Lowcountry
Joint Land Use Study (JLUS)
Plan

Lowcountry Council of Governments
September 2004

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Chapter 1. Introduction and Background

Lowcountry Joint Land Use Study Goals

The reasons for undertaking a Joint Land Use Study (JLUS) for Marine Corps Air Station (MCAS) Beaufort closely parallel the reasons why the Department of Defense (DoD) established the program.

> "Most military installations were originally located in remote areas, distant from urban areas due largely to the availability of land and for defense and security purposes. Over time however, installations drew people and businesses closer and closer to take advantage of civilian job opportunities offered by the installation and to provide the goods and services to support the installation's operations. As urban growth and development increased near and around military installations land use conflicts between base operations and civilian development increased.
>
> "Conversely, urban development near the perimeter of active military bases impacts operational effectiveness, training, and readiness missions.
>
> "Urban encroachment near a military base, if allowed to go unregulated, can compromise the utility and effectiveness of the installation and its mission. For example, certain types of land use activities, such as homes, places of assembly (i.e., schools or religious centers), childcare centers, nursing homes, hospitals, restaurants, theaters, shopping centers, etc. often are not compatible uses/activities if located close to military operations."

In response, the JLUS program was developed as "a cooperative land use planning effort between affected local government and the military installation."

The Lowcountry JLUS is a partnership consisting of Beaufort County, the City of Beaufort, the Town of Port Royal, Marine Corps Air Station Beaufort and the Lowcountry Council of Governments (LCOG). The goal of the program is to determine how best to cooperatively ensure the continued economic development of the area while maintaining the present and future integrity of operations and training at MCAS Beaufort.

The Policy and Technical committees of the *Lowcountry JLUS Plan* were guided by the following objectives:

- To protect the health and safety of residents living or working near military installations;
- To preserve long-term land use compatibility between the installation and the surrounding community;
- To integrate the local jurisdictions' comprehensive plans and implementing ordinances and codes with those land use compatibility recommendations and consistently with each other;

- To encourage the continuation of the cooperative spirit and good relations between the local base command and local community officials.

The Joint Land Use Planning Process in the Lowcountry

The JLUS planning process began officially in April, 1999, when the councils of Beaufort County, the City of Beaufort and the Town of Port Royal passed uniform resolutions recognizing "that continued operation of the Marine Corps Air Station (MCAS) Beaufort is important to the local economy and the Lowcountry regional economy and that its future operational capacity should be protected." The councils also officially recognized "that participation in and development of a JLUS will benefit the health, safety, and general welfare" of the area's residents. The three councils resolved:

- To participate in the development of a JLUS.
- To designate Lowcountry Council of Governments (LCOG) as the sponsor and grantee for the JLUS.
- To appoint a representative to the JLUS policy committee.
- To fund the local matching share of the cost of the JLUS.
- To commit to a good faith effort to implement the JLUS recommendations.

Both a Policy Committee, comprised of elected officials, and a Technical Committee, made up of planning department staff, were appointed and held initial meetings shortly thereafter. Committee membership and meetings are outlined in Appendix A (at the end of this document). The LCOG planning department, which would be responsible for much of the work involved in preparing the plan, began preliminary tasks.

The JLUS process requires a valid noise and safety study to serve as the foundation for and a reference point for making planning decisions. In the mid-1970's, the DoD established programs in response to existing and potential threats of incompatible land developments that were compromising the defense missions at military installations. These programs are designed to promote compatible development on and off military bases and include noise studies of military activities to delineate on- and off-base areas most likely to be affected by unacceptable noise levels. The programs also identify aircraft landing and take-off accident potential zones that of-

ten extend off a base into the neighboring community. The AICUZ studies are based on sophisticated, computer-based noise models, Federal Aviation Administration guidelines, DoD Directives, and community land use planning principals and practices. A detailed discussion of the AICUZ Plan is in Chapter 4 of this study.

In 1999 the operating AICUZ Plan for MCAS Beaufort dated back to 1994 and did not take into account the noise and safety changes caused by decommissioning USMC squadrons and adding two Navy F/A-18 squadrons. The JLUS process was put on hold until the MCAS Beaufort AICUZ could be updated. The update was completed and published in 2003 and the JLUS process was re-initiated. Since late 2003 work on the JLUS plan has continued uninterrupted. Monthly meetings of the Policy and Technical Committees, as well as public meetings in March 2004 and May 2004 have ensured input from a wide range of sources (see Appendix B for a summary). The resultant product of the meetings and LCOG staff research is the Lowcountry JLUS which follows.

Chapter 2. Marine Corps Air Station Beaufort

History

The 5,800 acres that comprise present day Marine Corps Air Station Beaufort trace their modern military mission to Naval Air Station Beaufort, which was commissioned on June 15, 1943. Originally the facility was a home base for advanced training and anti-submarine patrols along the United States' Southeastern seaboard during World War II. Deactivated in 1946, the facility was reactivated as a Marine Corps Auxiliary Airfield in 1956. On March 1, 1960, the facility was re-designated Marine Corps Air Station Beaufort. On September 19, 1975, the airfield was named Merritt Field in honor of Ridge Spring, SC native, Major General Louis G. Merritt, USMCR.

Throughout its 60-year history, Merritt Field has played a key role in the national defense by hosting training exercises and operations that ensure our military's readiness to meet every challenge. Today the 3.9 million square yards of runways and taxiways of Marine Corps Air Station Beaufort are home to 9 Marine Corps and Navy squadrons of F/A-18 Hornet advanced fighter-attack aircraft and over 12,000 military members, dependants, and civilian employees are pleased to call the greater Beaufort area "home."

Off shore airspace and advanced technology provide MCAS Beaufort with excellent ranges for air-to-air training. The Air Station also owns the 5,200 acre Townsend Bombing Range in Macintosh County, G.A. This range is managed by the Georgia Air National Guard and provides Air Station pilots with a near-by opportunity to train for air-to-ground combat. Continuous training is the focus of the seven Marine F/A-18 Hornet fighter-attack squadrons which, along with a headquarters element, comprise Marine Aircraft Group 31. The Hornet squadrons, also known as "gun squadrons," are VMFAs 115, '122, '251, '312, as well as VMFA(AW)s 224, '332 and '533. The MAG-31 headquarters element and these squadrons are Fleet Marine Force units under 2nd Marine Aircraft Wing headquartered at Marine Corps Air Station Cherry Point, NC. Two Navy F/A-18 squadrons also call MCAS Beaufort home. Strike Fighter Squadrons 82 and 86 fall under the operational command of Commander Strike Fighter Wing Atlantic, headquartered at NAS Oceana, Virginia.

In addition to the Headquarters and Headquarters Squadron, whose personnel "run" the air station at MCAS Beaufort, other tenant units include Marine Wing Support Squadron 273,

Detachment "A" of Marine Air Control Squadron 2, Marine Aviation Logistics Squadron 31, Marine Combat Service Support Detachment 23, and the South Carolina National Guard, Troop B, 202nd Calvary.

From Operation Desert Shield and Operation Desert Storm to Operation Enduring Freedom and Operation Iraqi Freedom, the Marines and Sailors of Marine Corps Air Station Beaufort have performed admirably. Deployed on aircraft carriers and to expeditionary bases, air station squadrons have fulfilled vital roles in the Global War on Terrorism since it began. Marine Corps Air Station Beaufort has a proud history and will continue to be a vital part of the United States defense establishment.

Mission

To provide the highest quality integrated training opportunities, aviation facilities, support, and services that promote the readiness, sustainment and quality of life for Marines, Sailors, family members, civilian Marines and others associated with MCAS Beaufort… and to protect the environment, enhance the quality of life within the community and conduct proactive community relations.

Noise Abatement Efforts

As members of the Beaufort community, Marine Corps Air Station Beaufort is committed to be being a "good neighbor." The air station has an ongoing program, through its Community Plans and Liaison Office, to minimize the impacts of aircraft noise on the installation and the surrounding community and will continue to explore and implement procedures and policies that reduce the impact of noise on the community and are compatible with the Air Station's mission.

New construction at the installation is sited and located to minimize noise impacts on the community and personnel at the installation. Some examples of the siting of facilities to minimize noise impacts are:

1. A new $8 milllion jet engine test cell was relocated in FY-99 from near core facilities at the installation and constructed away from working personnel and the public. The new structure was designed and constructed with extensive sound attenuation measures that limit noise from engine testing to less than 65dB emanating beyond the

installation boundary. The old engine test cell could be heard in down-town Beaufort.

2. A new $11million aircraft in-frame engine run-up facility was approved in FY-02 and is currently being constructed. It will provide for indoor attenuated aircraft testing in lieu of outdoor testing (i.e. the entire aircraft is enclosed for engine test runs.)
3. Earth berms have been constructed near runway ends to deflect and absorb noise from aircraft taking off under full power.
4. Military family housing is being relocated from the Air Station to Laurel Bay Family Housing Area to remove family members from the impacts of aircraft noise in AICUZ Noise Zone 3.
5. All new facilities are constructed with additional sound attenuation features to reduce noise impacts on occupants. Every effort is made to site new facilities away from high noise areas.

An on-going effort to reduce incompatible civilian development, and the accompanying noise complaints, consists of a "buffer" land acquisition program that includes the purchase of development rights, fee simple land acquisitions and land acquisition partnerships in noise zones surrounding the installation. Over 400 acres of lands located in the accident potential zones and noise zones were purchased in 1990 for this purpose. The purchase of these undeveloped lands ensures that they will remain undeveloped. Included in this program is an ongoing cooperative partnership with the Beaufort County Rural and Critical Lands Board to jointly purchase lands for conservation and prevention of development. In 2004 the Lowcountry Conservation Forum was initiated to bring other government agencies and conservation non-governmental organizations together to broaden the field of potential partners for future land acquisition actions. The prevention of development of lands encumbered by noise and aircraft accident potential will help ensure the long-term continuation of the Air Station mission.

