FIXTURES		4	5	4	5		4	5
PAPER/ALLIED PRODUCTS		4	5	4	5		4	5
PRINTING/PUBLISHING		4	5	4	5		4	5
CHEMICALS/ALLIED PRODS		3,4	3,5	3,4	3,5	3	3,4	3,5
PETROLEUM REFINING & RELATED PRODUCTS							4	5

Figure 4. Portion of Modified Land Use Matrix: Naval Air Station Cecil Field, Florida

in various boxes within the matrix refer to explanations of the restrictions placed upon development in each individual zone. The full matrix and explanatory notes are contained in Appendix E. The purpose of the expanded matrix is to provide communities with a broad range of alternative compatible land uses while likewise indicating more specifically those that are incompatible.

Land Use Plan

The land use plan is the culmination of the study: it translates the matrix into a set of specific objectives for compatibility in each AICUZ zone by discussing potential incompatible tracts of land in each zone. The goal of the plan is to prevent *future* incompatible development; it is not to alter existing incompatible land use. The implementation strategy emphasizes continuing contacts with local officials and the public. While details of the strategy will depend upon local circumstances several features are common:

- close contact with the local zoning board to obtain favorable zoning within AICUZ,
- a public information campaign to disseminate the results of the study and the Navy's recommendations to the community, and
- the setting of priorities as to which individual AICUZ zones present the most immediate problems (those zones where compatible development is most likely).

If it appears that acquisition of land or restrictive easements will be necessary, this will not be reflected in the land use plan which is promulgated to the communities.[1]

Environmental Impact Assessment

The Navy requires that probable environmental impacts of any action be assessed as early as practical (and reassessed at significant decision points). If it appears that the

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1. The stated reason for the omission is that purchases are limited by the amount of funds available and are, therefore, concluded based on priorities set by Navy Headquarters and by Major Claimants (Commander U.S. Naval Air Forces, Atlantic and Pacific). Land acquisition also is a long term and costly alternative and is a "last resort" approach. Were the Navy seemingly to commit itself to purchasing land, this could inhibit local action in curbing noise and lead to local speculation in lands about the airfield vicinity.

proposed action will have a significant adverse impact or be controversial for environmental reasons, an Environmental Impact Statement (EIS) is prepared. If the action obviously has no significant impact and is not highly controversial, an Environmental Impact Assessment (EIA) is prepared. (An EIA is a memorandum covering the same technical areas that the Navy would include in an EIS.)

The Navy's position is that an AICUZ study is an action *not* resulting in any significant adverse environmental impacts (the results are considered environmentally beneficial). Thus an EIA, rather than an EIS, is prepared (which need not be forwarded for approval and may not appear in some AICUZ studies). This is because the study includes information on prospective purchase of land or restrictive easements may be highly controversial and could trigger land speculation around the base. In these cases, where the Navy does decide to purchase land or restrictive easements, an EIS, based upon the original EIA, will be prepared prior to acquisition.

NAVAL IMPLEMENTATION OF THE AICUZ PROGRAM

The Navy implements AICUZ through an organization described in Appendix F and through actions described below.

The Navy gives the Commanding Officers of its air installations wide discretion in attempting to influence community action with respect to AICUZ. (An ongoing "issue" within the Navy, in fact, is the extent to which they should be advocates of specific action in such communities.) Once the study is developed, it is presented to the community. Commanding Officers[1] are personally involved in giving presentations to interested groups, including civic clubs, financial leaders and city councils. (In some cases, the Navy even has direct participation in city councils, i.e. can vote). Concurrently, the Navy distributes the study widely to governmental agencies, civic groups, land owners, Chambers of Commerce and libraries.

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1. These officers are given guidance in the form of case studies from other installations and aids such as slide shows and movies. The AICUZ study itself may contain specific recommendations. For example, the study for Naval Air Station Barbers Point, Hawaii, recommends that base personnel approach the staff of the State of Hawaii Department of Planning and Economic Development to seek inclusion of restrictions on land uses permitted around airports in the State's land use guidance policy.

The Navy has developed certain tools to promote local governmental action, including a model zoning ordinance and building code amendments.[1]

The Navy also encourages communities to adopt real estate "truth in sales and rental" ordinances. This ordinance requires an individual selling or renting residential property located within the boundaries of an AICUZ to provide each potential purchaser or renter with a disclosure statement. The Navy's sample disclosure statement indicates:

- the proximity of the property to the airfield,
- the noise level to which the property is exposed, and
- the suitability of the site for residential use (employing the HUD noise standards for airport environs).

The Navy's various public relations aids include a slide presentation and movie, available to the installations through the Engineering Field Divisions. Headquarters personnel are available to speak to local groups particularly at the presentation of a newly completed study.

The Navy periodically conducts a AICUZ training course which is a two-day seminar attended principally by installation personnel (commanding officers, executive officers, and air operations officers) although it is open to representatives of other agencies.

When development trends indicate that locally implemented land use controls may be insufficient to prevent incompatible development, the Navy feels only three major options remain:

- state legislation
- land acquisition, and
- mission changes or installation closing.

The Navy supports State airport land-use planning legislation. In cases where all else fails, the Navy will consider acquiring land or restrictive easements. This is a method that can prove quite costly. Estimates for certain individual easement purchases are in the millions of dollars. (Navy policy, however, clearly states that this is a viable alternative.) Where purchases are recommended, the Commander US Naval Air Forces (Atlantic or Pacific) in the role of Major Claimant will set priorities among different installations.

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1. This is in contrast to EPA's "Model Community Noise Ordinance" which is intended to be a basic tool that communities can use to construct noise control ordinances suited to local needs and conditions; the Navy's model is limited to land use planning in airfield environs. It contains no provisions for source control.

The Navy has never closed an air installation solely due to encroachment but in some cases, this has been a significant factor. It has also been a significant factor in evaluating the future mission of the air installation. Downgrading of an installation may lead to its closing in the future.

Experiences in Implementation

In general, an installation program is considered successful to the extent that it prevents incompatible development near the airfield. Commanding Officers also watch the level of complaints as it fluctuates. A "successful" program is judged to be one in which the number of complaints diminishes.

As of December, 1976, 28 Navy AICUZ studies (of a projected 67) had been completed and approved. (Appendix D contains the current status of the AICUZ program at all Naval and Marine Corps air installations). While the degree of success achieved at different installation varies with the local situation, the studies have been generally accepted in principle by the communities affected.

Individual Successes

A highly successful AICUZ program is reported in progress at Naval Air Training Center, Patuxent River, Maryland. The Planning Commission of St. Mary's County has adopted (with the assistance of the Navy) a zoning ordinance that directly incorporates the land use matrix and recommendations of the NATC Patuxent River AICUZ study, FAA height restrictions and State of Maryland noise control and land use provisions. Naval Air Station Cecil Field, Florida, consists of two airfields (the main base at NAS Cecil Field and an auxiliary and training field, Outlying Field Whitehouse). A proposed residential development within the AICUZ boundary of Outlying Field Whitehouse was rejected by local zoning officials and the land is now now being developed compatibly for industrial use.

Problems in Implementation (Navy)

In implementing its AICUZ program, the Navy has encountered certain difficulties.

1) Resistance to Rezoning

It is very difficult, once a section of land has been zoned for a high density use (one involving regular use of the land by large numbers of people — residential as opposed to agricultural for instance) to have it down-zoned.[1]

If the land has not actually been developed, the Navy may still purchase restrictive easements. Lawsuits have been filed against community zoning authorities who have down-zoned land on the legal grounds that this represents a taking of existing property rights and values. The number of suits has been small but some communities (such as Virginia Beach, Virginia where Naval Air Station Oceana is located) have indicated to the Navy that they do not feel that they can successfully down-zone property. This is a particularly serious problem for the Navy since the locations of its airfields are in high population density coastal areas where development pressures are high.

2) Limitations on Operational Changes

Naval air stations are auxiliaries to aircraft carriers and missions (particularly training flights) flown from them are to support fleet carrier operations. Carrier landings are accomplished at full power so that if the pilot misses the touchdown point he has the power to take-off immediately. Carrier take-offs require the pilot to perform an immediate left-hand turn to avoid the bow of the carrier. Training flights practicing these maneuvers are common at Naval airfields, since the Navy wants to simulate carrier conditions as closely as possible.

In terms of AICUZ, this means that some very noisy operations following fixed flight paths may be dififcult to change. However, decisions on operational changes are made on the basis of an overall weighing of costs and benefits (assuming no serious impairment to safety or operational capabilities) and some significant operational changes are made. A dramatic example of where operational changes lowered noise impact is Naval Air Station,

1. Re-zoned from a high to a low density use, which generally means a loss of property value.

Barbers Point, Oahu, Hawaii, where, as a result of eliminating the left-hand flight path, the land area within the AICUZ was reduced by half.

4) Difficulties in Funding

The AICUZ program was developed by DOD as a response to the encroachment problem around military airfields, not to comply with a specific legal compliance requirement. Environmental activities within the Navy's environmental protection program that are undertaken to comply with legal requirements receive priority over AICUZ. While a lack of funding should not severely impair the implementation of the land use plan and public awareness strategy, it can affect noise suppression projects[1] or acquisition of land or interest in land.

The Navy estimates that the cost of its program, including acquisition of land and restrictive easements, could be as high as $200 million dollars.

HOW OTHERS INFLUENCE THE NAVY STUDIES

The Navy is anxious to communicate the results and recommendations of its AICUZ studies to all concerned. While the public, states local governments and other Federal agencies (barring unusual circumstances) do not comment formally on the studies prior to their issuance, localities to varying extents are involved in the actual development of the studies. Copies of completed studies are forwarded to such interested Federal agencies as HUD, VA, and EPA. Copies are also widely distributed in airport environs communities (at libraries, etc.). The Navy also provides them to State and area intergovernmental clearing houses (established under OMB Circular A-95).

The Navy and Federal Housing Agencies

The Department of Housing and Urban Development and the Veterans Administration utilize the Navy contours in implementing their own noise policies in airport environs. The

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1. For example, the Navy presently has one hush house for maintenance testing of engines at Naval Air Station Miramar and is constructing two additional hush houses at a cost of approximately $2 million each.

Navy actively encourages private lenders to follow the lead of these agencies in refusing to guarantee development loads in high noise areas. Navy AICUZ noise land use recommendations are consistent with those of HUD. (In fact, HUD's pioneering efforts in the noise land use area were utilized by the Navy in developing their program). Both agencies are provided copies of all AICUZ studies.

The Navy and Federal Aviation Administration (FAA)

Navy representatives are assigned to each of five FAA regional offices (Eastern, Southern, Pacific, Southwest and Western). Their principal concern is with airspace regulation. Flight paths near Naval airfields are frequently restricted by FAA because of the airspace needs of commercial and general aviation. The Navy representatives are familiar with AICUZ though they seldom handle AICUZ or noise matters.

At the Navy's only joint use installation, Marine Corps Air Station Yuma, Arizona, the county is attempting to obtain funds from the FAA's Airport Development Assistance Program (ADAP) to aid the AICUZ program.

The Navy and Environmental Protection Agency

Direct contact between EPA and the Navy has been limited. The Navy's decision to adopt L_{dn} for all future AICUZ studies was a significant action involving the two agencies.

A problem which the Navy has faced at some of its installations is the expansion of local utility systems which can spur residential (and other) development in areas deemed incompatible within the noise environments of the Naval Airfield. Since EPA administers a multi-billion dollar water pollution grant program for the construction of waste water facilities, EPA should ensure its actions in that area do not conflict with the overall AICUZ plan of assuring compatibility of the airport with noise sensitive land uses.

SECTION 4. AIR FORCE APPROACH TO THE PROBLEM

THE AIR FORCE PROBLEM

The Air Force operates approximately 200 airfields including 86 joint-use civilian airports.[1] The bulk are concentrated in southern and coastal States; nearly all face a variety of encroachment situations. Most face development problems in varying degrees although some, such as Mountain Home Air Force Base, Idaho, are reportedly virtually free of incompatible development. In the past, several Air Force installations have ceased flying operations or closed entirely due, in part, to action by homeowners who unknowingly purchased homes too close to the bases. The problem of encroachment is accentuated by the fact that many Air Force aircraft are heavy, (and noisy) multi-engine types, such as the B-52.

There are some factors unique to the Air Force which should result in long-term reduction of the noise problem at many bases even if AICUZ were not implemented:

1) Several new aircraft such as the F-15, F-16, and A-10 and B-1 may replace older noisier aircraft in the next few years. This will have at least two effects:
   - it will require amendments to AICUZ maps where they have been completed, and
   - it will result in assignment of some older, noisier aircraft to Air Force Reserve and Air National Guard units at joint-use airports.
2) On a long range basis, the use of flight simulators *will* reduce the number of missions flown by the Air Force. Training bases will be the most directly affected category.

AIR FORCE REQUIREMENTS

Air Force AICUZ policy is not as yet contained in a single regulation, but in a number of separate issuances.[2]

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1. In addition, as of 1973, seven Air Force bases were being used by civilian aircraft.
2. The policy was initially implemented by a letter dated October 27, 1973, containing guidance material, from USAF Headquarters, to each of the USAF fifteen major commands (such as SAC). The letter was followed by a policy statement which gave a more substantive outline of the program. Other issuances are also pertinent — see Appendix C.

The goals of the policy are the same as the Office of the Secretary of Defense and Navy: 1) protect base operational integrity, and 2) protect the public health and welfare. The approach differs slightly in that it reflects an almost exclusive reliance on land use solutions to the problem. The Air Force will not purchase land or rights in land as a noise control measure (only in the highest accident hazard area). Air Force AICUZ policy does not mention source control, although operational change analyses are to be conducted at each base as part of the AICUZ studies to identify whether operational changes to reduce noise impact are possible and desirable (see AFR 55-34 below). (Such changes are to be employed only when they will not jeopardize safety or operational effectiveness.)

The Air Force does not intend for its AICUZ studies to be incorporated directly into local ordinances, although it feels this, in some cases, may be desirable. It regards these studies only as one very important input element to the local planning process. The Air Force AICUZ studies emphasize that the planning process is a dynamic one, and therefore, anticipates revising its studies as necessary (and consequently, its recommendations) from time to time as missions and conditions change.

The Air Force program stresses intergovernmental coordination on all levels with respect to its AICUZ program. Applicable Federal agencies (e.g. HUD and EPA) as well as State land-use planning or environmental agencies are required to be kept closely informed of Air Force AICUZ actions.