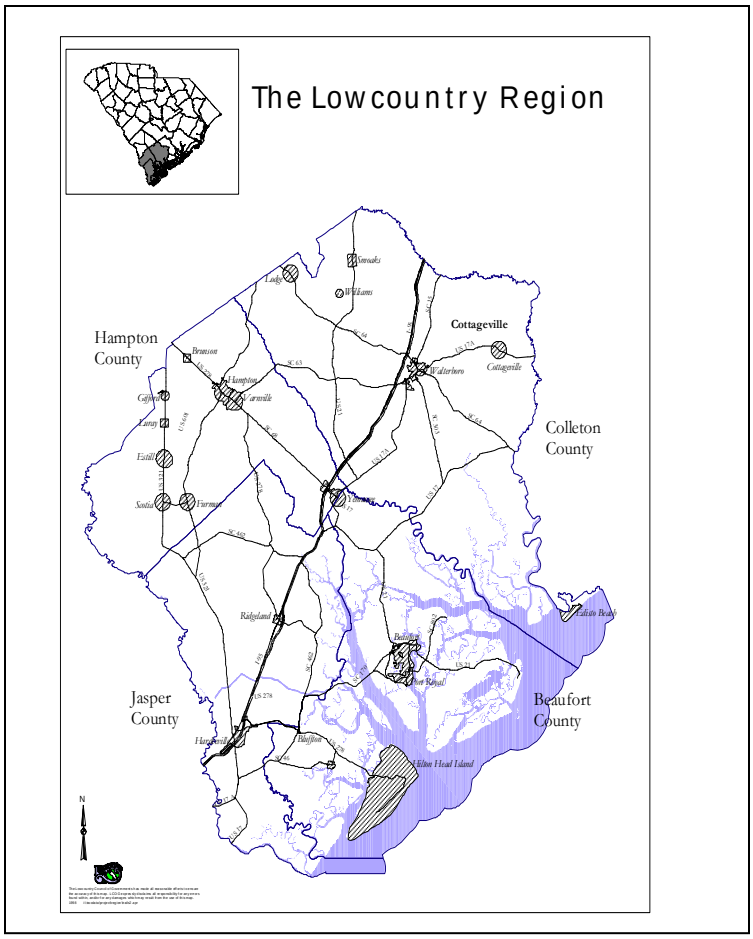
A summary of Air Station measures to reduce the impact of aircraft noise on the Beaufort community is included as Appendix C. These measures address such issues as flight restrictions, airfield operational hours and preferred routing.

Chapter 3. The Study Area, Population Growth and the Economic Impact of MCAS Beaufort

Population Growth in the Lowcountry Region

Beaufort County and the City of Beaufort and the Town of Port Royal are all part of what is defined as the "Lowcountry Region." This area was first settled nearly 300 years ago. During the nineteenth century, thanks to the lucrative rice, indigo and Sea Island cotton crops, it was responsible for much of the wealth of South Carolina, which was during the mid-1800s the wealthiest state in the nation.

From the end of the War Between the States until the late twentieth century the area's economic fortunes varied. During the past 10 to 15 years, though, the area, especially Beaufort County, has been experiencing a boom, thanks to retirees, tourists, the military and the movie industry. The wealth, however, has been spread unevenly.



The four counties of South Carolina's Lowcountry—Beaufort, Colleton, Hampton and Jasper—together have been one of the fastest growing regions in the state during the past decade.

From 2001 through 2003 growth in the Lowcountry slowed, although Beaufort County's pace continues as the fastest in the region and the state.

	Census 2000 Population	July 1, 2001 Population	July 1, 2002 Population	July 1, 2003 Population	Average Annual Increase 2000-2003	Average Annual Increase 1990-2000
Beaufort County	120,937	124,884	127,977	132,889	3.29%	3.99%
Colleton County	38,264	38,580	38,804	39,173	0.79%	1.13%
Hampton County	21,386	21,384	21,316	21,391	0.01%	1.76%
Jasper County	20,678	20,831	20,969	20,998	0.52%	3.35%

During the period from 2002 to 2003 the Town of Port Royal, which has been transforming itself from a port-centered small town with homes and stores in need of repairs and renovation into a vibrant waterfront residential and commercial enclave south of the City of Beaufort, became the fastest growing municipality in South Carolina. Its population increased by 10.9% from 3989 to 4424. The population of the historic City of Beaufort, which is also the County seat, remained stable. During that period Beaufort County regained its title (earned for the 1990 to 2000 growth rate) as the fastest growing county in the state; most of that growth has occurred in the southern sector in Bluffton and Hilton Head.

The Economy

Economic, as well as population, growth rates have been uneven throughout the region and within Beaufort County. While Census 2000 figures showed that Beaufort County ranked as the wealthiest in South Carolina, in terms of median household income, that result is skewed by very wealthy retirees and professionals living on Hilton Head Island.

Using data from Census 2000, Table 1 on the next page compares two key economic indicators among the four counties and with the state as a whole. Four specific locations within Beaufort County have been delineated to demonstrate the economic and geographic differences.

- Burton . This area is located across US 21 from MCAS Beaufort.
- Laurel Bay. Most of this area consists of military housing for the Tri-Command.
- Census Tract 1. A few miles north of MCAS Beaufort and the poorest Census Tract in South Carolina.
- Town of Hilton Head Island. A golf resort and home to wealthy retirees.

Table 1

Economic Indicators Comparison (Census 2000)

Place	Median Household Income	% of Families Living Below Poverty Level
Beaufort County	$46,992	8
Burton CDP	$39,753	12.3
Laurel Bay CDP	$40,777	4.6
Census Tract 1	$24,688	26.8
Town of Hilton Head Island	$60,438	4.7
Colleton County	$29,733	17.3
Hampton County	$28,771	21.8
Jasper County	$30,727	15.4
South Carolina	$37,082	10.7

Recent unemployment data (below) shows considerable disparity among the four counties of the region, with Beaufort County having the lowest in the region and the state.

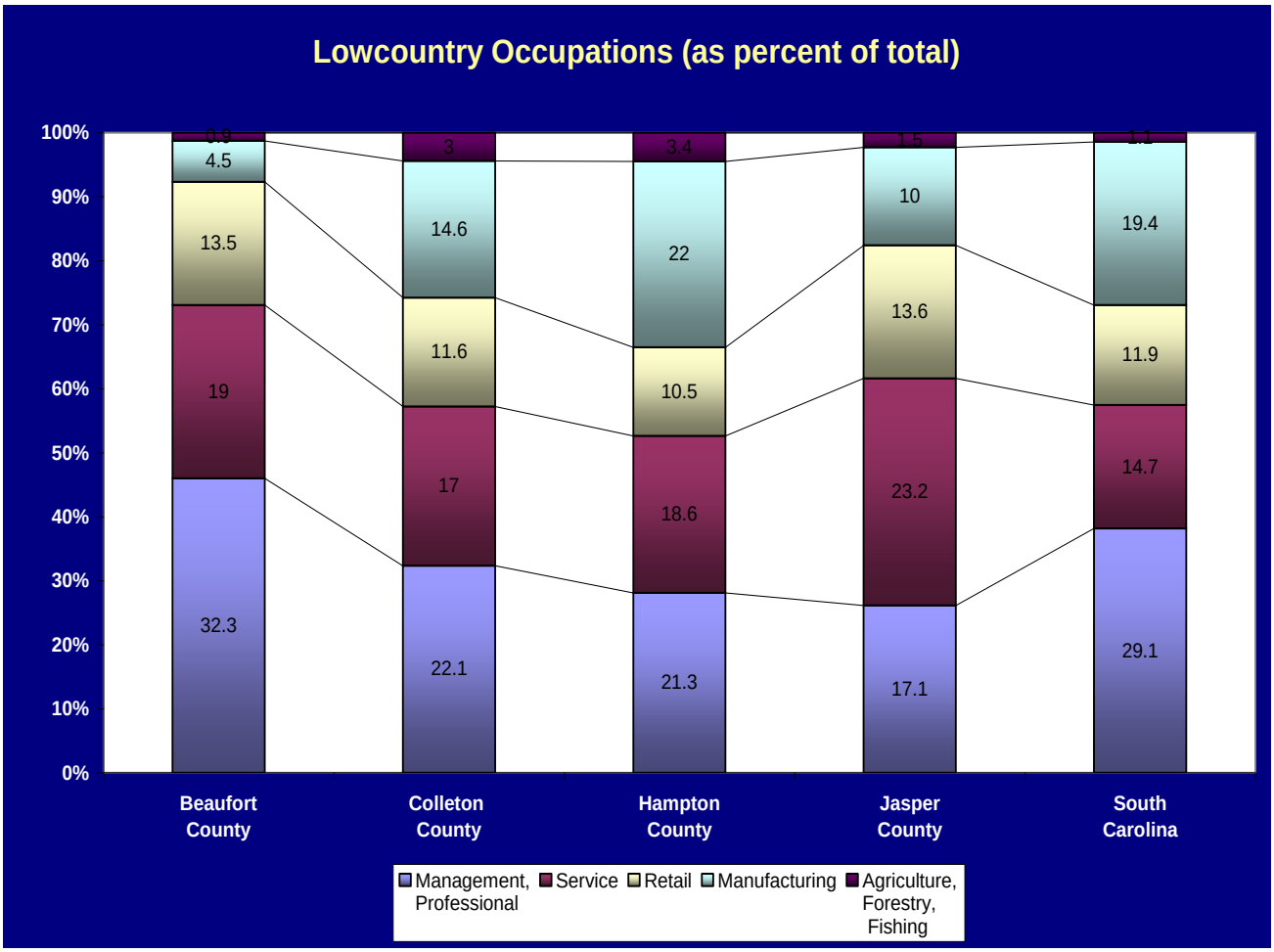
Lowcountry Unemployment Rates

	April, 2002	April, 2003	April, 2004
Beaufort County	2.3	2.5	3
Colleton County	5.4	6.7	7.2
Hampton County	7.1	9	9.2
Jasper County	4.1	4.6	4.8
South Carolina	5.8	6.1	6.7
United States	6	6	5.6

Again, though, the data can appear misleading. For instance, Beaufort's very low rate does not show such problems as underemployment and the concentration of jobs in low-paying service and retail positions. A breakdown of several types of jobs by county, and compared to the state, is in Figure 1 on the following page.

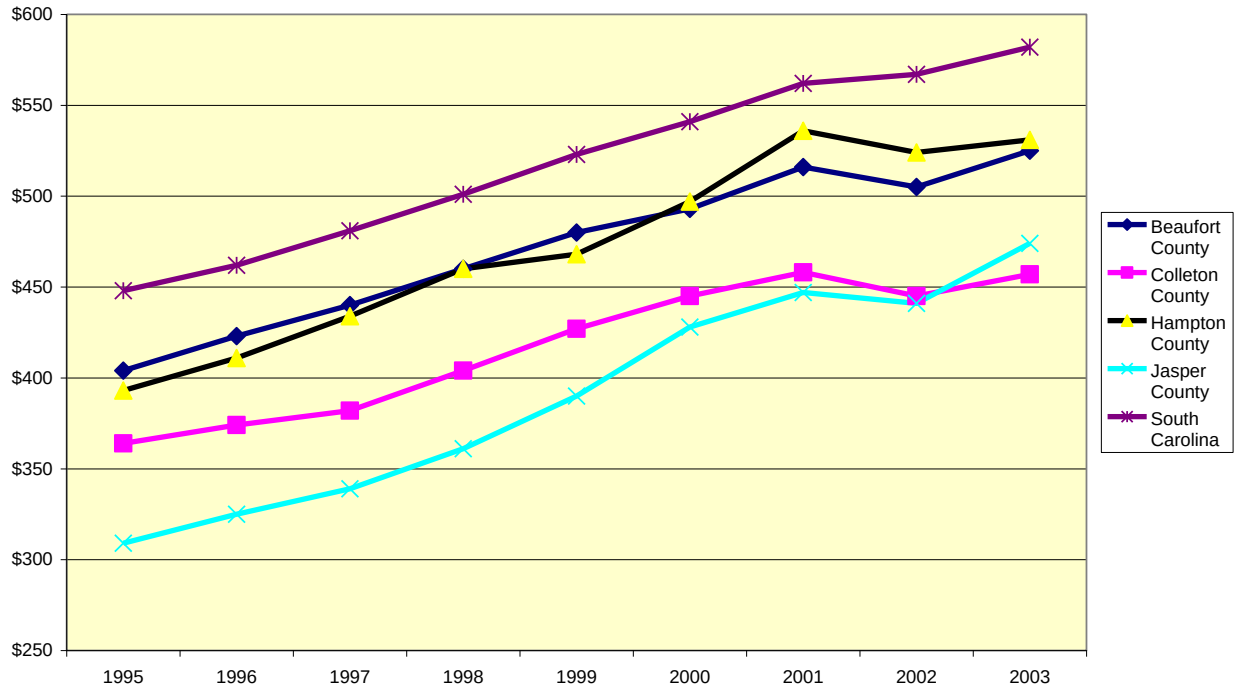
Figure 1

Percent of Employed Population in Selected Occupations



This is reflected in average weekly wages, shown in Figure 2, on the following page.

Figure 2
Lowcountry Weekly Wages



Economic Impact of MCAS Beaufort

<u>Summary for All Three Facilities (MCAS Beaufort, MCRD Parris Island, Beaufort Naval Hospital)</u>

- The Department of Defense is the **2nd largest employer** in Beaufort County (second to the education system)
- The average civilian employed at a base in Beaufort makes **40% more** than their counterparts employed elsewhere and these jobs are recession-proof
- In 2003, the military contribution to local revenues from property, sales, public utilities, vehicle, and other taxes totaled more than **$1 million.**

Specific Impacts

As the second largest single employer in the region, the military accounts for approximately 14 percent of all jobs in the area, according to data from 2002.

Total Military Personnel	6,567
Civilians Employed on Bases	1,249
Total	**7,816**

If each of the above direct jobs accounts for approximately .5 additional jobs (a generally accepted, but low, spin-off ratio) in the region's service sectors (ranging from medical to legal to retail), the military provides an additional 3900 indirect jobs in the area.

The Air Station accounts for 64 percent of the military personnel and, overall, 60 percent of the military's total economic contribution to the area, according to an analysis completed for the Greater Beaufort Chamber of Commerce by Georgia Southern University.

Of considerable significance in a region where the average weekly wage is notably below the state average (see Figure 2 on the previous page). In 2003 the South Carolina average was $582/week, compared to $525 in Beaufort County, $457 in Colleton, $531 in Hampton and $474 in Jasper. Wages and salaries paid to civilians and contractor staffs working at the military installations have been estimated to average at least $200/week higher than the Beaufort County average. Base closure would have the net effect of further depressing the average weekly wages for Beaufort County and the rest of the Lowcountry region.

The combined payrolls, plus contracts and other budget expenditures, at the Air Station, Parris Island and the Naval Hospital provide a large financial contribution to the region. 2002 data show the following:

Military Payroll	$212,947,222
Civilian Payroll	49,222,740
Contracts	62,975,727
Budget (Non-Payroll)	78,581,721
TOTAL	**$403,727,410**

Using the 60 percent ratio, the air station's annual financial contribution is more than $240,000,000.

To measure the impact, during 2003 the Chamber of Commerce contracted with Georgia Southern University to use the REMI regional economic development model to estimate the consequences of closing all three military facilities in the Beaufort area. Among the conclusions were:

- In the first year Gross Regional Product (GRP) would fall by $201.2 million; using the 60 percent figure, if only MCAS Beaufort were closed, the Gross Regional Product would shrink by more than $120 million.
- After 17 years real GRP would still be below the projected level with no closures by $132.8 million;
- In addition to the more than 6500 military jobs and 1250 civilian jobs lost, total employment in the region would fall by another 3500 jobs in the first year. **This represents a total job loss of at least 11,250 jobs during the first year after closure,** or more than 18 percent of Beaufort County's total 2004 labor force and about 12 percent of the Lowcountry labor force. If only MCAS Beaufort were closed approximately 6800 jobs would be lost.

Chapter 4. MCAS Beaufort AICUZ Plan

The noise contours and Accident Potential Zones (APZs) presented in the 2003 AICUZ Plan were based on actual 2000 flight operations (all takeoffs and landings) that were projected through the calendar year 2007.

Objectives for an AICUZ Plan

The MCAS Beaufort AICUZ Plan fulfilled two key functions. By assessing current operations it delineated noise contours and accident potential zones to provide a geographic basis for the JLUS plan. At the same time, based on research done by both military and civilian organizations it recommended a strategy for community land uses that would be compatible with:

- airfield operations
- noise levels
- accident potential zones,
- flight clearance requirements.