Environmental Regulations

The Air Force maintains various environmental planning policies and programs which affect the implementation of AICUZ:

- Reducing Flight Distrubances — AFR 55-34,
- Protection and Enhancement of Environmental Quality-AFR 19-1,
- Environmental Assessments and Statements — AFR 19-2,
- Coastal Zone Management (CZM),
- Evaluation, review and coordination of Federal and Federally assisted programs and projects — OMB Circular A-95,
- Airfield and Airspace Criteria — AFM 86-8,
- Conservation and Management of Natural Resources — AFM 126-1,

- Base Master Planning — AFR 86-4,
- Tab A-1 Environmental Narrative,
- Management and Conservation of Land AFR 91-26,
- Explosive Safety — AFM 127-100 and
- Airspace Management — AFR 55-2.

The first three relate directly to the AICUZ program; the others provide an overall framework of Air Force environmental programs.

AFR 55-34, "Reducing Flight Distrubances," provides detailed guidance concerning operational controls and public relations. Base commanders are required to continually review and evaluate flight operations in terms of their impact on populated areas and the local situation (for example, some flight paths may not be alterable due to the proximity of commerical or general aviation flight paths). The types of changes to be assessed include:

- use of preferential runways,
- avoidance of traffic patterns that affect populated areas,
- adjustment of take-off and landing techniques,
- locations of engine run-up pads, other than pre-flight, and use of maximum sound suppression devices for ground run-ups,
- location of engine test stands and,
- controls on low altitude operations.

As a result of implementation of operational changes under AFR 55-34, few additional changes are usually required as part of AICUZ.[1]

In order to minimize complaints (and damage claims) resulting from sonic booms, the Air Force has established minimum altitude and flight paths for supersonic operations. A sonic boom reporting system has been established containing consolidated data on supesonic flights so that complaints can be readily investigated.

AFR 19-1, "Protection and Enhancement of Environmental Quality," sets Air Force general policy towards reduction and prevention of all pollution from Air Force operations. It requires that a multi-disciplinary Environmental Protection Committee be established at

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1. A number of AICUZ studies (including those at March AFB, California, and Myrtle Beach AFB, South Carolina) conclude that present operations at the base are achieving maximum possible noise control without impairing the operational capabilities of the base.

Headquarters, at each Major Command, and at each installation. Air Force AICUZ policy recommends using this committee in the implementation of the AICUZ program.

AFR 19-2, "Environmental Assessments and Statements," outlines procedures for completing various environmental assessments (including Candidate Environmental Statements and Draft and Final EIS's).

The Air Force AICUZ Study

Air Force AICUZ studies are characterized by their:

- Relative brevity (they contain summaries of input data rather than detailed compliations);
- Uniformity (much of the material, including land use matrices is identical among different studies);
- Detailed discussions of existing and future development.

Table 2 contains a detailed outline of material appearing in a typical Air Force AICUZ study.

Figure 5 presents a portion of the standard land use matrix that appears in all Air Force studies.[1] (Note the caveat at the bottom of the chart stating that communities should not adopt these directly into their ordinances without further evaluation). The complete matrix, including a full explanation of the symbols used, appears in Appendix E.

Environmental Impact Assessment

Since the Air Force considers an AICUZ study to be only a statement of information, not a major Federal action affecting the environment, it does not perform an environmental assessment as part of an AICUZ study. If, however, land acquisition is planned, an assessment is made (which may lead to an EIS). Any significant operational change at a base (such as the introduction of new aircraft) would also require an environmental assessment.[2]

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1. The individual land use categories and the code numbers in the left hand column were developed by the Department of Commerce.
2. An example of where the introduction of new aircraft significantly affected the noise environment is the introduction of the AWACS aircraft at Tinker AFB, Oklahoma. These aircraft will be phased in over a 5-year period and will raise the L_{dn}.

Table 2. Air Force Study Outline

Summary and Conclusions	Series of brief statements including: the problem of encroachment the AICUZ concept implementation of AICUZ at the base the results of the study recommendations for community action
I - Introduction	Problem of encroachment general nature of problem problem at the base purpose of the AICUZ concept Land Use development policies Study objectives and content presentation of the Air Force's perspective objectives to analyze the effects of noise and accident potential on adjacent communities outline of remainder of report
II - Base and Community	History of base Communities (politican units) affected Base mission Economic impact of the base on the community Population growth and characteristics Climatology Transportation
III - AICUZ Concept, Program and Methodology	Background - history of AICUZ from Greenbelt and general environmental concerns Air Force policy Flying operations (narrative and graphic) types of aircraft flight paths utilized Airfield Environs land use planning determinants Accident potential zones (narrative and graphic) discussion of accident potential in general and presentation of zones at the base Noise contours (narrative and graphic) brief statement of methodology and contours for Ldn 65-70-75-80 Height, obstructions and other considerations Basic land use compatibility - discussion of relationship of broad land use categories to accident potential and noise
IV Base AICUZ	Combination of accident potential and noise zones into compatible use districts (narrative and graphic) Presentation and discussion land use compatibility guidelines (matrix) Discussion of existing land uses and land use policy Future land use policy - discussion of development trends Future conditions - discussion of specific potential incompatible development

Table 2. Air Force Study Outline (Continued)

V Air Force Responsibility	General reduce noise participate in local planning Discussion of base participation in local planning
VI - Community Responsibility	General recommendations as to community planning Specific recommendations relating to potential incompatible development
Appendices	Base mission - detailed discussion Operational change evaluation - changes considered and reasons for adoption or rejection Accident potential study - discussion of general concept Noise environment - discussion of noise methodology Height and obstruction criteria

SLUCM* CODE	LAND USE CATEGORY	COMPATIBLE USE DISTRICTS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
		L_{dn} 85	APZ I L_{dn} 80-85	APZ I L_{dn} 75-80	APZ I L_{dn} 70-75	APZ I L_{dn} 65-70	L_{dn} 80-85	L_{dn} 75-80	APZ II L_{dn} 80-85	APZ II L_{dn} 75-80	APZ II L_{dn} 70-75	APZ II L_{dn} 65-70	L_{dn} 70-75	L_{dn} 65-70
	RESIDENTIAL													
11x	Single Family	N	N	N	N	N	N	N	N	N	30[1,2]	25[1,2]	30[2]	25[2]
11x	Two Family	N	N	N	N	N	N	N	N	N	N	N	30[2]	25[2]
11x	Multi-family dwelling	N	N	N	N	N	N	N	N	N	N	N	30[2]	25[2]
12	Group quarters	N	N	N	N	N	N	N	N	N	N	N	30[2]	25[2]
13	Residential hotels	N	N	N	N	N	N	N	N	N	N	N	30[2]	25[2]
14	Mobile home parks or courts	N	N	N	N	N	N	N	N	N	N	N	30[2]	25[2]
15	Transient lodging – hotels, motels	N	N	N	N	N	N	35[2]	N	N	N	N	30[2]	25[2]
19	Other residential	N	N	N	N	N	N	N	N	N	N	N	30[2]	25[2]
	INDUSTRIAL/MANUFACTURING[3]													
21	Food and kindred product	N	N	N	N	N	Y[4]	Y[5]	Y[4]	Y[5]	Y[6]	Y	Y[6]	Y
22	Textile mill products	N	N	N	N	N	Y[4]	Y[5]	N	N	N	N	Y[6]	Y
23	Apparel	N	N	N	N	N	Y[4]	Y[5]	N	N	N	N	Y[6]	Y
24	Lumber & wood products	N	Y[4]	Y[5]	Y[6]	Y	Y[4]	Y[5]	Y[4]	Y[5]	Y[6]	Y	Y[6]	Y
25	Furniture & fixtures	N	Y[4]	Y[5]	Y[6]	Y	Y[4]	Y[5]	Y[4]	Y[5]	Y[6]	Y	Y[6]	Y
26	Paper & allied products	N	Y[4]	Y[5]	Y[6]	Y	Y[4]	Y[5]	Y[4]	Y[5]	Y[6]	Y	Y[6]	Y
27	Printing, publishing	N	Y[4]	Y[5]	Y[6]	Y	Y[4]	Y[5]	Y[4]	Y[5]	Y[6]	Y	Y[6]	Y
28	Chemicals & allied products	N	Y[3,4]	Y[3,5]	Y[3,6]	Y[3]	Y[4]	Y[5]	Y[3,4]	Y[3,5]	Y[3,6]	Y[3]	Y[6]	Y
29	Petroleum refining and related industries	N	N	N	N	N	Y[4]	Y[5]	N	N	N	N	Y[6]	N

This table is a guide. Adaptations to fit local conditions and more precise land use category designations are required based on the criteria of the foregoing narrative.

*Standard Land Use Coding Manual, Dept. of Commerce, 1965

Figure 5. Portion of Air Force Land Use Compatibility Guidelines

• N (NO)	– The land use and related structures are not compatible and should be prohibited.
• Y (YES)	– The land use and related structures are compatible without restriction and should be considered.
• Y^{x} (YES WITH RESTRICTIONS)	– The land use and related structures are generally compatible; however, some special factors should be considered.
• 35, 30 or 25	– The land use is generally compatible; however, a Noise Level Reduction of 35, 30 or 25 must be incorporated into the design and construction of the structure.
• 35^{x}, 30^{x} or 25^{x}	– The land use is generally compatible with NLR; however, such NLR does not necessarily solve noise difficulties and additional evaluation is warranted.

Figure 5. Portion of Air Force Land Use Compatibility Guidelines (Continued)

AIR FORCE IMPLEMENTATION OF THE AICUZ PROGRAM

Appendix F sets forth details concerning the organization and mechanics of the program.

In sum, a six-phased program is envisioned at each base:

1) organization and data acquisition,
2) review and refinement,
3) noise analysis,
4) AICUZ maps and land use plans,
5) presentation and implementation, and
6) maintenance.

The Air Force emphasizes coordination with other Federal agencies up to the fifth stage but not with state and local governments. It is at this fifth stage that actual "implementation" begins with a formal presentation to community officials. The Air Force presentation stresses the need for joint planning between the base and the community. The Air Force thereupon ensures a wide distribution of copies of the studies, but feels that the success of the program now depends on the actions of the community. The Air Force, unlike the Navy, will not buy interests in land for noise abatement purposes exclusively, and does not campaign, as noted previously, to actively gain direct incorporation of the recommendations into community ordinances. (These differences in the approaches of the services are summarized in Appendix A.)

Experiences in Implementation

There is no precise measure of the success of the program. In terms of protecting operations, no base has been closed by the Air Force due to encroachment, though it has been a factor in some closings (such as Lowry AFB in Denver, Colorado, and Laredo AFB in Laredo, Texas).

Since the AICUZ program was initiated in 1973, no lawsuits relating to the AICUZ program have been filed against the Air Force. The Air Force feels that this indicates a general acceptance of the validity of the AICUZ methodology and the success of the program. (Some suits against local authorities have resulted from individual zoning decisions when they involved down-zoning of property).

Individual Successes

There are 42 Air Force AICUZ studies completed and implemented as of December, 1976 (Phases V and VI). (Appendix D contains the current status of the AICUZ program at Air Force installations.) Only one, (England AFB, Louisiana), has been rejected by local authorities although some (such as Castle AFB, California, Eglin AFB, Florida and Tinker AFB, Oklahoma) have been controversial. At Castle AFB, conflict developed over the Department of Housing and Urban Development's use of the noise contours. According to HUD noise policy, HUD assistance will not be granted where noise levels are judged incompatible with residential land uses.

A number of communities have adopted or amended comprehensive plans and zoning ordinances incorporating AICUZ recommendations. Others have denied incompatible development proposals and in several cases developers have voluntarily accepted AICUZ recommendations. An example is that developed by a four-county commission around Wright-Patterson AFB, Ohio. The ordinance:

- establishes a four-county commission to regulate all zoning around Wright-Patterson AFB;
- establishes an airport environs map which is divided into districts coinciding with the AICUZ Compatible Use Districts;
- prescribes land uses which may be permitted in each district and sound level reductions through noise insulation that may be required for various uses and;
- provides for reimbursement to owners for loss of property value.

Another example is that of the Hill AFB, Utah environs. The State legislature recently approved a sum of $1,000,000.00 to purchase easements in accident potential zones. This is significant because of the Air Force's policy of purchasing only a minimal amount of land or easements generally limited to clear zones.

Problems in Implementation

Release of certain AICUZ studies has triggered intense controversies, some of which have attracted national attention. Two prime examples are those of Castle Air Force Base, California, and Offutt Air Force Base, Nebraska. In each case, the study—in the short run—seemed to heighten conflict rather than act as a source of information for planners to use in

the development of local plans and ordinances. In the case of Castle AFB, the Air Force was criticized in Congress for "lack of coordination" and "faulty contours".

The Air Force believes part of this problem of adverse publicity stems from the lack of universal use of a noise descriptor such as L_{dn}. The present situation of a proliferation of descriptors is a significant barrier to communication. Part of it the Air Force feels, also stems from an ignorance or misunderstanding of the Air Force contours.

These controversies involve the application of the HUD noise policy in these areas as well as the Air Force policy itself. In fact, it appeared to some observers that the Castle situation became a debate over whether there should be a Federal noise land-use policy at all! In each of these two cases, existing noise contours were revised in light of operational changes at the bases. The new contours were not only more extensive but utilized a different descriptor: the L_{dn}. HUD's standards utilize either NEF or CNR. In the affected areas, pressures to develop were great. To some developers, it appeared that the new contours arbitrarily covered chunks of land not heretofore covered and were expressed in a language that seemed incompatible with the HUD standards.

The Navy has not had problems at its bases which have escalated into national controversies of this type. However, the nature of the Navy problem is different. The Navy does not seem to expect the often significant changes (from the point of view of noise impact) in mission and operations at its bases that the Air Force does. There are no known cases where Naval operational changes have actually resulted in dramatically *enlarging* existing noise contours such as has happened in these cases.

HOW OTHERS CAN INFLUENCE AIR FORCE STUDIES

There are no formal procedures for public participation; however, as part of Phase I activities, the base office of information is to identify interested organizations and indiviuals. Implementation and maintenance of the AICUZ likewise require public contact. These are the times when citizen input would be most readily accepted.

The Air Force program lends itself to public input throughout the process because it relies so heavily on local planning and because the Air Force views the AICUZ study as a "living" document.