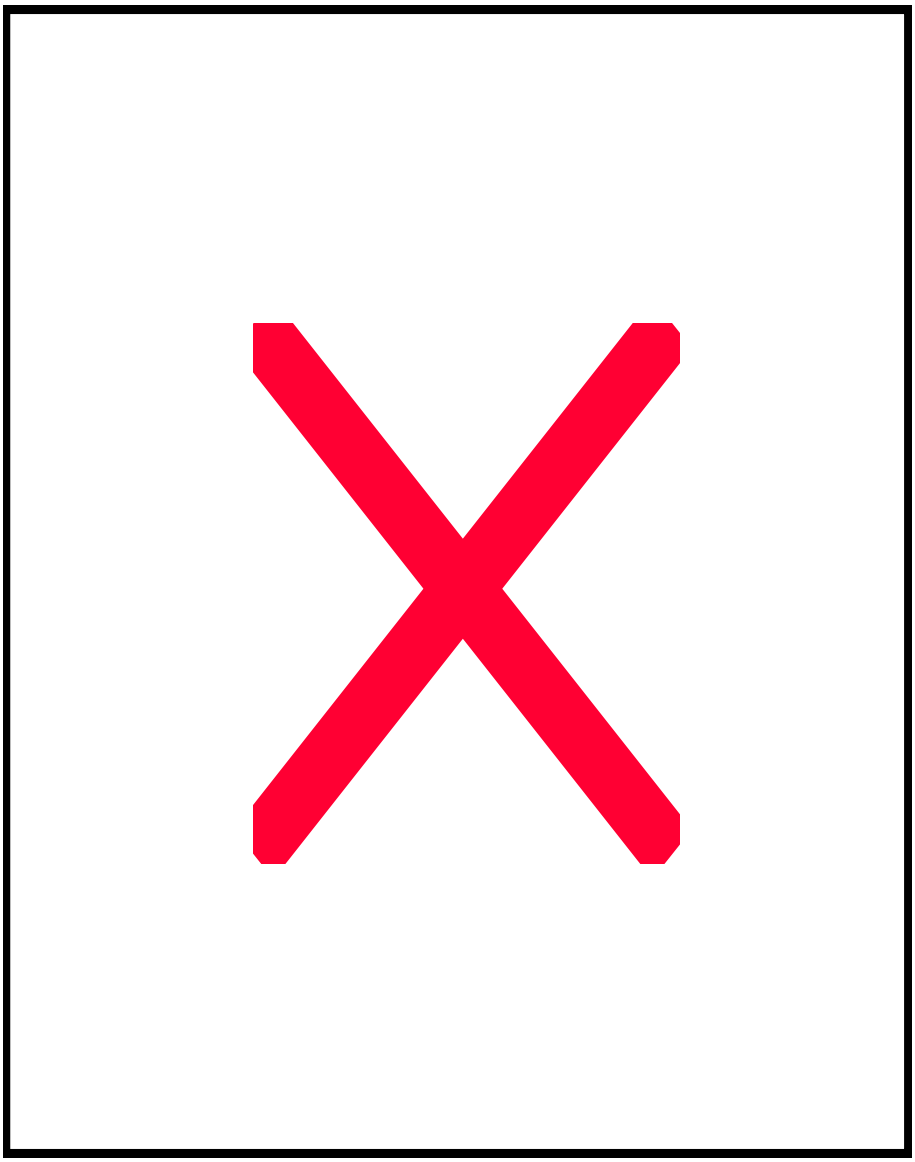
Noise Contours

MCAS Beaufort operations noise levels were calculated scientifically by a specialist consulting firm engaged by the Department of the Navy. The measuring equipment was placed in locations identified by members of the JLUS Technical Committee in 2001, and data was gathered over time. The results, as shown on Map 1 on the following page, are called Day-Night Levels (DNL) and represent the average for a 24-hour period. The calculations include a 10-decibel "penalty" for operations taking place after 10 p.m. when there is less ambient noise and when people tend to be in their homes engaged in quiet activities such as sleeping, reading and watching television.

Because of the changes in flight operations since the 1994 AICUZ was completed, less land area is covered in the 2003 AICUZ than in the previous version. This is shown on Map 2.

The largest portion of the land within the noise contours lies within unincorporated Beaufort County; the remainder is in the City of Beaufort.

MCAS Beaufort
Aircraft Noise Zones



MAP 1

2000 Noise Contours

Zone 1.	**Less than 65 decibels DNL**
Zone 2a.	**65 to 70 decibels DNL**
Zone 2b.	**70 to 75 decibels DNL**
Zone 3.	**Greater than 75 decibels DNL**

MAP 2

Comparison between 1994 and 2000 Noise Contours

Accident Potential Zones (APZs)

The DoD has identified APZs as areas where an aircraft accident is most likely to occur if one occurs. They do not reflect the probability of an accident. APZs follow departure, arrival and pattern flight tracks and are based upon analysis of historical data.

There are three safety zones:

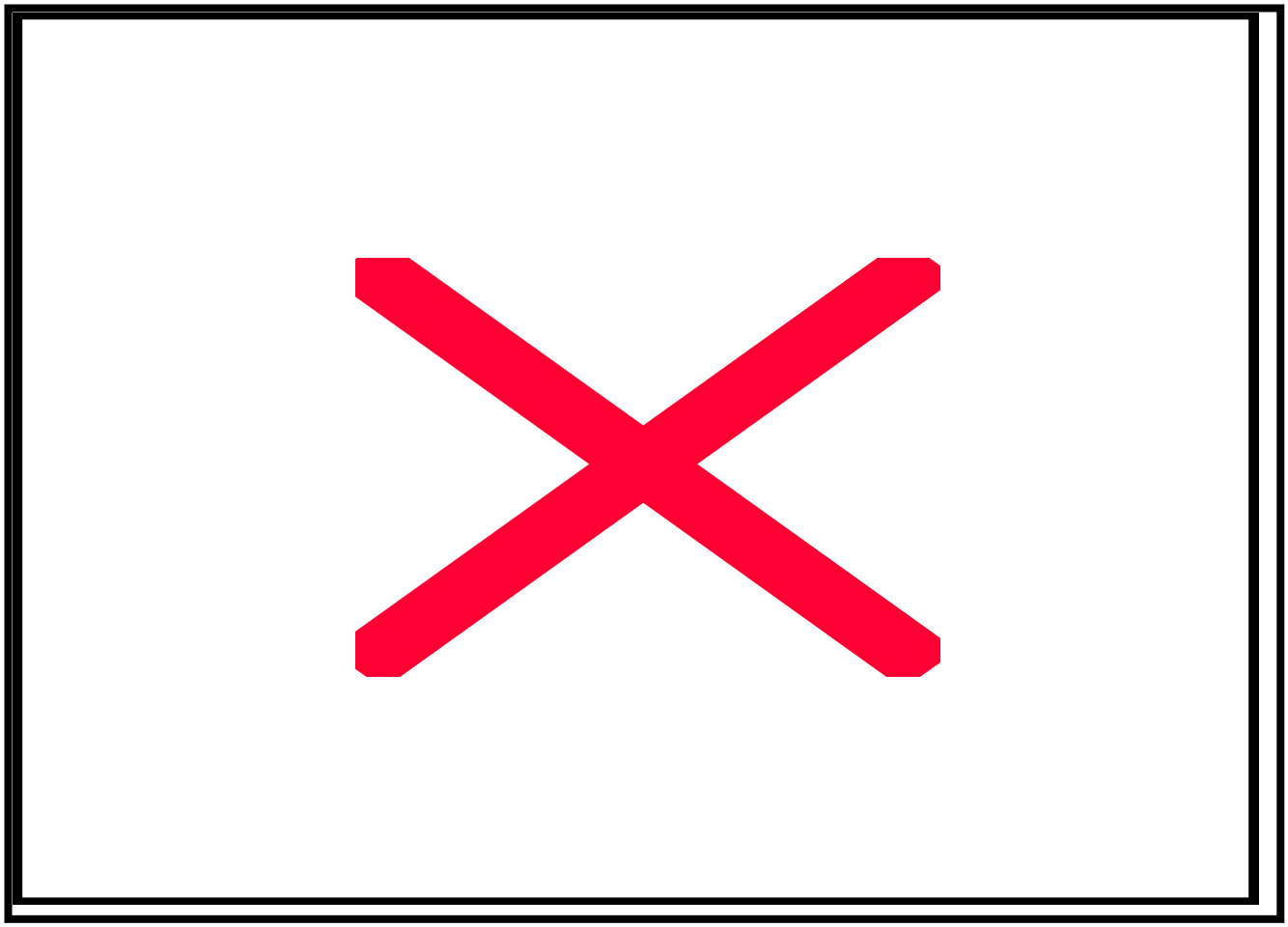
- *Clear Zone.* Extends 3000 feet immediately beyond the runway and has the highest potential for accidents.
- *APZ 1.* Extends 5000 feet beyond the Clear Zone, with a width of 3000 feet.
- *APZ 2.* Extends 7000 feet beyond APZ 1, with a width of 3000 feet.

The following map (Map 3) delineates the updated APZ's. Map 4 shows that less land area is now utilized for APZ's than in 1994.

A key indicator of aircraft safety is the number of Class A aircraft mishaps that occur at an airfield. Class A mishaps generally are considered to be those associated with a loss of life, loss of an aircraft or with damage in excess of $1 million.

During the 20 years between 1980 and 2000 there were a total of eight Class A mishaps in the vicinity of MCAS Beaufort, none of which took place within 10 nautical miles of the air station. However, during the summer of 2004 a mishap involving a fatality occurred on a runway at MCAS Beaufort.

MCAS Beaufort
Aircraft Accident Potential Zones



MAP 3

MAP 4

COMPARISON BETWEEN 1994 AND 2000 APZs

Land Use and AICUZ

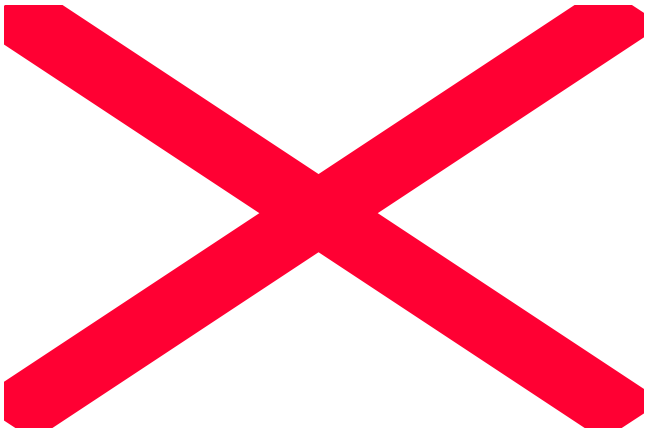
Based on the noise and safety considerations discussed in this document, the MCAS Beaufort AICUZ Plan contains land use recommendations that are divided into those related to noise contours and those related to APZs. They apply to the entire area contained within those defined boundaries. Because they are not attached to specific parcels of land or particular sections of the community they do not and will not interfere with the existing land use designations of Beaufort County or the City of Beaufort.

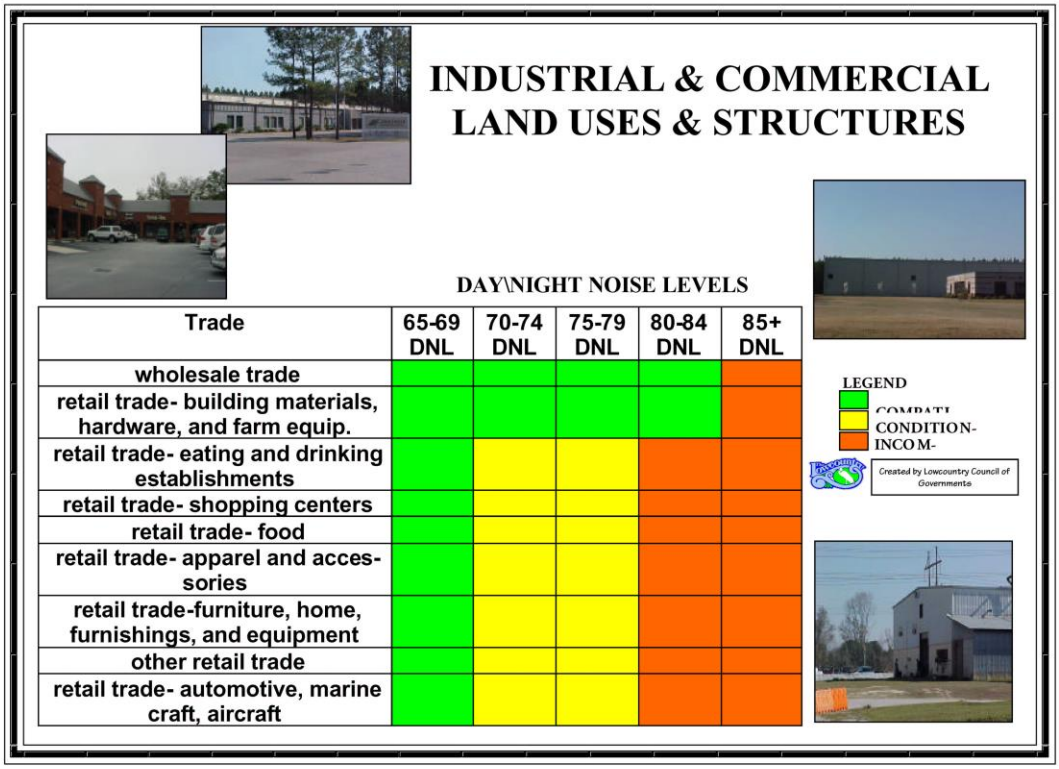
The goal is to encourage land uses that are compatible with the operations of MCAS Beaufort. In relation to the air station, incompatible uses are those which:

- Are noise sensitive--if they are located in Noise Zones 2 or 3;
- Involve a high concentration of people--if they are in any of the Accident Potential Zones;
- Interfere with safe air operations.

The Department of the Navy has prepared a detailed and comprehensive list of suggested compatible land uses for both noise zones and APZs, by classification. Those tables are included as Appendix D of this document.

To illustrate what this means, the following pages are graphic interpretations of selected portions of that table follow. For residential uses the figures demonstrate the impact on compatibility of structural changes to reduce the impact of noise; in Chapter 6 noise attenuation measures are discussed.





Trade	65-69 DNL	70-74 DNL	75-79 DNL	80-84 DNL	85+ DNL
wholesale trade					
retail trade- building materials, hardware, and farm equip.					
retail trade- eating and drinking establishments					
retail trade- shopping centers					
retail trade- food					
retail trade- apparel and acces-sories					
retail trade-furniture, home, furnishings, and equipment					
other retail trade					
retail trade- automotive, marine craft, aircraft					

AICUZ Disclosure and Real Estate Transactions

No matter what land use designation a property carries, whether it is located within a noise or accident zone can have a material impact upon the present and future value of the land. It is essential that present and future owners of real property know not only where the AICUZ boundaries are but the implications of being located within those borders.

South Carolina is one of the relatively few states where the disclosure of AICUZ boundaries is required as part of real estate sales transactions. This means that when a buyer is signing a contract for the purchase of real property, he/she/they must be informed as to whether or not the subject land and/or structure is located within the boundaries of either outlined noise contours or Accident Potential Zones. At that point the purchaser is required to sign a document attesting to the disclosure. The form presently utilized by the Beaufort County Association of Realtors® took its wording from the relevant section of the Beaufort County Comprehensive Plan. A copy of it follows this page.

In practice the disclosure process often provides relatively little information to the purchaser because neither real estate agents nor legal staffs may actually have much information themselves. Also, anecdotal evidence from purchasers continues to show that in the rush and confusion of signing the many forms involved in a real estate purchase, even well-informed buyers do not remember signing disclosure statements and/or do not understand what "AICUZ Disclosure" may mean to them.

As a result, improvements to the process are needed, particularly in the areas of information and education.

AICUZ DISCLOSURE STATEMENT FORM

No person shall sell any property within the airport hazard area unless the prospective buyer has been given the following notice.

To_____

The property at _____ (address/location) is located within the airport hazard area of _____ airport. Beaufort County has determined that persons on the premises will be exposed to significant noise level and accident potentials as a result of the airport operations. The County has established certain noise zones and accident potential zones (APZs).

The above property is located in Airport Zone_____ and in Accident Potential Zone_____ and Airport Environs Area_____.

The County has placed certain restrictions on the development and use of property within airport environ areas. Before purchasing the above property, you should consult the Beaufort County Development Administrator to determine the restrictions which have been placed on the subject property.

CERTIFICATION

As the owner of the subject property, I hereby certify that I have informed_____, as a prospective purchaser, that the subject property is located in an airport hazard area.

Dated _____ day of _____, 20 ____

Witness _____, Owner _____

As a prospective purchaser of the subject property, I hereby certify that I have been informed that the subject property is in an airport hazard area, and I have consulted the Beaufort County Development Administrator to determine the restrictions which have been placed on the subject property.

Dated _____ day of _____, 20 ____

Witness _____, Purchaser _____

The AICUZ Disclosure requirement is mandated by the Beaufort County DSO Section 4.17.10.1.

This section requires written disclosure by the seller to the purchaser as to any property lying within the Air Installations Compatible Use Zones; and as such are updated from time to time by the Marine Corps Air Station and the County.

Chapter 5. Meeting Land Use Compatibility Goals

MCAS Beaufort JLUS Land Use Compatibility Goals

The Policy and Technical Committees (see Appendix B for membership) have developed the following objectives:

1. To maintain a balance among:
    a. Property ownership interests in existing land uses, activities and structure
    b. Property ownership interests in future uses, activities and structures
    c. Protection of public, community and military interests;
2. To support future land use compatibility;
3. To discourage further land use incompatibility;
4. Over time to mitigate existing land use incompatibility if and where feasible.

Most of these goals can be met through the land use planning process of local governments. Land use designations, and/or redesignations, within the Comprehensive Plans of Beaufort County, the City of Beaufort and the Town of Port Royal, accompanied by corresponding changes to the county and municipal zoning ordinances will be the basic tools for accomplishing these goals. To be fair to all citizens who already own property where incompatible land uses exist, the specific zoning approach termed "legal nonconforming use," which is also referred to as "grandfathering" will be utilized. Not only is "grandfathering" a legal instrument but it will also reassure existing landowners and residents that their present and future rights are protected.

Land Use Planning

Beaufort County, the City of Beaufort and the Town of Port Royal all follow the procedures for planning outlined in the *1994 South Carolina Local Government Comprehensive Planning Enabling Act* which charges local governments with the responsibility for planning through each jurisdiction's planning commission.

Comprehensive Plans and Zoning Ordinances

The Planning Commission must establish and maintain a planning process that results in the systematic preparation, continuing evaluation and updating of a Comprehensive Plan (*S.C. Code Section 6-29-510 (A)).* The Act mandates that the Comprehensive Plan elements must be re-evaluated at least every five years and all elements updated at least every ten years. Although

not formally specified in the legislation, between those times plans can be updated as required by means of amendment.

All comprehensive plans are required to address seven specific topics that include the following:

1. Population
2. Natural Resources
3. Cultural Resources
4. The Economy
5. Community Facilities and Services
6. Housing
7. Land Use

The legislation further states that "All planning elements must be an expression of the planning commission to the appropriate governing bodies with regard to the wise and efficient use of public funds, the future growth, development, and redevelopment of its area of jurisdiction and consideration of the fiscal impact on property owners.

The legislation says that "Zoning ordinances must be for the general purposes of guiding development in accordance with existing and future needs and promoting the public health, safety, morals, convenience, order, appearance, prosperity, and general welfare." The zoning ordinance is used to implement the comprehensive plan, and is used to regulate the use of buildings, structures and land.

Beaufort County, the City of Beaufort and the Town of Port Royal have recently completed thorough reviews and updates of their comprehensive plans and implementing ordinances. The County and the City both have newly updated Airport Overlay Districts that have been approved by their planning commissions; land in the Town is not yet impacted by the AICUZ. Beaufort County has general policies, awaiting the completion of the JLUS Plan, and the City of Beaufort has a special section of its zoning ordinance that deals with the land included in the AICUZ area. The City completed that part of the ordinance after the annexation of MCAS Beaufort and the surrounding area.

To implement the recommendations of JLUS Plan, contained in Chapter 7 of this document, the three local governments have agreed to work together to develop a coordinated "AICUZ Overlay" district for all affected land and incorporate it (and related land use policies) through amendments within their comprehensive plans, ordinances and related maps.

Legal Noncomforming Uses

The enabling legislation also covers "noncomformities." A legal noncomforming use is a use of land or structure which was legally established according to the applicable zoning and building laws of the time, but which does not meet current zoning and building regulations. A use or structure can become "legal nonconforming" due to rezoning or revisions to the jurisdiction's zoning and development ordinances. The intention is that the use or structure should become a conforming use.

Beaufort County, the City of Beaufort and the Town of Port Royal all provide for legal nonconforming uses within their zoning ordinances; the details vary somewhat from jurisdiction to jurisdiction. (See Table 2 on the following page). One of the recommendations in Chapter 7 is for all three jurisdictions to develop consistent policies and criteria for nonconforming uses and structures.