Air Force Help for States and Local Governments

Approximately 86 civilian airfields are used by Air Force units (principally Air Force Reserve and Air National Guard). At these airfields the Air Force will furnish the proprietor with:

- operations data for Air Force activities at the airport and
- an explanation of the AICUZ program.[1]

The Air Force is in an excellent position to assist civilian airports in developing their noise abatement programs. In addition to providing operations data on military aircraft at civilian airfields to the proprietors, the Air Force makes available to the public its guidance documents upon which its studies are based. The computerized model which the Air Force uses to generate noise contours should soon be available on Control Data Corporation's CYBERNET system. This computer time sharing system may be used from a remote location via a computer terminal and telephone connection. By collecting their own operations data and using the model on CYBERNET, civilian airports could generate their own noise contours relatively inexpensively.

Air Force and Federal Housing Agencies

HUD's and VA's noise policies are significant to AICUZ because they can aid in preventing further incompatible residential development at the airfield. Air Force Regional Representatives have been assigned the following coordination role with HUD:

- Notify the appropriate HUD Environmental and Standards Officers of AICUZ programs, schedules and requirements;
- Receive and evaluate from HUD Environmental and Standards Officers (in cooperation with the base) overview summaries of HUD commitments and appraisals of development trends near bases.

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1. Except as required for environmental inpact assessments and statements, noise contours and accident potential zones will not be plotted, nor will any work be done to determine operations data for civilian flights. The use of data is left entirely to the airport proprietor. This has further significance in that as the Air Force replaces one generation of aircraft with a newer one, the older and, therefore, often noisier aircraft are typically assigned to Reserve and National Guard units to replace still older types.

- Notify HUD Environmental and Standards Officers, Major Commands, bases and AF Headquarters of potential problems.
- Prior to the publication of AICUZ reports, receive from HUD Environmental and Standards Officers and evaluate (in cooperation with the base) all proposals for HUD assistance or mortgage insurance in the vicinity of bases.
- Notify HUD Environmental and Standards Officers, Major Commands, bases and AF Headquarters of evaluations.
- Following publication of AICUZ reports, receive from HUD Environmental and Standards Officers, all proposals for HUD assistance or mortgage insurance in the vicinity of bases and insure that AICUZ recommendations are considered by HUD, and,
- Coordinate and cooperate as required.

No similar guidelines have as yet been developed for VA.

Air Force and Federal Aviation Administration

The Air Force officers are assigned to each FAA Regional Office to deal with matters of airspace control. In addition, the two agencies are both concerned for operations at the 86 civilian airports that are used jointly by the Air Force. Finally, each Air Force base is to advise FAA of its AICUZ plans, particularly in regard to operational changes. While there are a number of direct contact points between the two organizations, day-to-day contacts, especially at headquarters level, have been limited. The potential for development of an AICUZ concept at joint use airports seems substantial.

Air Force and Environmental Protection Agency

EPA regions can influence the development of the AICUZ study.

As with Navy, EPA can help Air Force by ensuring that its "208" areawide Waste Treatment Management Program is being carried out so as not to spur incompatible development within the AICUZ.

The Air Force feels that communication among affected parties in the planning process would be facilitated were the L_{dn} descriptor, recommended by EPA, be adopted universally.

EPA has done some noise surveys in the environs of some bases (such as Pease AFB, New Hampshire and Luke AFB, Arizona). The Air Force feels that communication could be improved through closer attention to the timing and quality of EPA reporting to Air Force on its activities.

APPENDIX A

OVERVIEW OF DIFFERENCES BETWEEN NAVY AND AIR FORCE APPROACHES

Air Force and Navy approaches are both within the guidelines of Department of Defense AICUZ policy and are similar in purpose and substance. However, operational and situational differences are reflected in slightly different approaches to the problem. These differences are set out below.

THE AICUZ STUDY: PLANNING vs INFORMATION

The Navy views an AICUZ study as a community planning study which analyzes community development on an areawide basis and emphasizes the need of compatibility near the installation. The study contains various specific recommendations which the Navy promotes. Land use matrices vary from study to study to account for local circumstances.

The Air Force views an AICUZ study as an informational document intended to present the community with the noise and accident situation around the air base and to show community officials what types of development are compatible near the base. The Air Force presents a baseline position (the Land Use Guidelines are the same for all studies — see Appendix E) while advising the community to consider local circumstances when evaluating the AICUZ study. The Air Force study does include recommendations regarding potential problem areas on an individual basis but not as an overall community land use plan.

OPERATIONAL CHANGES

Navy AICUZ studies generally are more detailed than Air Force studies. This is particularly true in terms of the amount of operations data included in the published study and the evaluation of operational changes. The steps which each service follows in deciding upon operational changes are as follows:

Navy:

- Survey noise levels near the installation.
- Collect flight operations and maintenance data.
- Generate baseline noise contour map using actual measurements at selected locations at each site.
- Evaluate how operational changes would affect developed land within and near the installation.

Table 3. Summary of Contrasts Between Navy and Air Force AICUZ Programs

AREA	NAVY	AIR FORCE
• Estimated total costs (12/31/76)	$200,000,000	$ 60,000,000
• How studies conducted	Contractor	In-house
• Content of studies		
• Amount of detail relevant to specific airport	Much	Less than Navy – studies more uniform
• Land use matrices	Different ones at different bases	Uniform at all bases
• Contours based, in part, on actual noise measurements of airport sites	Yes	No (However, validation studies have been performed in many cases.)
• Methodology in developing studies		
• Use of contours	Contours used as aid to flight operations change decisions	Contours generated after operations change decisions made in most cases
• Environmental assessment prepared	Yes	Only for mission changes, land acquisitions or other significant actions
• Noise abatement measures		
• "hush" houses	Yes	Yes
• ground runup suppressors	Yes	Yes
• land acquisition	Yes	Only in accident hazardous areas (not as a noise abatement measure exclusively)
• operational modifications	Yes	Yes
• Philosophy concerning community use of contours	Stresses reliability of contours for planning purposes, encourages direct incorporation of AICUZ recommendations into ordinances; Navy assures it won't change contours unless major change in operations. (Depending on activity size, however, studies will be updated on a 3 or 6 year cycle.)	Stresses need for communities to consider AICUZ contours as one input to their planning process; stresses tentative nature of contours and dynamic nature of planning process. Does not encourage direct incorporation of AICUZ contours into community ordinances without further evaluation by communities.
• Military role vis-a-vis the community	Active campaign to "sell" recommendations of AICUZ study	Active campaign to furnish information only; stresses that Air Force is not a land use planning agency
• Military role re: civilian airport noise problem	One joint use airport; requested ADAP funds for noise planning purposes	About 90 joint use airports; furnish noise data to airport proprietor

- Decide on operational changes to be incorporated.
- Develop final computer generated noise contour maps.

Air Force:

- Evaluate potential operational changes on a continuing basis via AFR 55-34.
- Collect flight operations and maintenance data.
- Evaluate how operational changes would affect developed land near the base, using computer-generated noise maps if necessary.
- Decide on operational changes to be incorporated.
- Develop computer generated noise contour map.

The variation occurs in the early stages of the evaluation. The Air Force uses standard procedures for evaluating operational changes regularly and as part of the AICUZ study. In contrast, the Navy's evaluation during AICUZ employs a baseline noise contour map *reflecting spot-checking of actual measured noise levels.* Because of the AFR 55-34 requirements, Air Force AICUZ studies frequently include a statement that while potential operational changes were evaluated, present operations were found to be optimal, and therefore, no change will be incorporated as a result of the study. While it is difficult to assess the role of operational changes relative to other program activities, the Navy indicates that about 30 percent of its program relates to operational changes.

LAND USE MATRIX

Appendix E contains the Navy and Air Force land use matrices. The land use categories and explanatory notes following each matrix are virtually identical. The division of *compatible use zones* is not identical though the following zones are approximately equivalent:

Navy	*Air Force*
CZ[1]	
APZ[2] I/Ldn 75 +	APZ I/Ldn 80-85 and Ldn 75-80
APZ I/Ldn 65-75	APZ I/Ldn 70-75 and Ldn 65-70

1. Clear Zone
2. Accident Potential Zone

Navy	*Air Force*
APZ II/Ldn 75 +	APZ II/Ldn 80-85 and Ldn 75-80
APZ II/Ldn 65-75	APZ II/Ldn 70-75 and Ldn 65-70
Ldn 75 +	Ldn 85, Ldn 80-85 and Ldn 75-80
Ldn 65-75	Ldn 70-75 and Ldn 65-70
APZ II	

There are two non-equivalent categories. The Navy's zone "A" is equivalent to the Air Force's "clear zone." Since Air Force policy includes purchase of "clear zone" land, it is not listed in the matrix.

The breakdown into a large number of compatible use zones tends to make the Air Force matrix slightly less restrictive. For example, the Navy recommends that single family dwellings in zone II-2 be insulated so as to reduce the sound level of the interior by 30 dB from the level outside. Navy zone II-2 is equivalent to Air Force APZ II Ldn 70-75 (which carries the same restrictions as zone C-2) and to APZ II Ldn 65-70 (wherein the sound level reduction required is only 25 dB).

REVISIONS

The Navy and Air Force differ in philosophy regarding revising a completed AICUZ study. The Navy study is intended as a planning document. The Navy's present model zoning ordinance refers directly to compatible use zones and its new model ordinance will allow for direct inclusion of the land use matrix in local zoning codes, as in St. Mary's County, Maryland. The Navy encourages direct incorporation, although, as part of Master Planning functions, it plans to update studies and contours on a 3 or 6 year cycle, depending on activity size.

The Air Force is fully prepared to change its studies. Present Air Force studies, in contrast to the Navy's, state that the Air Force cannot guarantee that AICUZ maps will not be altered and cautions communities in attempting to incorporate compatible use districts directly into community zoning codes (although this has been done by a four-county area near Wright-Patterson AFB, Ohio). A willingness to change is especially significant for the Air Force because technological changes (principally the use of simualtors) will substantially change their operations in the future.

ROLE OF THE INSTALLATION

The air installation is the key organizational element in both the Navy and Air Force programs but their role vis-a-vis the community differs between the services. The Navy, because of the severe encroachment problems around many of its airfields, often takes a more active role than the Air Force in influencing local planning.

ACQUISITION POLICY

Current DOD policy regarding the acquisition of land as a noise abatement measure is as follows: land may be purchased in high noise areas outside the "clear zone" only when all possibilities of achieving compatible use zoning, or similar protection, have been exhausted and the operational integrity of the air installation is threatened."[1] In addition, an economic analysis and assessment of the installation must be conducted.

The Air Force will not purchase land or easements solely on the basis of noise impacts; they are prepared to purchase land in accident potential zones. The Navy is prepared to purchase land or, preferably, restrictive easements in both accident and noise impact areas. The Navy rationale is that resources should be applied where the threat to continued operation is greatest: accident zones, noise zones or a combination of the two. (A clear zone, for example, in the desert is likely to be less critical than Ldn = 75 dB in an urban area.) The immediate impact of this variation in policy is indicated by the contrasting amounts of the estimated costs of the two programs:

Navy	— $200 million;
Air Force	— $ 60 million.

During 1975, the Navy requested authority to acquire nearly $16,000,000 in easements at three locations.[2]

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1. 32 CFR 256 "Air Installations Compatible Use Zones," Jan. 4, 1977.
2. These were: Miramar Naval Air Station, $12,100,000; Oceana Naval Station, $1,600,000; and Naval Air Station, Cecil Field, $2,000,000.

APPENDIX B

WHERE TO GO TO GET INFORMATION

WHERE TO GO TO GET INFORMATION ON DOD AICUZ PROGRAM

SERVICE	ORGANIZATION ELEMENT	HEAD-QUARTERS/ REGION	ADDRESS	PERSONNEL			AICUZ FUNCTIONS	CONTACT FOR:
				NAME	TITLE	TELE-PHONE NUMBER		
Office of the Secretary of Defense	Office of the Assistant Secretary (Health and Environment)	Headquarters	Pentagon Washington, D.C. 20301	George Marienthal	Deputy Assistant Secretary of Defense for Environmental Quality	202/ 695-0221	DOD coordination with other Federal agencies	
				Lt. Col. John Meade		202/ 695-0221		
	Office of the Assistant Secretary (Installations and Logistics)	Headquarters	Pentagon Washington, D.C. 20301	Perry Fliakas	Deputy Assistant Secretary of Defense (I + L)	202/ 695-2713	Development of DOD DOD AICUZ instructions	
				Mr. Howard L. Metcalf				
Navy	Naval Facilities Engineering Command (NAVFAC), AICUZ Project Staff	Headquarters	NAVFAC Headquarters 200 Stovall St. Alexandria, Virginia	CDR David Gerdel	AICUZ Project Officer	202/ 325-0501	Technical assistance and inter-agency co-ordination activities for AICUZ program; supports individual installations	
				LT "Skip" Sims		202/ 325-0501		
	NAVFAC, AICUZ Planning Staff	Headquarters	NAVFAC Headquarters 200 Stovall St. Alexandria, Virginia	LCDR Brian O'Connell		202/ 325-7344	Works with technical aspects of the AICUZ study; supports Engineering Field Division	
				Mr. David Copp	Technical Planner	202/ 325-7344		
	NAVFAC, Engineering Field Division	Western Division	NAVFAC P.O. Box 727 San Bruno, California 94066	James O. Taylor	Head, Technical Support Section AICUZ Studies	415/ 871-2565	Provide technical assistance and inter-governmental coordination services to the installations	Information on individual AICUZ studies; plans for construction of noise suppression equipment or relocation of facilities at an installation
		Southern Division	NAVFAC P.O. Box 10068 Charleston, S.C.	Mr. Robert Ruggles	Head, Technical Support Branch AICUZ Studies	803/ 743-2608		

WHERE TO GO TO GET INFORMATION ON DOD AICUZ PROGRAM (Continued)