Nonconformities and Some Conditions for Converting to Conformity			
Condition	**City of Beaufort**	**Beaufort County**	**Town of Port Royal**
Change of Use	A nonconforming use shall not be changed to another nonconforming use.		A nonconforming use shall not be changed to another nonconforming use.
Abandonment	If a nonconforming structure or area of land is abandoned (more than 90 days), it cannot be reestablished except in conformity.	Abandonment by damage: Any partially destroyed nonconforming use shall be considered abandoned if substantial reconstruction of the damaged use has not been initiated within 180 days of the destruction date. Voluntary abandonment: Any use shall be considered abandoned if vacant or unused for 120 days. Abandoned uses shall only be replaced with conforming uses.	A nonconforming use shall not be re-used after discontinuance.
Extensions	A nonconforming use of land or building shall no be extended in such a way except in conformity. A nonconforming use may be extended throughout any parts of a building which were designed for such use at the time of UDO adoption, but no such use shall be extended to occupy any land outside such building.		
Repairs, Alterations, Maintenance	If the work costs more than 75% of the reasonable replacement value at the time of renovation, repair, or alteration, then the structure shall be brought into conformance.		A nonconforming use shall not be enlarged or altered in a way which increases its nonconformity.
Restoration of Damaged Structures/Damage	If a structure is damaged more than 50% of its reasonable replacement value, then it shall not be restored or reconstructed and used except in conformity (fire, flood, explosions, wind, earthquake, war, riot, or other act). All nonconforming uses must be terminated. This does not apply to any bona fide residence used for residential purposes.	Nonconforming uses with damage greater than 50 % of their market value shall be replaced by conforming uses, except as otherwise provided. A nonconforming single-family use may be continued following a fire or natural disaster so long as that use is resumed within one year and all applicable building codes are met.	Repaired, rebuilt, or altered after damage exceeding 60% of its replacement cost at the time of destruction. Reconstruction or repair, when legal, must begin within 6 months after damage is incurred. The provisions of this subsection shall not apply to any bona fide residence. If the estimated cost exceeds 60% of the fair market value of the structure, then the structure shall be considered demolished and vacated.
Reconstruction	A nonconforming structure shall not be demolished and rebuilt as a nonconforming structure.		

Table 2

Legal Nonconforming Uses

Chapter 6. Noise Attenuation Measures

As the illustrated charts that follow Chapter 4 (The AICUZ Plan) show, it is possible to make existing structures compatible by means of noise attenuation measures, or structural improvements including increased insulation, better windows and airtight exterior walls.

This can be accomplished by means of changes to and enforcement of the local building codes.

New Construction

At the present time all three JLUS jurisdictions utilize the IRC 2000 building code, which is considered quite stringent in its requirements for all new construction (including additions to existing structures). As a result, the additional measures, and therefore associated costs, required to make single-family residential units compatible will not add major costs to new homes.

The director of Beaufort County's Buildings Department, compared the generally accepted standards for reducing sound by 25 and by 35 decibels (dB) within homes with the existing building code.

It was concluded that the 2000 IRC building requirements meet or exceed the specifications needed to achieve a 25 dB noise reduction level, provided the items listed below are included in the design and construction.

1. Window and/or through the wall ventilation units are not used.

2. Through the wall/door mailboxes are not used.

3. All glass used is at least be 3/16" thick.

4. The total area of glass in both windows and doors in sleeping spaces does not exceed 20% of the floor area.

5. Openings to crawl spaces below the floor of the lowest occupied rooms do not exceed 2% of the floor area of the occupied rooms.

6. All vent ducts connecting the interior space to the outdoors, except domestic range ducts, contain at least a 5' length of internal sound absorbing duct lining.

7. Methods for "Noise and vibration control in residential HVAC systems" contained in the "AICUZ and Land Use Compatibility Plan" are used.

8. Exterior walls = STC – 28 (Laboratory Sound Transmission Class Rating)

The additional cost to achieve these noise reduction levels will be minimal because most of the requirements are covered in the IRC 2000 building code. Beaufort County's Buildings department director states, "If I were to assign a dollar value it would be less than $1000.00 for a 1300 square foot home." This does not include manufactured homes.

To accomplish a reduction of 35dB, the following items shall be added to or shall amend those listed to accomplish a noise reduction level of 25dB:

1. Operational vented fireplaces shall not be used.
2. Sleeping areas shall be provided with either a sound absorbing ceiling or a carpeted floor.
3. No glass or plastic skylights shall be used.
4. All windows shall have ¾" air gap between glass panels.
5. Exterior walls = STC-49
6. Methods for "Noise and vibration control in residential HVAC systems" contained in the "AICUZ and Land Use Compatibility Plan" are used.

Retrofitting Existing Homes

The noise attenuation measures discussed above may be considered relatively inexpensive for new homebuilders and purchasers. For individuals or households with low or moderate incomes the costs to install noise attenuation measures may be prohibitive. In community meetings the question of whether there were any government programs to pay for, or at least assist in, making existing homes compatible by means of these physical improvements was raised a number of times (see Appendix D). Preliminary research showed that there is not a specific assistance program available to fund noise attenuation measures for existing structures. However, there are several potential programs that might be used for this purpose, assuming certain conditions are met. Appendix E provides a preliminary listing and brief description of these programs and their criteria/requirements.

Chapter 7. Recommendations

As the result of a combination of research into what other jurisdictions have done, what local governments and other organizations are already doing here, constructive suggestions from the community and the advice of the Policy and Technical committees, the following recommendations have been developed. Because the usefulness and, ultimately, the success of this plan will depend on whether its recommendations become reality, the emphasis throughout the preparation and review of several drafts has been on implementation. Chapter 8 outlines the implementation process.

NOTE: Responsibility for **i**mplementation follows each recommendation in *italics.*

Continue Specific Existing Practices and Policies, with the Following Improvements:

1. Improve the existing community relations and education program to ensure that citizens of affected areas are kept informed through direct contact about the changes that may result from the implementation of the JLUS Plan.
   JLUS Implementation Committee

2. Enhance and standardize the AICUZ disclosure process in all real estate transactions for both sale/purchase and rental/lease. Improvements should include but not be limited to:
   - The disclosure statement should include a map showing both the AICUZ boundaries and the location of the subject property. The purchaser or lessee should sign a statement that he/she understands not only that the specific property/home is in the AICUZ footprint but exactly where it is located within those zones.
   - The MLS listing form should use an easily-recognizable icon to identify properties within AICUZ boundaries;
   - The Beaufort County Real Estate Association web site will have a link to the Beaufort County, JLUS and AICUZ web sites for easy access to more detailed information;
   - Notice should be required prior to the signing or the acceptance of a contract for either sale or rent/lease of real property;
   - The disclosure process should be referenced in the appropriate sections of the zoning and development ordinances of Beaufort County, City of Beaufort and the Town of Port Royal.
   - A brochure explaining the function and goals of AICUZ should be provided as part of the disclosure process;
   - An information and education program about AICUZ should be provided for Beaufort area real estate agents and real estate lawyers and paralegals.

   Beaufort County Association of Realtors, SC Bar Association, Beaufort County, City of Beaufort, Town of Port Royal, Lowcountry Council of Governments (LCOG), Beaufort County Legislative Delegation

3. Maintain a user-friendly and regularly-updated website with information about AICUZ and JLUS and their implementation; ensure that information and recommendations are regularly updated. The site will be linked to those of Beaufort County, the City of Beaufort and the Town of Port Royal and the AICUZ site.
LCOG, Beaufort County, City of Beaufort, Town of Port Royal

4. Maintain the dissemination of information about JLUS and its implementation through ongoing media relations.
LCOG

5. Continue the present co-operative course of action among MCAS Beaufort, Beaufort County, the Rural and Critical Lands Board and property owners to acquire strategic properties or the development rights for those properties within the AICUZ footprint. Ensure that information about completed purchases is made available to the public by means of news releases and web site postings..
MCAS Beaufort

6. Provide frequent and updated information, including the schedules of aircraft training and other operations, to local media and also post on relevant web sites linked to the MCAS Beaufort site.
MCAS Beaufort

7. Continue to develop and implement noise abatement measures for MCAS Beaufort operations. Pursue measures and construction techniques that decrease ground-generated noise. Review air traffic routes, rules and policies. Keep the community informed through direct contact and media releases about measures taken and improvements made.
MCAS Beaufort

Initiate and Implement the Following Practices and Policies:

1. Develop a coordinated "AICUZ Overlay" district for all affected land and incorporate it within the ordinances and related maps of Beaufort County, City of Beaufort and Town of Port Royal:
    - Modify existing comprehensive plans, zoning ordinances, building codes and other plans and regulatory documents to ensure that future development and redevelopment is compatible with the land uses in Appendix B, *Air Installations Compatible Use Zones Report for Marine Corps Air Station Beaufort, South Carolina* (2003) and that appropriate height and density standards are adopted.
    - Coordinate the modifications among the jurisdictions to ensure that there is a consistent approach and to prevent future land use/zoning "jurisdiction shopping" by developers and builders.
    - Prevent the development of new Mobile Home Parks in the AICUZ Overlay district.