SERVICE	ORGANIZATION ELEMENT	HEAD-QUARTERS/ REGION	ADDRESS	PERSONNEL			AICUZ FUNCTIONS	CONTACT FOR:
				NAME	TITLE	TELE-PHONE NUMBER		
Navy (Cont)	NAVFAC, Engineering Field Division (Cont)	Pacific Division	NAVFAC FPO San Francisco, California 96610 (located in Hawaii)	Mr. Joseph Lau		808/ 471-3088		
	Naval Environmental Protection Support Service, Aircraft Environmental Support Office		Naval Air Rework Facility NAS, North Island San Diego, California 92135	Mr. Ray Glass		202/ 394-2575	Noise surveys at Navy and Marine Corps Installations	
				Ms. Carole Tanner		202/ 394-2575		
	Individual Air Installation			AICUZ Project Officer				Information at Individual Air Installation
Air Force	Directorate of Civil Engineering and Services Environmental Planning Division	Headquarters	Hqtrs USAF/PREV Pentagon, Washington, D.C. 20330	Mr. Gary Vest	Environmental Planner	202/ 451-0510	Implementation of air-noise assessment techniques for environmental planning; AICUZ program development and implementation	Headquarters information on USAF AICUZ program
		Eastern Region (EPA Regions I-IV)	526 Title Bldg. Atlanta, Georgia	Mr. Robert Wong	USAF Region Civil Engineer/ Eastern Region	404/ 526-6618		Information on AICUZ program at bases in applicable regions
		Central Region (V-VIII)	Main Tower Bldg. 1200 Main St. Dallas, Texas 75202	Lt. Col. Stanley Bohinc	USAF Region Civil Engineer/ Central	214/ 749-2288		
		Western Region (IX and X)	630 Sansome St. San Francisco, California 94111	Mr. Robert Cameron	USAF Region Civil Engineer/ Western Region	415/ 556-4828		

APPENDIX C

STATUS OF SELECTED AICUZ ISSUANCES AND PUBLICATIONS

STATUS OF DOD AICUZ REGULATIONS, INSTRUCTIONS, TECHNICAL MANUALS AND RELATED MATERIALS

SUBJECT AREA	ISSUING DOD ELEMENT	TITLE AND TYPE OF ISSUANCE			BRIEF DESCRIPTION
		INSTRUCTIONS, GUIDANCE MEMORANDA, OTHER	NOTICE OF PROPOSED RULE-MAKING	STANDARD OR REGULATION	
1. General AICUZ Policy	Office of the Secretary of Defense		8/26/76 41 FR 36030	1/4/77 Title 32, Part 256 (Amended 3/8/77)	Sets forth broad requirements for AICUZ while leaving implementation to individual military services
Previous issuances incorporated into above		DOD Instruction 4165.57, Air Installations Compatible Use Zones, 7/30/73			Initial DOD AICUZ Policy (is now superceded)
		Deputy Assistant Secretary of Defense (Installations and Housing) Memorandum, Compatible Use Zones Descriptors, 10/15/75			Requires DOD use Ldn noise descriptor in lieu of CNR or NEF
		Deputy Assistant Secretary of Defense (Installations and Housing) Memorandum, Consistent Approaches to the Establishment of AICUZ, 10/16/75			Addresses need for uniform acquisition policies among services
2. Environment		DOD Directive 6050.1, Environ., Considerations in DOD actions, 3/19/74			Outlines DOD's policy with respect to environmental assessments of its actions and completion of EIS. Provides guidance to services.

STATUS OF DOD AICUZ REGULATIONS, INSTRUCTIONS, TECHNICAL MANUALS AND RELATED MATERIALS (Continued)

SUBJECT AREA	ISSUING DOD ELEMENT	TITLE AND TYPE OF ISSUANCE			BRIEF DESCRIPTION
		INSTRUCTIONS, GUIDANCE MEMORANDA, OTHER	NOTICE OF PROPOSED RULE-MAKING	STANDARD OF REGULATION	
3. Property Management and Procurement		DOD Directive 4165.6, Real Property; Acquisition, Management and Disposal, 9/15/55		Inter-governmental Coordination Land and Facility Plans and Projects, *Federal Register*, 3/8/77	Sets forth policy involving real property transactions. Stresses minimizing amount of property owned.

STATUS OF NAVY AICUZ REGULATIONS, INSTRUCTIONS, TECHNICAL MANUALS AND RELATED MATERIALS

SUBJECT AREA	ISSUING NAVY ELEMENT	TITLE AND TYPE OF ISSUANCE			BRIEF DESCRIPTION
		INSTRUCTIONS, GUIDANCE MEMORANDA, OTHER	NOTICE OF PROPOSED RULE-MAKING	STANDARD OR REGULATION	
1. General AICUZ policy and EIS	Secretary of the Navy	SEC NAV INST 11010.9, AICUZ Program, 11/4/73			Outlines Navy approach to problem within context of DOD policy
	Chief of Naval Operations	OPNAV INST 6240.3D, Environmental Protection Manual (Chap. 4: EIS; Chap. 11: Noise), 4/24/75			Contains discussion of all Naval environmental programs. Chapter 4 presents all the Navy's procedures for environmental assessments. Chapter 11 is devoted to noise, Part 2 of which is devoted to AICUZ.
		Technical Memorandum Land Use Guidelines for accident potential and noise zones, 6/24/75			Contains basic land use compatibility charts to be used in developing AICUZ matrices.
	Marine Corps Commandant	Marine Corps Order P11000.8A "Real Properties Facilities Manual, Vol. 5," 4/7/75			Contains guidance for general environmental quality matters and AICUZ.
2. Instructions relating to specific AICUZ tasks and responsibilities	Naval Facilities Engineering Command	NAV FAC INST 11010.5, "Site Approval Procedures for Facilities Affecting Air Safety," 3/26/70			
		NAV FAC INST 11010.60A, "Nav Fac Involvement in the AICUZ Program," 10/30/74			

STATUS OF NAVY AICUZ REGULATIONS, INSTRUCTIONS, TECHNICAL MANUALS AND RELATED MATERIALS (Continued)

SUBJECT AREA	ISSUING NAVY ELEMENT	TITLE AND TYPE OF ISSUANCE			BRIEF DESCRIPTION
		INSTRUCTIONS, GUIDANCE MEMORANDA, OTHER	NOTICE OF PROPOSED RULE-MAKING	STANDARD OR REGULATION	
3. Technical Assistance Materials	Naval Facilities Engineering Command	Curriculum for AICUZ course (updated three time a year)			Course book for attendees at Navy's 2-day AICUZ seminar; contains much useful information on Navy programs.
		Model Air Installation Noise Zoning Ordinance and Building Code, 9/5/73			Intended as a guide to local authorities on type of controls that may be implemented to prevent incompatible development.
		AICUZ Technical Notes (first edition 7/74)			Are a series of periodically issued newsletters (to the field installations); contains up-to-date guidance with respect to current relevant noise issues and methods.

STATUS OF AIR FORCE AICUZ REGULATIONS, INSTRUCTIONS, TECHNICAL MANUALS AND RELATED MATERIALS

SUBJECT AREA	ISSUING AIR FORCE ELEMENT	TITLE AND TYPE OF ISSUANCE			BRIEF DESCRIPTION
		INSTRUCTIONS, GUIDANCE MEMORANDA, OTHER	NOTICE OF PROPOSED RULE-MAKING	STANDARD OR REGULATION	
1. General AICUZ Policy	Office of the USAF Deputy Chief of Staff, Programs and Resources	Letter to Air Force elements titled "AICUZ Policy," 12/17/74			Implements DOD Inst. 4165.57 of 7/30/73 concerning AICUZ.
	USAF Chief of Staff	USAF Regulation 55-34, "Reducing Flight Disturbances," 11/22/74			Establishes considerations and guidance, including flight modifications, for dealing with local noise problems at community level. (AICUZ is an *element* of the general program to ensure good community relations.)
	USAF Deputy Director Engineering and	Information Package, "Inter-agency/Inter-governmental Coordination for Environmental Planning — AICUZ and CZM," 11/25/75			Provides guidance to USAF regional representatives relating to AICUZ and CZM.
2. Environment	Hq. USAF	USAF Regulation 19-1, "Protection and Enhancement of Environmental Quality," 2/20/74			Establishes policies responsibilities and criteria for USAF environmental pollution abatement program.
		USAF Regulation 19-2, "Environmental Assessments and Statements," 9/22/74			Establishes policies responsibilities and guidance for preparation of environmental assessments and statements.

STATUS OF AIR FORCE AICUZ REGULATIONS, INSTRUCTIONS, TECHNICAL MANUALS AND RELATED MATERIALS (Continued)

SUBJECT AREA	ISSUING AIR FORCE ELEMENT	TITLE AND TYPE OF ISSUANCE			BRIEF DESCRIPTION
		INSTRUCTIONS, GUIDANCE MEMORANDA, OTHER	NOTICE OF PROPOSED RULE-MAKING	STANDARD OR REGULATION	
3. Technical Assistance Materials (to USAF Field Installations Primarily)	USAF Hq., Directorate of Engineering and Services, Environmental Planning Division	Document "AICUZ – Phase One, 10/27/73"			Contains the letter from Air Force Headquarters that implemented DOD's AICUZ policy and established the basic framework of the program. It also contains Phase I (organization and data acquisition) guidance.
		AICUZ information and environmental planning Bulletins: 1. Randolph Airport Environs Study, March 21, 1973 2. Protecting Airports and Their Neighbors through the Environmental Land Use Planning Process, by Gary Vest, March 21, 1973 3. Luke AFB Economic Impact, 1973 4. Luke AFB, Urban Encroachment Study 1968-1990, August 1968			This series is program guidance to Air Force bases on completing AICUZ studies. Publications contains some completed studies and related encroachment and economic impact analyses around bases. Bulletin 7 contains more detailed guidance for Phase II (data acquisition and refinement).

STATUS OF AIR FORCE AICUZ REGULATIONS, INSTRUCTIONS, TECHNICAL MANUALS AND RELATED MATERIALS (Continued)

SUBJECT AREA	ISSUING AIR FORCE ELEMENT	TITLE AND TYPE OF ISSUANCE			BRIEF DESCRIPTION
		INSTRUCTIONS, GUIDANCE MEMORANDA, OTHER	NOTICE OF PROPOSED RULE-MAKING	STANDARD OR REGULATION	
3. Technical Assistance (continued)		5. Operational Change Evaluation, March 1974 6. Guidance to Complete Non-Operational Portion of Phase II, April 1974 7. AICUZ – Phase II Operational Data Review 9. Basic Resource of AICUZ Phase V (four Volumes), March 1976 12. Joint Services Noise Planning Manual (draft) December 1976 Draft State law for land use planning around airfields			Developed to replace the present Tri-Service manual, *Land Use Planning with Repsect to Aircraft Noise*. Designed for use by installation planners to aid them in evaluating noise from aircraft and other sources. It may also aid Air Force personnel in preparing envrionmental assessments. It is detailed but not highly technical.

STATUS OF AIR FORCE AICUZ REGULATIONS, INSTRUCTIONS, TECHNICAL MANUALS AND RELATED MATERIALS (Continued)

SUBJECT AREA	ISSUING AIR FORCE ELEMENT	TITLE AND TYPE OF ISSUANCE			BRIEF DESCRIPTION
		INSTRUCTIONS, GUIDANCE MEMORANDA, OTHER	NOTICE OF PROPOSED RULE-MAKING	STANDARD OR REGULATION	
4 Other	Hq. USAF	USAF Regulation 80-36, "Civil Airworthiness Standards for US Air Force Transport Aircraft"			States policy that where military permit, transport aircraft must be designed to comply with civil airworthiness standards, including FAA noise standards.

APPENDIX D

STATUS OF AICUZ PROGRAM AT INDIVIDUAL AIRFIELDS

STATUS OF AICUZ AT INDIVIDUAL NAVAL AIR INSTALLATIONS
(AS OF DECEMBER 31, 1976)

REGION		NAVAL AIR INSTALLATIONS	STATE	STATUS OF STUDIES		
USN	EPA			COMPLETED	PLANNED COM-PLETION DATE	REVISED
	I	Naval Air Station Brunswick	Maine		underway	
		Naval Air Station South Weymouth	Massachusetts		1977	
	II	Naval Air Station Lake Hurst	New Jersey	X		
		Naval Air Defense Center Warminster	Pennsylvania	X		
		Naval Air Station Willow Grove	Pennsylvania		underway	
		Naval Industrial Reserve Plant Calverton	New York	X		
	III	Naval Air Station Oceana	Virginia	X		
		Uaxilliary Landing Field Fentress	Virginia	X		
		Naval Air Station Norfolk	Virginia		underway	
		Naval Air Test Center Patuxent River	Virginia	X		
		Marine Corps Air Station Quantico	Virginia		underway	
	IV	Naval Air Station Cecil Field	Florida	X		
		Outlying Field White House				
		Naval Air Station Jacksonville	Florida	X		
		Naval Air Station Key West	Florida	X		
		Marine Corps Air Station Cherry Point	North Carolina	X		
		Outlying Field Atlantic				
		Auxilliary Landing Field Bouge				
		Marine Corps Air Station Beaufort	South Carolina		Pre-Final Review	
		Naval Station Mayport	Florida	X		
		Marine Corps Air Station (Helicopter) New River	North Carolina		underway	
		Helicopter Outlying Field Oak Grove			underway	

STATUS OF AICUZ AT INDIVIDUAL NAVAL AIR INSTALLATIONS
(AS OF DECEMBER 31, 1976) (Continued)

REGION		NAVAL AIR INSTALLATIONS	STATE	STATUS OF STUDIES		
USN	EPA			COMPLETED	PLANNED COMPLETION DATE	REVISED
	IV (cont'd)	Naval Air Station Pensacola	Florida	X		
		Outlying Field Chocktaw			1977	
		Outlying Field Spencer			1977	
		Naval Air Station Whiting Field	Florida		1977	
		Naval Air Station Meridian	Mississippi		underway	
		Outlying Field Alpha			underway	
		Outlying Field Bravo			underway	
		Naval Air Station Saufley Field	Florida		1977	
	V	Naval Air Station Glenview	Illinois		underway	
		Naval Air Station Corpus Christi	Texas		Pre-Final Review	
		Auxilliary Landing Field Cabaniss			Pre-Final Review	
		Auxilliary Landing Field Waldron			Pre-Final Review	
		Naval Air Station Kingsville	Texas	X		
		Auxilliary Landing Field Orange Grove		X		
		Naval Air Station Chase Field	Texas	X		
		Outlying Field Goliad		X		
		Naval Air Station Dallas	Texas		underway	
		Naval Air Station New Orleans	Louisiana		underway	
	VII	None				
	VIII	None				
	IX	Naval Air Station Miramar	California	X		
		Naval Air Station Le Moore	California		Pre-Final Review	

STATUS OF AICUZ AT INDIVIDUAL NAVAL AIR INSTALLATIONS (AS OF DECEMBER 31, 1976) (Continued)