    JLUS Technical Committee to review ordinances and make recommendations, Beaufort County, City of Beaufort, Town of Port Royal

2. Ensure that existing land uses and structures can continue as "legal nonconforming uses." To protect present owners while moving to converting uses and structures to compatibility, a uniform approach should be adopted by all three jurisdictions. Consistent regulations in the "nonconforming" sections of ordinances will cover issues including but not limited to: Damage to structure, Change of Ownership, Abandonment, Repairs and Renovations.
Beaufort County, City of Beaufort, Town of Port Royal

3. Encourage existing property owners to do what is necessary to make their structures compatible (for example, adding recommended windows and levels of insulation to single family homes) and to minimize hardship for lower income residents, tax credit and other direct and/or indirect assistance measures should be included as part of JLUS implementation.
JLUS Implementation Committee

4. Establish an Advisory Committee of AICUZ area residents to ensure that their concerns and suggestions are incorporated in ongoing JLUS planning and implementation. Committee members should also act as liaisons within their neighborhoods and facilitating two-way communications. Meetings will be scheduled to be convenient to the majority of members.
JLUS Implementation Committee

5. Incorporate additional noise attenuation measures, as outlined in Chapter 6, needed to reduce noise into the existing uniform building code for new construction used by local jurisdictions.
Beaufort County, City of Beaufort, Town of Port Royal

6. Work with local construction and development organizations to ensure that builders and relevant skilled trades are familiar with the noise attenuation measures, how to incorporate them in a cost-effective manner and how to market them as a benefit to clients and prospective clients.
Home Builders Association of the Lowcountry, Building Departments of Beaufort County, City of Beaufort, Town of Port Royal

7. All organizations and individuals in the pre-planning phase of development of subdivisions and other large-scale developments in the AICUZ Overlay district will be referred to MCAS Beaufort's Community Plans and Liaison office for consultation and advisement to ensure that AICUZ-compatible land uses are incorporated in the appropriate locations of subdivisions and other large-scale new developments and redevelopments. This requirement should be referenced in the appropriate sections of the zoning and development ordinances of Beaufort County, City of Beaufort and the Town of Port Royal and also be made part of the "check lists" for developers.
Beaufort County, City of Beaufort, Town of Port Royal, MCAS Beaufort

8. Work with lending institutions to ensure that lending policies and practices are appropriate for APZ and Noise Zones.
JLUS Implementation Committee

9. Monitor growth and change in Beaufort County and at MCAS Beaufort, determine whether those changes significantly impact AICUZ boundaries and JLUS policies and practices and modify the JLUS plan accordingly.
JLUS Implementation Committee

10. Establish a JLUS Implementation Committee (comprised of members of the existing Technical Advisory committee) to monitor and guide the implementation of the above JLUS policies.
JLUS Implementation Committee

11. Utilize the provisions of the recently enacted South Carolina legislation to protect military installations from encroachment.
Beaufort County, City of Beaufort, Town of Port Royal

8. Implementing the *Lowcountry JLUS Plan*

The true value of any plan is determined by whether and how expediently it is implemented. Throughout the process of developing the *Lowcountry JLUS Plan* the Policy and Technical committees have been very conscious of the need to be able to move from policy to action as quickly as possible.

Establishing an "Implementation Committee" is the first step. It is included in the JLUS Recommendations in Chapter 7, which were endorsed by the Policy Committee at the meeting on Monday, August 16, 2004. The committee will be made up of the members of the present Technical Committee and will report regularly (on a bi-monthly or quarterly basis) to the Steering Committee. The immediate next stage, which is already underway, is the endorsement of those recommendations by the Councils of Beaufort County, the City of Beaufort and the Town of Port Royal. It is expected that this will be completed before the end of October 2004.

Recommendation-based tasks, their estimated/approximate deadline and which organization will have the responsibility of coordinating implementation are outlined in the following table (Table 2). This represents a preliminary schedule and is subject to change.

Table 2

JLUS Plan Implementation

Task	Start	Estimated Completion	Coordinating Organization
Continue and improve the existing community relations and education program	November-04	Ongoing	Implementation Committee
Enhance the AICUZ real estate disclosure process	October-04	April-05 and then ongoing	Implementation Committee and Real Estate Association
Maintain a user-friendly and regularly-updated website	Ongoing	Ongoing	LCOG
Maintain the dissemination of information through media relations.	Ongoing	Ongoing	LCOG
Continue the present co-operative course of action to acquire strategic properties within AICUZ footprint, or their development rights	Ongoing	Ongoing	MCAS Beaufort
Provide frequent and updated information, including the schedules of aircraft training and other operations, to local media and also post on relevant web sites.	Ongoing	Ongoing	MCAS Beaufort
Continue to develop and implement noise abatement measures for MCAS Beaufort operations.	Ongoing	Ongoing	MCAS Beaufort
Develop a coordinated "AICUZ Overlay" district and incorporate it within the ordinances and related maps of Beaufort County, City of Beaufort and Town of Port Royal:	October-04	March-05	Implementation Committee
Ensure that existing land uses and structures can continue as "legal nonconforming uses." Consistent standards at all three jurisdictions.	October-04	March-05	Implementation Committee
Encourage existing property owners to make their structures compatible	November-04	May-05 and then ongoing	County, City and Town Building Departments
Identify, coordinate and inform property owners about tax credit and other direct and/or indirect assistance measures available for above improvements.	November-04	February-05 and then ongoing	LCOG
Establish an Advisory Committee of AICUZ area residents	January-04	Ongoing	Implementation Committee
Incorporate additional noise attenuation measures, needed to reduce noise, into the existing uniform building code	January-04	April-04	County, City and Town Building Departments
Work with local construction and development organizations to ensure that builders are familiar with noise attenuation measures and how to incorporate them in a cost-effective manner and to market them as a benefit.	December-04	May-05 and then ongoing	Implementation Committee and Homebuilders Association

Task	Start	Estimated Completion	Coordinating Organization
Developers in the pre-planning phase of subdivisions and other large-scale developments in AICUZ Overlay district work with MCAS Beaufort's Community Plans and Liaison Office to ensure that AICUZ-compatible land uses are incorporated in the appropriate locations	October-04	Ongoing	MCAS Beaufort
Work with lending institutions to ensure that lending policies and practices are appropriate for APZ and Noise Zones.	November-04	Ongoing	Implementation Committee
Monitor growth and change in Beaufort County and at MCAS Beaufort, determine whether those changes significantly impact AICUZ boundaries and JLUS policies and practices and modify the JLUS plan accordingly.	Ongoing	Ongoing	LCOG and Implementation Committee

Table 2

JLUS Plan Implementation

Appendix A

Committee Membership and Meetings

JLUS Policy Committee—Voting Members

Mr. W. R. "Skeet" Von Harten
Vice Chairman, Beaufort County Council

Mayor Bill Rauch
City of Beaufort

Mayor Samuel E. Murray
Town of Port Royal

Mr. James M. Outlaw
Board of Directors, Lowcountry Council of Governments

Col. Harmon Stockwell
Commanding Officer, MCAS Beaufort

Mr. John Leigh
Office of Economic Adjustment, Department of Defense

JLUS Policy Committee—Ex Officio Members

Mr. Chris Bickley
Executive Director, Lowcountry Council of Governments

Mr. William Ladson
Beaufort County Council

Mr. Brad Samuel
SCANA Corporation

Ms. Donnie Ann Beer
Mayor *Pro Tem*, City of Beaufort

Mr. Reed Armstrong
S.C. Coastal Conservation League

Ms. Ginnie Kozak
Planning Director, Lowcountry Council of Governments

JLUS Technical Advisory Committee—Participating Members

Libby Anderson, Planning Director, City of Beaufort

Tony Criscitello, Planning Director, Beaufort County

Delores Frazier, Assistant Planning Director, Beaufort County

Linda Bridges, Planning Administrator, Town of Port Royal

Rocky Browder, SCDHEC

Ashley Demosthenes, The Nature Conservancy

Joe Hamilton, The Nature Conservancy

Dean Moss, Executive Director, Beaufort-Jasper Water & Sewer Authority

Colin Kinton, Transportation Planner, Beaufort County

Jimmy Boozer, President and CEO, MCAS Beaufort Credit Union

Eric Lowman, Vice President, BB&T

Jan Malinowski, Executive Vice President, Palmetto State Bank

Bob Semmler, Military Enhancement Committee

Jeanne Wood, Executive Director, Beaufort County Association of Realtors

Bruce Jackson, Public Works, MCAS Beaufort

Lt. Col. Don Noonan, Community Plans and Liaison Office, MCAS Beaufort

Ginnie Kozak, Planning Director, Lowcountry Council of Governments

Meeting Schedule

Policy Committee meetings were held at 10:30 a.m. on the third Monday of every month from May 2003 until September 2004 in the Beaufort County Library in downtown Beaufort.

Technical Advisory Committee meetings were held at 1:30 p.m. on the third Monday of every month from May 2003 until August 2004 in the Beaufort County Library in downtown Beaufort.

Appendix B

Community Information and Participation Process

Introduction

The community information and participation process for the JLUS had three components, in addition to the Policy and Technical committees:

1. Media Coverage
2. An Interactive Website
3. Two Series of Community Meetings

Media Coverage

During the active phase of the Joint Land Use Study, during 2003 and 2004, more than six in-depth articles about the process, its objectives and the intended results appeared in the two local daily newspapers, the *Beaufort Gazette* and the *Carolina Morning News.* A partial listing of those articles is provided on the project website.

As well, the two newspapers provided information about upcoming committee meetings and community meetings before the scheduled events.

Website

During 2003 a project website was developed: www.lowcountryjlus.org It was designed with several objectives in mind:

- To provide basic information about the JLUS and the AICUZ;
- To provide an accessible schedule of meetings, both committee and community;
- To provide an interactive venue so the community could be involved without attending meetings.

It has been updated a number of times; this plan will be added to it as soon as is practicable with the endorsement of the Policy Committee. The site will continue to be maintained through the implementation of this plan.

Community Meetings

A total of six meetings were held, three in March of 2004 (March 16, 18, 24) and three in May (May 18, 20 and 25). They were held in locations to serve conveniently serve communities in or near the AICUZ: the Broomfield Community Center on Lady's Island, Broad River Elementary School in Burton and the Gray's Hill Community Center in Gray's Hill. The Planning Department of the Lowcountry Council of Governments was responsible for the meetings, with an observer from MCAS Beaufort present. Representatives from the County and the City were also present at all six meetings.