REGION		NAVAL AIR INSTALLATIONS	STATE	STATUS OF STUDIES		
USN	EPA			COMPLETED	PLANNED COMPLETION DATE	REVISED
	IX (cont'd)	Naval Air Station Moffett Field	California	X		
		Auxilliary Landing Field Crow's Landing		X		
		Naval Air Station North Island	California		underway	
		Auxilliary Landing Field Imperial Beach			Pre-Final Review	
		Marine Corps Air Station El Toro	California	X		
		Marine Corps Air Station Kaneohe Bay	Hawaii	X		
		Marine Corps Air Station Yuma	Arizona		Pre-Final Review	
		Naval Air Station Alameda	California		underway	
		Naval Air Station Barbers Point	Hawaii	X		
		Naval Air Facility El Centro	California		Pre-Final Review	
		Naval Air Station Fallon	Nevada		Pre-Final Review	
		Pacific Missile Range Point Mugu	California		Pre-Final Review	
		Naval Air Facility China Lake	California		Pre-Final Review	
		Marine Corps Air Station Santa Ana	California	X		
	X	Naval Air Station Whidbey Island	Washington	X		
		Outlying Field Coupeville		X		
		TOTALS				
		Completed 28				
		Underway 30				
		Planned 9 (5 in FY 78)				

STATUS OF AICUZ AT INDIVIDUAL AIR FORCE BASES
(AS OF DECEMBER 31, 1976)

REGION		AIR FORCE BASE	STATE	STATUS OF STUDIES		
USAF	EPA			COMPLETED	PLANNED COMPLETION DATE	REVISED
Eastern	1	Loring Air Force Base	Maine		12/77	
		Pease Air Force Base	New Hampshire		12/77	
		Otis Air Force Base	Massachusetts		8/77	
		Westover Air Force Base	Massachusetts		7/77	
	2	Griffiss Air Force Base	New York		12/77	
		McGuire Air Force Base	New Jersey	11/30/76		
		Plattsburg Air Force Base	New York		12/77	
	3	Dover Air Force Base	Delaware		4/77	
		Langley Air Force Base	Virginia	11/12/75		
		Andrews Air Force Base	Maryland	1/07/75		
	4	Seymour Johnson Air Force Base	South Carolina	6/24/76		
		Pope Air Force Base	North Carolina	12/16/75		
		Myrtle Beach Air Force Base	South Carolina	4/08/76		
		Charleston Air Force Base	South Carolina		4/77	
		Shaw Air Force Base	South Carolina	2/24/76		
		Dobbins Air Force Base	Georgia		4/77	
		Robins Air Force Base	Georgia		5/77	
		Moody Air Force Base	Georgia		12/77	
		Columbus Air Force Base	Mississippi		8/77	
		Keesler Air Force Base	Mississippi		9/77	
		Maxwell Air Force Base	Alabama		4/77	
		Craig Air Force Base	Alabama		indefinite	
		Eglin Air Force Base	Florida	7/12/76		

STATUS OF AICUZ AT INDIVIDUAL AIR FORCE BASES
(AS OF DECEMBER 31, 1976) (Continued)

REGION		AIR FORCE BASE	STATE	STATUS OF STUDIES		
USAF	EPA			COMPLETED	PLANNED COM-PLETION DATE	REVISED
Eastern	4	Tyndall Air Force Base	Florida		8/77	
	(cont'd)	MacDill Air Force Base	Florida	7/30/76		
		Patrick Air Force Base	Florida		9/77	
		Homestead Air Force Base	Florida	3/26/75		
Central	5	Wright-Patterson Air Force Base	Ohio	5/15/75		
		Grissom Air Force Base	Indiana		12/77	
		Scott Air Force Base	Illinois	12/18/75		
		Selfridge Air Force Base	Minnesota		8/77	
		Kincheloe Air Force Base	Minnesota		indefinite	
		K. I. Sawyer Air Force Base	Minnesota		12/77	
		Volk Field Air Force Base	Minnesota		8/77	
		Wortsmith Air Force Base	Minnesota		12/77	
	6	Laughlin Air Force Base	Texas		8/77	
		Kelly Air Force Base	Texas	9/19/75		
		Randolph Air Force Base	Texas	9/19/75		
		Bergstrom Air Force Base	Texas	5/07/76		
		Webb Air Force Base	Texas		indefinite	
		Reese Air Force Base	Texas	6/22/76		
		Sheppard Air Force Base	Texas	6/25/76		
		Carswell Air Force Base	Texas		12/77	
		Dyess Air Force Base	Texas		12/77	
		Barksdale Air Force Base	Louisiana	2/12/76		
		England Air Force Base	Louisiana	2/26/76		

STATUS OF AICUZ AT INDIVIDUAL AIR FORCE BASES
(AS OF DECEMBER 31, 1976) (Continued)

REGION		AIR FORCE BASE	STATE	STATUS OF STUDIES		
USAF	EPA			COMPLETED	PLANNED COMPLETION DATE	REVISED
Central	6 (cont'd)	Little Rock Air Force Base	Arkansas		5/77	
		Blytheville Air Force Base	Arkansas	8/30/76		
		Kirtland Air Force Base	New Mexico		8/77	
		Cannon Air Force Base	New Mexico	10/15/76		
		Holloman Air Force Base	New Mexico	4/05/76		
		Attus Air Force Base	Oklahoma		5/77	
		Tinker Air Force Base	Oklahoma	1/14/76		
		Vance Air Force Base	Oklahoma		8/77	
	7	Offutt Air Force Base	Nebraska	9/17/76		
		McConnell Air Force Base	Kansas		12/77	
		Whiteman Air Force Base	Missouri	5/20/76		
		Richards-Gebaur Air Force Base	Missouri	6/25/76		
	8	Minot Air Force Base	North Dakota		12/77	
		Malmstrom Air Force Base	Montana		12/77	
		Grand Forks Air Force Base	North Dakota		12/77	
		Ellsworth Air Force Base	South Dakota		12/77	
		Hill Air Force Base	Utah	10/3/74		
		Peterson Air Force Base	Colorado		4/77	
		Buckley Air Force Base	Colorado	2/26/76		
Western	9	Davis-Monthan Air Force Base	Arizona	8/07/75		
		Williams Air Force Base	Arizona	1/14/76		
		Luke Air Force Base	Arizona	4/13/76		
		Wheeler Air Force Base	Hawaii		indefinite	

STATUS OF AICUZ AT INDIVIDUAL AIR FORCE BASES
(AS OF DECEMBER 31, 1976) (Continued)

REGION		AIR FORCE BASE	STATE	STATUS OF STUDIES		
USAF	EPA			COMPLETED	PLANNED COMPLETION DATE	REVISED
Western	9 (cont'd)	Hickam Air Force Base	Hawaii		12/77	
		Nellis Air Force Base	Nevada	10/07/74		
		March Air Force Base	California	4/17/75		
		Norton Air Force Base	California	12/15/76		
		George Air Force Base	California		12/77	
		Edwards Air Force Base	California		8/77	
		Vandenberg Air Force Base	California		12/77	
		Castle Air Force Base	California	9/30/74		1/77
		Travis Air Force Base	California	12/13/76		
		Mather Air Force Base	California	10/06/75		
		Beale Air Force Base	California		12/77	
		McClellan Air Force Base	California	5/19/76		
		Air Force Plant 42[1]	California	5/12/76		
		Anderson Air Force Base	Guam	3/19/76		
	10	McChord Air Force Base	Washington		1/10/77	
		Fairchild Air Force Base	Washington	8/22/75		
		Mt. Home Air Force Base	Idaho	12/1/75		
		Eielson Air Force Base	Alaska		8/77	
		Elmendorf Air Force Base	Alaska		8/77	
TOTALS		88		42	46	

1. This facility's mission includes final assembly of jet aircraft and flight test programs of high performance jet aircraft.

APPENDIX E

COMPLETE LAND USE MATRICES

COMPLETE LAND USE MATRICES

The complete *Land Use Objectives Amplified* matrix used by the Navy for the AICUZ study at Naval Air Station Cecil Field, Florida, and the standard matrix used by the Air Force at its bases are contained in the following pages. (It should be noted that more recent studies utilize Ldn; DOD now requires the use of this descriptor.)

NAVY
AICUZ LAND USE
OBJECTIVES AMPLIFIED

- NO NEW DEVELOPMENT
- RESTRICTED NEW DEVELOPMENT
- NO RESTRICTIONS

LAND USE	AICUZ AREA							
CATEGORY	A	B-3	B-2	C-3	C-2	C-1	3	2
RESIDENTIAL								
SINGLE FAMILY					30[1,2]	1		30[2]
TWO-FOUR FAMILY								30[2]
MULTI-FAMILY APTS								30[2]
GROUP QUARTERS								30[2]
RESIDENTIAL HOTELS								30[2]
MOBILE HOMES/COURTS								30[2]
TRANSIENT LODGING							35[2]	30[2]
OTHER RES/RES AGRIC.					30[1,2]	1		30[2]
INDUSTRIAL MANUFACTURING[3]								
FOOD & KINDRED PROD'T				4	5		4	5
TEXTILE MILL PRODUCTS							4	5
APPAREL							4	5
LUMBER/WOOD PRODUCTS		4	5	4	5		4	5
FURNITURE/FIXTURES		4	5	4	5		4	5
PAPER/ALLIED PRODUCTS		4	5	4	5		4	5
PRINTING/PUBLISHING		4	5	4	5		4	5
CHEMICALS/ALLIED PRODS		3,4	3,5	3,4	3,5	3	3,4	3,5
PETROLEUM REFINING & RELATED PRODUCTS							4	5

NAVY
AICUZ LAND USE
OBJECTIVES AMPLIFIED

NO NEW DEVELOPMENT
RESTRICTED NEW DEVELOPMENT
NO RESTRICTIONS

LAND USE	AICUZ AREA							
CATEGORY	A	B-3	B-2	C-3	C-2	C-1	3	2
INDUSTRIAL MANUFACTURING[3] (CONTINUED)								
RUBBER/MISCELLANEOUS PLASTIC PRODUCTS		4	5	4	5		4	5
STONE, CLAY/GLASS PRODUCTS		4	5	4	5		4	5
PRIMARY METAL INDUST'S		4	5	4	5		4	5
FABRICATED METAL PRODUCTS		4	5	4	5		4	6
PROFESSIONAL, SCIENTIFIC, & CONTROLLING INSTRUMENTS PHOTOGRAPHIC & OPTICAL GOODS; WATCHES & CLOCKS							30	25
MISCELLANEOUS MANUFACTURING		4	5	4	5		4	5
TRANSP., COM., & UTILITIES[6]								
R.R., RAPID RAIL TRANSIT, HWY. & ST. RIGHT OF WAY AUTOMOBILE PARKING								

NAVY
AICUZ LAND USE OBJECTIVES AMPLIFIED

- NO NEW DEVELOPMENT
- RESTRICTED NEW DEVELOPMENT
- NO RESTRICTIONS

LAND USE	AICUZ AREA							
CATEGORY	A	B-3	B-2	C-3	C-2	C-1	3	2
COMMUNICATIONS (NOISE SENSITIVE)		30	25	30	25		30	25
UTILITIES	8	8	8					
OTHER TRANSPORTATION, COMMUNICATIONS, & UTILITIES								
PUBLIC & QUASI PUBLIC SERVICES								
GOVERNMENT SERVICES				30[7]	25[7]	7	30	25
EDUCATIONAL SERVICES								25
CULTURAL ACTIVITIES, INCLUDING CHURCHES								25
MEDICAL & OTHER HEALTH SERVICES								25
CEMETERIES		4.8	5.8	4.8	5.8		4	5
OTHER PUBLIC/QUASI PUBLIC SERVICES					30			25
OUTDOOR RECREATION								
PLAYGROUND, NEIGHBOR PARKS/COMMUNITY & REGIONAL PARKS			10	9 10	9 10	9 10	9 10	

NAVY
AICUZ LAND USE OBJECTIVES AMPLIFIED

- NO NEW DEVELOPMENT
- RESTRICTED NEW DEVELOPMENT
- NO RESTRICTIONS

LAND USE CATEGORY	AICUZ AREA A	B-3	B-2	C-3	C-2	C-1	3	2
NATURE EXHIBITS[11]								
SPECTATOR SPORTS INCLUDING ARENAS, GOLF COURSE,[12] RIDING STABLES[13]		14	15	14	15		14	15
WATER BASED RECREATIONAL AREAS/RESORT & GROUP CAMPS		14	15	14	15		14	15
AUDITORIUMS, CONCERT HALL								
OUTDOOR AMPHITHEATERS								
MUSIC SHELLS								
OTHER OUTDOOR RECREATIONS			10					
COMMERCIAL/RETAIL TRADE								
WHOLESALE TRADE		4	5	4	5		4	5
RETAIL TRADE-BUILDING MATERIALS		4	5	4	5		4	5
RETAIL TRADE-GEN. MDSE.				30	25	3	30	25
RETAIL TRADE-FOOD				30	25	3	30	25
RETAIL TRADE-AUTOMOTIVE MARINECRAFT		4	5	4	5		4	5

NAVY
AICUZ LAND USE
OBJECTIVES AMPLIFIED

NO NEW DEVELOPMENT

RESTRICTED NEW DEVELOPMENT

NO RESTRICTIONS

LAND USE	AICUZ AREA							
CATEGORY	A	B-3	B-2	C-3	C-2	C-1	3	2
AIRCRAFT AND								
ACCESSORIES								
RETAIL TRADE-APPAREL				30	25	3	30	25
& ACCESSORIES								
RETAIL TRADE-FURNI-		30	25	30	25	3	30	25
TURE HOME FURNISH-								
INGS, & EQUIP								
RETAIL TRADE-EATING						3		25
& DRINKING								
OTHER RETAIL TRADE				30	25	3	30	25
PERSONAL & BUSINESS								
SERVICES								
FINANCE, INSURANCE, &				30	25	3	30	25
REAL ESTATE SERVICES								
PERSONAL SERVICES				30	25	3	30	25
BUSINESS SERVICES				30	25	3	30	25
REPAIR SERVICES		4	5	4	5		4	5
PROFESSIONAL SERVICES				30	25		30	25
CONTRACT CONS'T.		4	5	4	5		4	5
SERVICES								
INDOOR RECREATION					25	3		25
SERVICES								
OTHER SERVICES				30	25	3	30	25

NAVY
AICUZ LAND USE OBJECTIVES AMPLIFIED

NO NEW DEVELOPMENT

RESTRICTED NEW DEVELOPMENT

NO RESTRICTIONS

LAND USE	AICUZ AREA							
CATEGORY	A	B-3	B-2	C-3	C-2	C-1	3	2
RESOURCE PRODUCTION, EXTRACTION & OPEN SPACE								
AGRICULTURE (EXCEPT LIVESTOCK)	16	17	18	17	18		17	18
LIVESTOCK FARMING, ANIMAL BREEDING[11] FARMING		17	18	17	18		17	18
FORESTRY ACTIVITIES	16	17	18	17	18		17	18
FISHING ACTIVITIES & RELATED SERVICES		10	10					
MINING ACTIVITIES								
PERMANENT OPEN SPACE	16							
WATER AREAS	19							

No New Development - *The land use and related structures are not compatible and should be prohibited.*

Restricted New Development - *The land use and related structures are generally compatible; however, some special factors should be considered.*

No Restrictions - *The land use and related structures are compatible without restrictions and should be considered.*

25, 30, or 35 - *The land use is generally compatible; however, a Noise Level Reduction (NLR) of 25, 30 or 35 dBA must be incorporated into the design and construction of the structure.*

25^x, 30^x, or 35^x - *The land use is generally compatible with NLR; however, such NLR does not necessarily solve noise difficulties and additional evaluation is warranted.*

1 *Due to Accident Potential, the residential density should be limited to the maximum extent possible. It is recommended that residential density not exceed one dwelling unit per two acres. Such use should be permitted only following a demonstration of need to utilize this area for residential purposes.*

2 *Although it is recognized that local conditions may require residential uses, this use is strongly discouraged. The absence of viable alternative development options should be determined. Analysis showing a demonstrated community need for residential use which would not be met if development were prohibited in these AICUZ areas should be performed prior to plan approval.*

Where the community determines that residential uses must be allowed, a Noise Level Reduction (NLR) of at least 30 or 25 dBA should be incorporated into building codes and/or individual approvals. Additional modification of the NLR levels should be based on peak noise levels and other considerations. Such criteria will not eliminate outdoor environment noise problems and, as a result, site planning and design should include measures to minimize this impact particularly where noise is from ground level sources.

3 *Because these uses vary by locality and within a general category, particular care should be taken to evaluate and modify guidelines to fit local conditions. Factors to be considered include: labor intensity, structural coverage, explosive inflammability charac-*

teristics, size of establishment, people density, and peak period (including shopper/visitors) concentrations.

4 *NLR of 35 dBA should be incorporated into the design and construction of portions of these buildings where the public is received, office areas or where the normal (ambient) noise level is low.*

5 *An NLR of 30 dBA should be incorporated into the design and construction of portions of these buildings where the public is received, office areas or where the normal noise level is low.*

6 *No structures in APZ-A; no passenger terminals and no major ground transmission lines in APZ-A or APZ-B.*

7 *Low intensity office use only (limited scale or concentration of such uses). Meeting places, auditoriums, and similar places not recommended.*

8 *Excludes chapels.*

9 *Playgrounds should not be permitted in Accident Potential Zones and high noise areas. Parks which are oriented toward forest trails, and similiar activities which do not concentrate numbers of people are recommended.*

10 *Facilities should be low intensity, such as athletic areas without spectator areas.*

11 *The effect of noise on animal life has not been fully determined. Consideration should be given to the environment in which wildlife or livestock will be placed. The density of population attracted to a public exhibit should also be considered.*

12 *Club house not recommended.*

13 *Concentrated rings with large classes not recommended.*

14 *An NLR or 30 dBA should be incorporated into buildings for this use.*

15 *An NLR of 25 dBA should be incorporated into buildings for this use.*

16 *No structures in the Clear Zone (APZ-A).*

17 *Residential structures not recommended.*

18 *Residential buildings require an NLR of 30 dBA.*

19 *Natural bodies of water. No structures and no recreational use recommended.*

SLUCM CODE	LAND USE CATEGORY	COMPATIBLE USE DISTRICTS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
		Ldn 85	APZ I Ldn 80-85	APZ I Ldn 75-80	APZ I Ldn 70-75	APZ I Ldn 65-70	Ldn 80-85	Ldn 75-80	APZ II Ldn 80-85	APZ II Ldn 75-80	APZ II Ldn 70-75	APZ II Ldn 65-70	Ldn 70-75	Ldn 65-70
	RESIDENTIAL													
11x	Single family	N	N	N	N	N	N	N	N	N	30[1,2]	25[1,2]	30[2]	25[2]
11x	Two family	N	N	N	N	N	N	N	N	N	N	N	30[2]	25[2]
11x	Multifamily dwelling	N	N	N	N	N	N	N	N	N	N	N	30[2]	25[2]
12	Group quarters	N	N	N	N	N	N	N	N	N	N	N	30[2]	25[2]
13	Residential hotels	N	N	N	N	N	N	N	N	N	N	N	30[2]	25[2]
14	Mobil home parks or courts	N	N	N	N	N	N	N	N	N	N	N	30[2]	25[2]
15	Transient lodging - hotels, motels	N	N	N	N	N	N	35[2]	N	N	N	N	30[2]	25[2]
19	Other residential	N	N	N	N	N	N	N	N	N	N	N	30[2]	25[2]
	INDUSTRIAL/MANUFACTURING[3]													
21	Food and kindred product	N	N	N	N	N	Y[4]	Y[5]	Y[4]	Y[5]	Y[6]	Y	Y[6]	Y
22	Textile mill products	N	N	N	N	N	Y[4]	Y[5]	N	N	N	N	Y[6]	Y
23	Apparel	N	N	N	N	N	Y[4]	Y[5]	N	N	N	N	Y[6]	Y
24	Lumber & wood products	N	Y[4]	Y[5]	Y[6]	Y	Y[4]	Y[5]	Y[4]	Y[5]	Y[6]	Y	Y[6]	Y
25	Furniture & fixtures	N	Y[4]	Y[5]	Y[6]	Y	Y[4]	Y[5]	Y[4]	Y[5]	Y[6]	Y	Y[6]	Y
26	Paper & allied products	N	Y[4]	Y[5]	Y[6]	Y	Y[4]	Y[5]	Y[4]	Y[5]	Y[6]	Y	Y[6]	Y
27	Printing, publishing	N	Y[4]	Y[5]	Y[6]	Y	Y[4]	Y[5]	Y[4]	Y[5]	Y[6]	Y	Y[6]	Y
28	Chemicals & allied products	N	Y[3,4]	Y[3,5]	Y[3,6]	Y[3]	Y[4]	Y[5]	Y[3,4]	Y[3,5]	Y[3,6]	Y[3]	Y[6]	Y
29	Petroleum refining and related industries	N	N	N	N	N	Y[4]	Y[5]	N	N	N	N	Y[6]	Y
	INDUSTRIAL/MANUFACTURING[3]													
31	Rubber & misc plastic	N	Y[4]	Y[5]	Y[6]	Y	Y[4]	Y[5]	Y[4]	Y[5]	Y[6]	Y	Y[6]	Y
32	Stone, clay & glass products	N	Y[4]	Y[5]	Y[6]	Y	Y[4]	Y[5]	Y[4]	Y[5]	Y[6]	Y	Y[6]	Y
33	Primary metal industries	N	Y[4]	Y[5]	Y[6]	Y	Y[4]	Y[5]	Y[4]	Y[5]	Y[6]	Y	Y[6]	Y
34	Fabricated metal products	N	Y[4]	Y[5]	Y[6]	Y	Y[4]	Y[5]	Y[4]	Y[5]	Y[6]	Y	Y[6]	Y
35	Professional, scientific & controlling instru.	N	N	N	N	N	N	30	N	N	N	N	25	Y
39	Misc manufacturing	N	Y[4]	Y[5]	Y[6]	Y	Y[4]	Y[5]	Y[4]	Y[5]	Y[6]	Y	Y[6]	Y
	TRANSPORTATION, COMMUNI-[7] CATIONS & UTILITIES													
41	Railroad, rapid rail transit	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
45	Highway & street ROW	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
46	Auto Parking	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
47	Communications (noise sensitive)	N	N	30	25	Y	N	30	N	30	25	Y	25	Y
48	Utilities	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
42/43	Other trans, comm, & util	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

SLUCM CODE	LAND USE CATEGORY	COMPATIBLE USE DISTRICTS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
		Ldn 85	APZ I Ldn 80-85	APZ I Ldn 75-80	APZ I Ldn 70-75	APZ I Ldn 65-70	Ldn 80-85	Ldn 75-80	APZ II Ldn 80-85	APZ II Ldn 75-80	APZ II Ldn 70-75	APZ II Ldn 65-70	Ldn 70-75	Ldn 65-70
	COMMERCIAL/RETAIL TRADE													
51	Whilesale trade	N	Y[4]	Y[5]	Y[6]	Y	Y[4]	Y[5]	Y[4]	Y[5]	Y[6]	Y	Y[6]	Y
52	Building materials-retail	N	Y[4]	Y[5]	Y[6]	Y	Y[4]	Y[5]	Y[4]	Y[5]	Y[6]	Y	Y[6]	Y
53	General merchandise-retail	N	N	N	N	N	N	30	N	30	25	Y	25	Y
54	Food-retail	N	N	N	N	N	N	30	N	30	25	Y	25	Y
55	Automotive, marine	N	N	30	25	Y	N	30	N	30	25	Y	25	Y
56	Apparel & accessories-retail	N	N	N	N	N	N	30	N	30	25	Y	25	Y
57	Eating & drinking places	N	N	N	N	N	N	30	N	N	N	N	25	Y
58	Furniture, home furnishing retail	N	N	30	25	Y	N	30	N	30	25	Y	25	Y
59	Other retail trade	N	N	N	N	N	N	30	N	30	25	Y	25	Y
	PERSONAL & BUSINESS[8] SERVICES													
61	Finance, insurance &[8] real estate	N	N	N	N	N	N	30	N	30	25	Y	25	Y
62	Personal services	N	N	N	N	N	N	30	N	30	25	Y	25	Y
63	Business services	N	N	N	N	N	N	30	N	30	25	Y	25	Y
64	Repair services	N	Y[4]	Y[5]	Y[6]	Y	Y[4]	Y[5]	Y[4]	Y[5]	Y[6]	Y	Y[6]	Y
66	Contract construction services	N	N	N	N	N	N	30	N	30	25	Y	25	Y
	Indoor recreation services	N	N	N	N	N	N	30	N	30	25	Y	25	Y
69	Other services	N	N	N	N	N	N	30	N	30	25	Y	25	Y
	PUBLIC & QUASI-PUBLIC SERVICES													
67	Government services	N	N	N	N	N	N	30	N	30[8]	25[8]	Y[8]	25	Y
68	Educational services	N	N	N	N	N	N	N	N	N	N	N	30	25
711	Cultural activities incl churches	N	N	N	N	N	N	N	N	N	N	N	30	25
651	Medical & other health services[9]	N	N	N	N	N	N	N	N	N	N	N	30	25
624	Cemeteries	Y	Y[4,10]	Y[5,10]	Y[6,10]	Y[10]	Y[4]	Y[5]	Y[4,10]	Y[5,10]	Y[6,10]	Y[10]	Y[6]	Y
69x	Non profit organization	N	N	N	N	N	N	N	N	N	N	N	30	25
	Other public and quasi-public services	N	N	N	N	N	N	N	N	N	30	25	30	25
	OUTDOOR RECREATION													
761x	Playgrounds, neighborhood parks	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y
762x	Community & regional	N	N	N	Y[11]	Y[11]	N	N	N	N	Y	Y[11]	Y[11]	Y

SLUCM CODE	LAND USE CATEGORY	COMPATIBLE USE DISTRICTS												
		1	2	3	4	5	6	7	8	9	10	11	12	13
		Ldn 85	APZ I Ldn 80-85	APZ I Ldn 75-70	APZ I Ldn 70-75	APZ I Ldn 65-70	Ldn 80-85	Ldn 75-80	APZ II Ldn 80-85	APZ II Ldn 75-80	APZ II Ldn 70-75	APZ II Ldn 65-70	Ldn 70-75	Ldn 65-70
	OUTDOOR RECREATION (Cont)													
712	Nature exhibits	N	N	N	N	Y	N	N	N	N	N	Y	N	Y
722	Spectator sports incl arenas	N	N	N	N	N	N	N	N	N	N	N	N	Y
741x	Golf course[12], riding stables[13]	N	N	Y[14]	Y[15]	Y	N	Y[14]	N	Y[14]	Y[15]	Y	Y[15]	Y
743/ 744	Water-based recreational areas	N	N	Y[14]	Y[15]	Y	N	Y[14]	N	Y[14]	Y[15]	Y	Y[15]	Y
75	Resort & group camps	N	N	N	N	N	N	N	N	N	N	N	Y	Y
721x	Auditoriums, concert halls	N	N	N	N	N	N	N	N	N	N	N	N	Y
721x	Outdoor amphitheaters, music sheels	N	N	N	N	N	N	N	N	N	N	N	N	N
	Other outdoor recreation	N	N	N	Y[11]	Y[11]	N	N	N	N	Y	Y	Y	Y
	RESOURCE PRODUCTION, EXTRACTION, & OPEN SPACE													
81	Agriculture (except livestock)	Y[17]	Y[17]	Y[17]	Y[18]	Y[19]	Y[17]	Y[17]	Y[17]	Y[17]	Y[18]	Y[19]	Y[18]	Y[19]
815/ 817	Livestock farming, animal breeding	N	N	Y[17]	Y[18]	Y[19]	N	Y[17]	N	Y[17]	Y[18]	Y[19]	Y[18]	Y[19]
83	Forestry activities	Y[17]	Y[17]	Y[17]	Y[18]	Y[19]	Y[17]	Y[17]	Y[17]	Y[17]	Y[18]	Y[19]	Y[18]	Y[19]
84	Fishing activities & related services	Y	Y[11]	Y[11]	Y[11]	Y[11]	Y	Y	Y	Y	Y	Y	Y	Y
85	Mining activities	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
91	Permanent open space	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
93	Water areas	Y	Y[11]	Y[11]	Y[11]	Y[11]	Y	Y	Y[11]	Y[11]	Y[11]	Y[11]	Y	Y

This table is a guide. Adaptations to fit local conditions and more precise land use category designations are required based on the criteria of the foregoing narrative.

See legend following table for footnote explanations.

NOTES

N (NO) The land-use and related structures are not compatible and should be prohibited.

Y (YES) The land-use and related structures are compatible without restriction and should be considered.

Y^x (YES WITH RESTRICTIONS)
The land-use and related structures are generally compatible; however, some special factors should be considered.

35, 30 or 25
The land-use is generally compatible; however, a Noise Level Reduction of 35, 30 or 25 must be incorporated into the design and construction of the structure.

35^x, 30^x or 25^x
The land-use is generally compatible with NLR; however, such NLR does not necessarily solve noise difficulties and additional evaluation is warranted.

Land Use Compatibility Guidelines--Continued
Footnote Legends

[1]Because of accident hazard potential, the residential density in these CUD's should be limited to the maximum extent possible. It is recommended that residential density not exceed one dwelling unit per acre. Such use should be permitted only following a demonstration of need to utilize this area for residential purposes.

[2]Although it is recognized that local conditions may require residential uses in these CUD's, this use is strongly discouraged in CUD's 10 and 12 and discouraged in CUD's 11 and 13. The absence of viable alternative development options should be determined and an evaluation indicating that a demonstrated community need for residential use would not be met if development were prohibited in these CUD's should be conducted prior to approvals.

Where the community determines that residential uses must be allowed Noise Level Reductions (NLS) of at least 30 (CUD's 10 and 12) and 25 (CUD's 11 and 13) should be incorporated into building codes and/or individual approvals. Additional consideration should be given to modify the NLR levels based on peak noise levels. Such criteria will not eliminate outdoor environment noise problems and, as a result, site planning and design should include measures to minimize this impact particularly where the noise is from ground level sources.

[3]Because these uses vary considerably by locality and within a general category, particular care should be taken to evaluate and modify guidelines to fit local conditions. Among factors to be considered: labor intensity, structural coverage explosive inflammable characteristics, size of establishment, people density, peak period (including shopper/visitors) concentrations.

[4]A NLR of 35 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas or where the normal noise level is low.

[5]A NLR of 30 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas or where the normal noise level is low.

[6]A NLR of 25 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas or where the normal noise level is low.

[7]No structures in Clear Zone, no passenger terminals, and no major ground transmission lines in Clear Zones or APZ I.

[8]Low intensity office uses only (limited scale of concentration of such uses). Meeting places, auditoriums, etc., not recommended.

[9]Excludes hospitals.

[10]Excludes chapels.

[11]Facilities must be low intensity.

[12]Clubhouse not recommended.

[13]Concentrated rings with large classes not recommended.

[14]A NLR of 30 must be incorporated into buildings for this use.

[15]A NLR of 25 must be incorporated into buildings for this use.

[16]No structures in Clear Zone.

[17]Residential structures not permitted.

[18]Residential buildings require a NLR of 30.

[19]Residential buildings require a NLR of 25.

APPENDIX F

ORGANIZATION TO IMPLEMENT AICUZ

NAVAL ORGANIZATION TO IMPLEMENT AICUZ

The Navy organization is shown in Figure 6. Most Naval airfields and air installations[1] are located under the Commanders of the Atlantic and Pacific Fleets.

As Table 4 indicates, various members of the chain of command from the Office of the Chief of Naval Operations (CNO) to the individual airfield have some assignment of responsibility for the AICUZ program. (The Office of the Secretary of the Navy has little involvement.) A list of principal Naval personnel who are concerned with AICUZ is contained in Appendix B.

Role of Headquarters (Washington, D.C.) Offices

The Navy Headquarters role in implementing AICUZ on a day-to-day basis is handled primarily by two offices (see Figure 6). One (hereafter referred to as the "Project Staff") is located under the CNO and the other, hereafter referred to as the "Planning Staff," is located under the Naval Facilities and Engineering Command (NAVFACENGCOM).

The project staff has the task of performing certain technical assistance and interagency coordination services for individual installations in implementing the program. It deals directly with other Federal agencies at both the headquarters and regional levels, and provides various guidance materials to the installations. This office takes an active role in all decision-making sessions during the AICUZ study period.

The second major Headquarters element is the Facilities Planning section of the Naval Facilities and Engineering Command, NAVFACENGCOM, under the Chief of Naval Material. The planning staff works with the technical aspects of the AICUZ study. It supports Engineering Field Divisions, rather than with the air installations directly on the implementation.

Role of Engineering Field Divisions

The operational elements immediately above the installation in the chain of command, having important responsibilities for AICUZ are the Engineering Field Divisions. These

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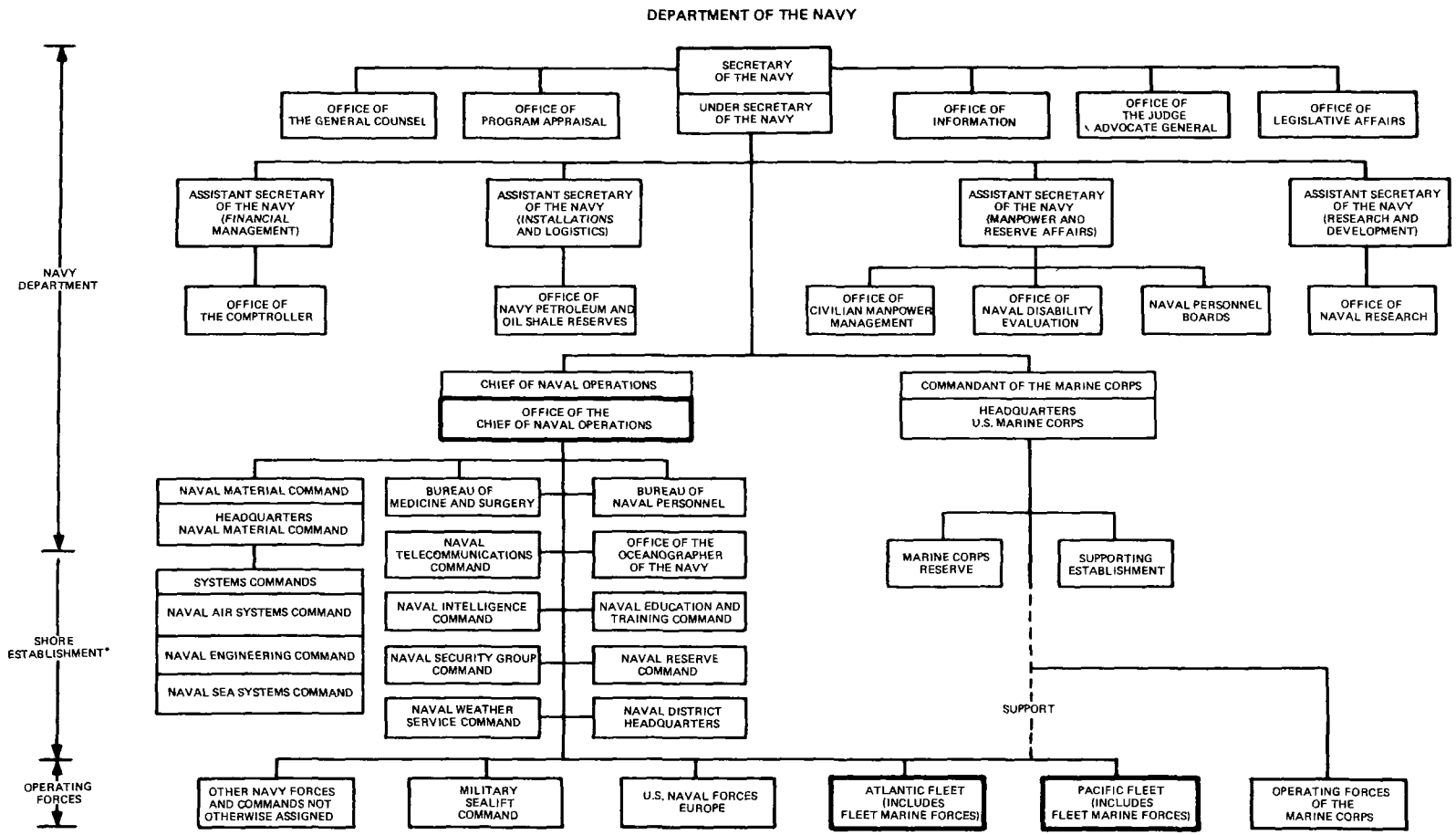
1. An "air installation" may contain one or more airfields.



*ALSO INCLUDES OTHER DESIGNATED SHORE ACTIVITIES, NOT SHOWN ON THE CHART WHICH ARE UNDER THE COMMAND OR SUPERVISION OF MANY OF THE ORGANIZATIONS DEPICTED.

Figure 6

Table 4. Navy AICUZ Responsibilities

Deputy Chief of Naval Operations (Logistics)	1 – Program management for funding and implementation 2 – Monitor and coordinate application of policy
Deputy Chief of Naval Operations (Air)	1 – Approval of operational modifications 2 – Establish priorities for conducting AICUZ studies at fleet support and training and reserve air installations 3 – Establish fiscal year priorities for corrective projects
Deputy Chief of Naval Operations (Research and Development)	1 – Establish priorities for conducting AICUZ studies at research and development air installations 2 – Establish fiscal year priorities for corrective projects
Chief of Naval Material (Naval Facilities and Engineering Command)	1 – Accomplish AICUZ studies 2 – Provide technical direction for noise reductions
Chief, Bureau of Medicine and Surgery	1 – Provide technical direction and assistance to evaluate and validate health related requirements of AICUZ implementation
Major Claimants (Commander U.S. Naval Air Forces – Atlantic and Pacific, etc.)	1 – Provide command direction, priorities and recommendations on AICUZ plans
Air Installation Commanders	1 – Familiarize themselves with AICUZ and Naval Noise Pollution Abatement Program 2 – Assist in conducting AICUZ studies 3 – Develop an AICUZ implementation plan

offices act in the dual capacity as intergovernmental coordinators (i.e., between the installation and State or other Federal agencies) and providers of technical assistance to the installations.

With respect to AICUZ, these offices perform two very important technical functions:

- They are responsible for awarding and monitoring contracts to conduct AICUZ studies at each installation, and
- They perform planning, design and construction functions for noise reductions measures at Naval airfields (such as resiting of engine test facilities).

Role of Naval Environmental Protection Support Service: Technical Support

The AICUZ program is part of an overall Navy Environmental Protection Program. Among the technical services provided under the Naval Environmental Protection Support Service, NEPSS, are conducting actual noise surveys at airfields through the Aircraft Environmental Support Office. Surveys have been conducted at many installations and results have been used in drawing baseline AICUZ noise contours.

Role of Individual Naval Air Installations

The individual installation, of course, is the key element which all other elements in the hierarchy support. AICUZ activities at each installation fall into two categories:

- "preliminary" actions by installation commanders, and
- implementation of the approved AICUZ study.

Navy policy requires installation commanders, as the first step taken in the development of an AICUZ program at their base, to appoint an AICUZ project officer who will be directly responsible for all AICUZ related actions at the installation, including coordination of all other preliminary actions and contracts with the community. The remainder of the "preliminary" actions are of two types:

- gathering input data for the AICUZ study (zoning maps, installation accident history, possible noise reduction methods), and
- initiating local contacts (identification of interested persons, evaluation of potential encroachment).

The role of the installation, following the completion of the AICUZ study, is to implement the source and operational controls which have been decided upon, as a result of the study, through a process of negotiation between the commanding officer of the installation and higher authority (see Table 4) and to work with the community to attain the land use controls recommended in the study. Much of the work involves maintaining an active public awareness program on AICUZ and reporting potential problems (such as incompatible rezoning) to headquarters.

The Navy through the project staff, OPNAV, discussed above provides guidance to its air installations in:

- conducting the AICUZ study,

- promoting local action, and
- stimulating public awareness of noise.

Materials for conducting the study include 1) guidelines for drawing accident potential zones, 2) the computer program to develop noise contours, and 3) land use guidelines to translate AICUZ maps into land use objectives.

How the Navy Goes About Conducting an AICUZ Study

Preliminary Actions

As indicated in Table 4, the Deputy Chiefs of Naval Operations (Air) and (Research and Development) establish priorities for conducting AICUZ studies. As study plans are announced, the installation commander through the AICUZ project officer collects input data (with assistance from the appropriate Engineering Field Division).

Contract for Studies

At this point, the Engineering Field Division takes charge of the study which is usually done by contract.[1]

A model scope of work developed by the Naval Facilities and Engineering Command (which serves as a guide to Engineering Field Division personnel involved in awarding and monitoring of contracts for AICUZ), specifies the following detailed tasks to be performed:

- field investigations of local land use and validation of noise and accident data,
- analysis of data to develop the land use matrix,
- development of alternatives (operations changes and physical modifications),
- development of implementation strategies (regulatory and land acquisition), and
- presentation of final short and long-term recommendations.

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1. Only one Navy AICUZ study has been done in-house. In contrast, *all* Air Force studies are conducted in-house.

A particularly important decision point in this process involves operations changes. A decision to implement one or more operational changes (including flight path alterations or mission reductions) is made after a meeting in which representatives from all involved levels of the chain of command deliberate (installation, Engineering Field Division, Naval Facilities and Engineering Command, Commander US Naval Air Forces Atlantic or Pacific, and the Office of the Chief of Naval Operations).

Table 5 describes decision points (at high levels) during the AICUZ program in terms of the individual making the decision and the timing of each decision.

Table 5. Principal Decision Points in the Navy AICUZ Program

DECISION	RESPONSIBLE INDIVIDUAL(S)	TIMING
Set priorities for conducting studies	Deputy Chief of Naval Operations (CNO) (Air) and (Research & Development)	
Approval of operational changes	Deputy Chief of Naval Operations (CNO) (Air)*	3-4 months from start of study
Determine implementation strategy direction	Major Claimants Commander U.S. Naval Air Forces (Atlantic) and (Pacific)	3-4 months from start of study
Approval of final study	CNO	6-7 months from start of study
Set fiscal year priorities for construction or acquisition	Deputy CNO (Air) and (Research & Development) Major Claimant – Commander U.S. Naval Air Forces (Atlantic) and (Pacific)	Annually

*Decision made through a process of negotiations with Commanding Officer of the air installation.

AIR FORCE ORGANIZATION TO IMPLEMENT AICUZ

The organizational structure of the Air Force is contained in Figure 7. The key organizational elements relative to AICUZ are the Deputy Chief of Staff, Programs and Resources and the Major Commands. The primary headquarters element responsible for environmental programs is the Environmental Planning Division of the Directorate of Engineering and Services. (This office is located directly under the Deputy Chief of Staff, Programs and Resources.) This division consists of two branches: the Airbase Planning and Development Branch and the Policy and Assessment Branch (which handles EIS's). Air Force Regional Offices report to the Environmental Planning Division. The bases themselves are located under the 15 Major Commands.

Role of Headquarters

The Environmental Planning Division is a multi-disciplinary staff (urban planners, engineers, etc.) whose task is to provide guidance to the regions and the bases in implementing AICUZ. The group has developed various tools (such as a computerized model for drawing noise contours) and technical planning materials (such as a model act for comprehensive airport land use planning at the State level). They have also developed documents containing case studies of AICUZ programs at Air Force bases.

The Environmental Planning Division sets Air Force priorities for conducting studies and for funding the acquisition of land or restrictive easements in clear zones. In addition, it

- reviews all input data to be used for drawing noise and accident potential maps,
- reviews all completed maps,
- approves all completed studies, and
- approves the information dissemination plan for each base including setting the date for release of the study.

Role of Major Commands: Review of Base Activities

Major Command Headquarters have direct line authority over Air Force bases. Appropriate Major Commands review and coordinate all base AICUZ actions before review and

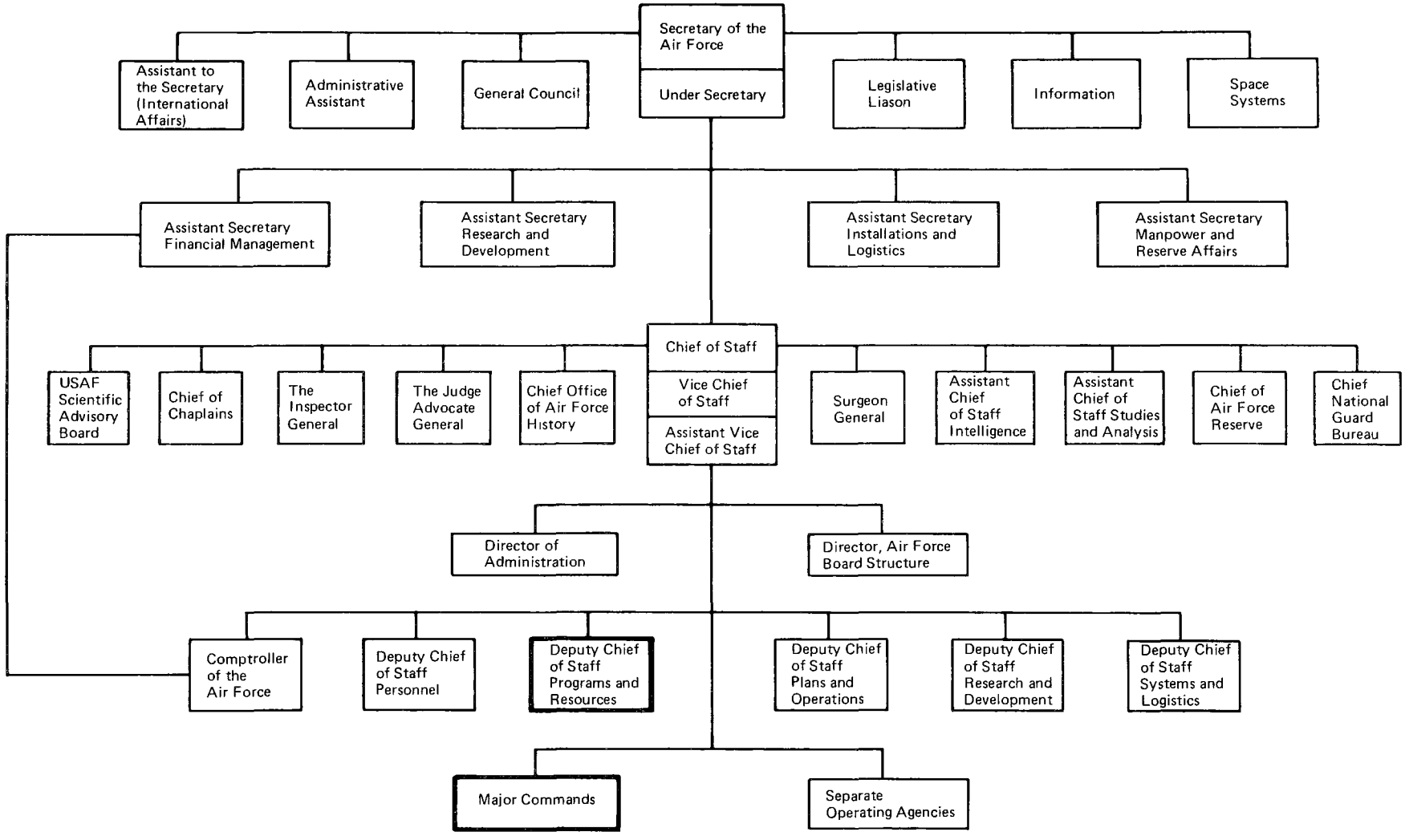
Secretary of the Air Force
Under Secretary
Assistant to the Secretary (International Affairs)
Administrative Assistant
General Council
Legislative Liason
Information
Space Systems
Assistant Secretary Financial Management
Assistant Secretary Research and Development
Assistant Secretary Installations and Logistics
Assistant Secretary Manpower and Reserve Affairs
Chief of Staff
Vice Chief of Staff
Assistant Vice Chief of Staff
USAF Scientific Advisory Board
Chief of Chaplains
The Inspector General
The Judge Advocate General
Chief Office of Air Force History
Surgeon General
Assistant Chief of Staff Intelligence
Assistant Chief of Staff Studies and Analysis
Chief of Air Force Reserve
Chief National Guard Bureau
Director of Administration
Director, Air Force Board Structure
Comptroller of the Air Force
Deputy Chief of Staff Personnel
Deputy Chief of Staff Programs and Resources
Deputy Chief of Staff Plans and Operations
Deputy Chief of Staff Research and Development
Deputy Chief of Staff Systems and Logistics
Major Commands
Separate Operating Agencies

Figure 7

approval by Air Force Headquarters. Each Command is required to establish an AICUZ program at its headquarters involving representatives from various base offices (e.g., civil engineering, operations, safety, etc.) to evaluate the encroachment situation at each base and to report the results of their evaluations regularly to Air Force Headquarters. In general, day-to-day control of the program is centered in the engineering and services function with from one to four people at each Major Command Headquarters being actively involved in the AICUZ program.

Role of the Civil Engineering Center — Technical Support

The Air Force Civil Engineering Center at Tyndall AFB, Florida, provides technical support to the AICUZ program through Air Force Headquarters. The Civil Engineering Center generates the noise contour maps using a computerized model. Contours are drawn for Ldn values of 80, 75, 70 and 65 (and for Ldn 60 in California). As of December 1976, nearly 200 maps have been generated, 50 of which are AICUZ baseline maps. The remainder analyze the effects of mission and operational changes (such as introduction of new aircraft) at various bases.

The general role of the Civil Engineering Center is as a general in-house consultant to Air Force Headquarters, Major Commands and bases on environmental programs. It performs technical assistance functions such as EIS preparation for many bases.

Role of Air Force Regional Representatives: Intergovernmental Coordination

The Air Force has established Environmental Planning Divisions in its three regional offices whose central purpose is to coordinate Air Force activities (Headquarters, Major Commands and bases) with those of other Federal agency regional offices and with State governments. Each Air Force Region comprises several standard Federal Regions (Atlanta — Regions I through IV; Dallas — Regions V through VIII; and San Francisco — Regions IX and X).

The Air Force prefers that Federal agency regional offices contact the Air Force Regions rather than going to Air Force Headquarters or to Air Force bases directly.

The Environmental Planning Divisions, established in 1975, are not as yet fully prepared to handle all matters to be ultimately assigned them. Their present principal responsibilities

in the AICUZ program are as intra-agency and inter-governmental coordinators to:

- Serve as the *liaison* between HQ USAF, Major Commands and bases and Federal Regional Officials whose agencies have an interest in or an impact on the AICUZ program.
- Inform all appropriate Federal Regional Officials of Air Force AICUZ policies, requirements and programs.
  1. Forward AICUZ schedules, plans and related information for bases to all appropriate Federal Regional Officials.
  2. Negotiate the resolution of AICUZ related problems with other Federal agencies at the Regional level.
  3. Obtain other agencies policies and programs related to AICUZ and forward them to individual bases.
  4. Keep Air Force Headquarters advised of all major actions with Federal Regional Officials concerning AICUZ.
  5. Establish contact with and brief Federal Regional Officials on AICUZ.
- Negotiate working agreements and establish procedures by which base officials and Federal officials (below the regional office level) may coordinate their actions.

These duties would apply to all Air Force environmental and planning programs.

Role of Air Force Bases: Center of Activity

The Air Force bases themselves actually develop (and implement) AICUZ studies. (To date only one Air Force AICUZ study has been done by contract.) Each base is required to:

- establish an AICUZ team similar to that at the Major Command level, centered in the base civil engineering function (see Table 6),
- collect and refine all data needed to produce noise contours and land use recommendations,
- evaluate operational changes,
- develop compatible land use recommendations and an information dissemination plan for the completed AICUZ study,

Table 6. Base AICUZ Phase I Responsibilities

Base Commander	Establish AICUZ team Monitor program
Information*	Identify and evaluate key interested parties Develop an AICUZ information strategy Document the implementation of AICUZ
Civil Engineering*	Obtain and analyze land use plans for base vicinity and prepare a map indicating land ownership and property values Prepare flight pattern maps and flight profile charts Prepare anticipated encroachment plan
Operations*	Collect flight data Identify and evaluate airspace and operational land use problems Identify possible operational changes Coordinate with FAA Regional Office
Safety*	Plot local accident history Summarize in-flight emergencies Identify and evaluate ground hazards
Maintenance*	Collect maintenance data (e.g., ground run-ups) Identify possible noise reduction methods
Bio-Environmental Engineering*	Assist Civil Engineering, Operations and Maintenance in noise analysis
Legal	Obtain and evaluate relevant State and local laws and court decisions Seek approval from local officials of formal appearances by Air Force personnel before public zoning authorities
Comptroller	Prepare study of economic impact of the base on the community
Weather	Prepare climatological study and assist as required

*Participate in airspace and operational land use analysis to evaluate the relationships of present operations with existing and potential land use and report results.

- compose the AICUZ study,
- present the completed study to the community, and
- maintain contacts with local officials to prevent incompatible development near the base.

Each base is to appoint an intergovernmental coordination officer (to work with local Federal, State, and local agency officials on a day-to-day basis and to interface with the Air Force Regional Representative.)

What Guidance Is Provided to the Bases

Guidance is provided to assist bases in completing and implementing their AICUZ studies. The Air Force has produced a series of AICUZ "Information and Environmental Planning Bulletins" that contain a variety of material including completed AICUZ studies, explanations of policy and of the problems of encroachment, guidance on collection of input data and results of implementation programs at several bases.

Some of the more important guidance documents (which are briefly described in Appendix C) are:

- AICUZ Phase I, Environmental Planning Bulletin
- Joint Services Noise Planning Manual, and
- Model State legislation for comprehensive airport land use planning.

To date relatively little guidance on the implementation and maintenance phases of the program has been provided the bases. The majority of the material has been concerned with *developing* AICUZ studies.

The model State legislation follows the Air Force AICUZ concept closely in stressing the need for combined State/local planning and for coordination among State agencies. It also encourages adoption of noise insulation and abatement standards for different classes of six phases.

1. Organization and Data Acquisition (Phase I)

After the AICUZ committees are established at each Major Command and base, the process of data collection and analysis of local land use patterns begins. Table 6 summarizes these activities. The following steps are particularly significant. First, the information strategy is developed very early in the program and is to involve direct contacts with other Federal agencies, initiated by the bases (with approval of the Major Commands). Second, operational changes are investigated during the Phase I airspace operational land use analysis (see Table 6). Thus, the noise contours produced from Phase I data may include operational changes. Where conflicts are critical, contours for various noise reduction options are produced as decision-making aids. (This differs from the Navy's approach of initially analyzing noise contours for existing operations and then evaluating possible operational changes.) Third (and also in contrast to the Navy), the Air Force does not actually spot check noise on the base or surrounding area. Actual noise measurements have been already taken for each type of aircraft and these measurements, along with Phase I operations and maintenance data, are used to generate noise contours.

2. Review and Refinement (Phase II)

Major Commands review all Phase I data (for accuracy and completeness) before noise contours are generated. They also review the information dissemination plan and land use data before any actions are taken by the base.

3. Noise Analysis (Phase III)

When operations and maintenance data have been reviewed (including operational changes), noise contours are generated by the Civil Engineering Center. The completed maps are sent to Air Force Headquarters and Major Commands for review before being returned to the bases. *This is the only phase of the program where the bases usually play no direct role.*

4. AICUZ Maps and Land Use Plans (Phase IV)

In this phase the AICUZ study is completed. The base is responsible for combining noise contours, accident potential and land use maps to determine Compatible Use Districts around the base. Using the land use planning data from Phase I, likely future development in each Compatible Use District is to be determined. These estimates are compared with the land use matrix to determine the compatibility of the projected uses. Recommendations consist of identifying potential problems and indicating preferred compatible development. The Air Force asserts that recommendations should allow the community as much flexibility as possible and should be consistent with the recommendations of other bases in the area or State. They stress both Air Force and community responsibilities. The study and recommendations must be approved by the Major Commands and Air Force Headquarters.

5. Presentation and Implementation (Phase V)

Implementation of the study begins with a formal presentation to community officials stressing the need for joint planning between the base and the community. (Several sample presentations are contained in Environmental Planning Bulletin No. 9). The presentations are attended by Major Command and Regional Office personnel.

The Air Force feels the success of the program at this point depends upon the actions of the community in controlling development around the base. The Air Force does its part in distributing copies of the study to interested parties and providing any assistance requested.

6. Maintenance (Phase VI)

Since Air Force base AICUZ programs have existed for only a relatively short time, it cannot be determined how they will be affected by changes in local conditions over a period of several years. Therefore, this is the least well defined part of the program. The Air Force stresses the need for flexibility and comprehensiveness in land use planning. This is because development patterns may change from year to year, creating pressure on community officials to rezone land near Air Force bases. Also the Air Force may introduce mission or operational changes to the base which would require modification of the noise contours. Air Force AICUZ studies state that incorporating noise contours directly into zoning ordinances may cause problems for the community if the Air Force is later required to change the contours. The Air Force also believes that planning should be comprehensive. Therefore, the studies urge communities not to base their land use control decisions solely on AICUZ boundaries.

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16. ABSTRACT

This document is intended to assist Federal agencies in understanding the Department of Defense's program to abate noise at military airfields. It covers some of the important features of the Air Installations Compatible Use Zones (AICUZ) Program, its problems and relationships to other agency noise programs.

17. KEY WORDS AND DOCUMENT ANALYSIS

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