Prior to the meetings news releases were set to the two daily papers and to the local PBS television/radio station, which resulted in public announcements. Display ads also appeared twice each in the *Beaufort Gazette* before each series of meetings. The ad in the on-line version of the *Gazette* provided a link to the JLUS web site, where the community meetings were also announced. Posters and flyers were distributed in the communities and before the second set of meetings a personal letter was sent by the LCOG planning director to each person or couple that had attended the first meetings thanking them for their attendance; a flyer about the second series of meetings was attached, as well as a request that the flyer be shared with neighbors and friends in the community.

The first three meetings were for the purpose of discussing the JLUS process with members of the community; the second series was to present the draft recommendations which would be at the core of the JLUS plan. Both sets of meetings also included brief presentations by the Military Enhancement Committee about the economic impact of the Air Station on the local economy. Questions and comments for which answers could not be provided immediately were posted on the website in early April.

A total of 78 persons attended the meetings (a complete listing of those attending is available upon request), the majority of them at the final meeting on May 25 at Gray's Hill, which is the area immediately abutting MCAS Beaufort.

Except for the final meeting, the tone was generally positive. Several attendees admitted that the presentation had actually answered the questions that they had. The most frequently heard suggestion was that a remote landing field would solve the noise problems; the second most frequent was that planes should stay exactly within the flight patterns as appeared in the AICUZ maps.

The large attendance at the final meeting was partly the result of the organizing efforts of some unhappy people living in a residential subdivision that is very close to the Air Station and mostly within the noise contours. These attendees were not interested in the JLUS *per se*; they preferred to bring up old grievances, some of which dated back 15 or more years. However, several days after the meeting a number of Gray's Hill residents, some who had been at the meeting and some who had not (and who had only hearsay knowledge about JLUS and the draft recommendations) called to get the information that had not been heard at the meeting. As a result, a more positive sense about what the JLUS was trying to accomplish was developed. A further result was that the recommendations were amended to include the establishment of a residents' advisory committee for the implementation of the JLUS plan.

Appendix C

Noise Abatement/Flight Procedures, MCAS Beaufort, South Carolina

Paragraph 3007 Noise Abatement/Air Installations Compatible Use Zones.

- Aircraft shall not fly over the Town of Beaufort below 3,000 feet except when under radar control.
- Runway 05 is the preferred calm wind departure runway and Runway 23 is the preferred arrival runway. For noise abatement, the preferential runway usage shall be 05/23. This will be particularly pertinent during periods when night FCLPs are in progress. Calm winds are considered to be winds of eight knots or less.
- Unless otherwise directed by ATC, all pilots shall execute their departure or downwind turns to avoid flying over on-base housing at low altitudes.
- High-power turnups in excess of normal pre-take off checks are prohibited anywhere on the airfield except in the designated high-power turnup area and the hold short areas of Runways 14 and 23 during published airfield operating hours.
- Runway 32 arrivals shall be held to a minimum consistent with good operating practices and safety. Visual approaches, when weather criteria meets or exceeds that prescribed in paragraph 3004, shall be the primary recovery method for all classes of aircraft arriving runway 32 at MCAS Beaufort. This does not preclude ATC from honoring a pilot's request for a radar approach. The pilot's request should terminate in a full stop. Intentional preplanned multiple radar approaches to Runway 32 shall not be approved.

Additional procedures which directly or indirectly affect noise abatement include the following ASO P3710.2R citations:

- **Paragraph 1008, Hours of Operation.** MCAS Beaufort operates Monday through Thursday 7:00 a.m. to 11:00 p.m. local, Friday 7:00 a.m. to 6:00 p.m. local, Saturday 10:00 a.m. to 6:00 p.m. local, and Sunday 12:00 p.m. to 8:00 p.m. local. Closed Holidays. Written request for Holiday and/or extended operating hours should be forwarded to MCAS Beaufort Airfield Operations Officer seven days in advance of the desired date.
- **Paragraph 3001 (c).** All pre-takeoff high-power engine checks shall be done at the run-up area adjacent to the duty runway.
- **Paragraph 3002 (5).** To avoid overflying the Town of Beaufort, a left turn to a heading of 90 degrees within 1 DME of the Beaufort TACAN when departing Runway 14 is mandatory.
- **Paragraph 3002 (6).** Pilots shall not request clearance to perform unusual maneuvers within the airport traffic area if such maneuvers are not essential to the performance of the flight. ATC personnel are not permitted to approve a pilot's request, or to ask a pilot to perform these maneuvers, to include low passes, climbs at very steep angles, or any so-called "flat hatting" wherein a flight is conducted at a low altitude and/or high rate of speed for thrill purposes. Mission profiles which require uninterrupted (unrestricted) climbs to altitude should be coordinated through the Air Traffic Control Facility so that clearances may be obtained
- **Paragraph 3002 (7).** Unless otherwise approved, all classes of aircraft in reported VFR condition, regardless of type flight plan, shall maintain 1,000 feet until one mile beyond the departure end threshold to avoid inbound overhead traffic from the departure end threshold.
- **Paragraph 3011 (2) (a) Scheduling/Using Beaufort MOAs 1, 2, and 3 and W-74.**
  (1) Two days per month.
  (2) Four hours per day.
  (3) Daylight hours only.
- **Paragraph 3011 (2) (F) MOA Restrictions.**
  (3) Supersonic flight shall not be conducted.
  (4) Noise sensitive area shall be avoided.
  (5) Air combat maneuvering shall not be conducted.
- **Paragraph 3011 (2) (h) Restrictions/Exclusion Areas (Environmental).**
  (1) All airports within the Beaufort MOAs are uncontrolled with the exception of MCAS Beaufort and shall be avoided by at least 3 NM and 1,500 feet AGL. Hilton Head, which is uncontrolled, will be avoided by 7.5 NM and 3,000 feet AGL.
  (2) The following populated areas shall be overflown at a minimum of 2,000 feet AGL:
    a) Beaufort (including adjacent residential areas)
    b) Port Royal

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Noise Abatement/Flight Procedures, MCAS Beaufort, South Carolina

c) Yemassee

(3) The following resort developments shall be avoided by at least one NM and/or 3,000 feet AGL:
a) Edisto Beach and Edisto State Park
b) Hunting Island
c) Fripp Island
d) Hilton Head

(4) The Southern bald eagle nesting area in the vicinity of the Combahee River/Highway 17 bridge within a 2 NM radius is designated an exclusion area. The critical nesting period for the species is December and January, which precludes Beaufort MOA activation during these months.

(5) Bald eagle nest located at: Clarendon Plantation adjacent to Laurel Bay Family Housing. MCRD Parris Island and Jasper County on the Broad River east of Laurel Bay Family Housing.

- **Paragraph 3022, Quiet Hour Operations**. During published quiet hours all airfield movement will be limited. Emergency and PPR aircraft for full stop landing only. No take-offs, turnups, low approaches or taxiing will be authorized. Written requests for quiet hours will be forwarded to the Commanding Officer, MCAS Beaufort (Attention: Air Operations Officer). Requests must be received by Airfield Operations a minimum of five working days prior to the requested quiet hours. A quiet hour period should normally be limited to 45 minutes in duration to reduce impact on flight operations.

Other Actions

Construction of an aircraft acoustical enclosure (hush house) to reduce noise emissions associated with high power, in-aircraft engine maintenance is expected to be commenced in Fiscal Year 2003

Source: MCAS Beaufort August 2000.

Key.

AGL = Above ground level
ASO = Air Station Order.
ATC = Air Traffic Control.
FCLP = Field Carrier Landing Practice.
MCRD = Marine Corps Reserve Depot.
MOA = Military Operating Area.
NM = Nautical mile.
TACAN = Tactical Area Navigation
VFR = Visual Flight Rules.

Appendix D

TABLE 2 - AIR INSTALLATIONS COMPATIBLE USE ZONES SUGGESTED LAND USE COMPATIBILITY IN NOISE ZONES

Land Use		Suggested Land Use Compatibility						
		Noise Zone 1 *(DNL or CNEL)*		Noise Zone 2 *(DNL or CNEL)*		Noise Zone 3 *(DNL or CNEL)*		
SLUCM NO	**LAND USE NAME**	**< 55**	**55- 64**	**65 - 69**	**70 -74**	**75- 79**	**80 -84**	**85+**
	Residential							
11	Household Units	Y	Y [1]	N [1]	N [1]	N	N	N
11.11	Single units: detached	Y	Y [1]	N [1]	N [1]	N	N	N
11.12	Single units: semidetached	Y	Y [1]	N [1]	N [1]	N	N	N
11.13	Single units: attached row	Y	Y [1]	N [1]	N [1]	N	N	N
11.21	Two units: side-by-side	Y	Y [1]	N [1]	N [1]	N	N	N
11.22	Two units: one above the other	Y	Y [1]	N [1]	N [1]	N	N	N
11.31	Apartments: walk-up	Y	Y [1]	N [1]	N [1]	N	N	N
11.32	Apartment: elevator	Y	Y [1]	N [1]	N [1]	N	N	N
12	Group quarters	Y	Y [1]	N [1]	N [1]	N	N	N
13	Residential Hotels	Y	Y [1]	N [1]	N [1]	N	N	N
14	Mobile home parks or courts	Y	Y [1]	N	N	N	N	N
15	Transient lodgings	Y	Y [1]	N [1]	N [1]	N [1]	N	N
16	Other residential	Y	Y [1]	N [1]	N [1]	N	N	N
20	***Manufacturing***							
21	Food & kindred products; manufacturing	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
22	Textile mill products; manufacturing	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
23	Apparel and other finished products; products made from fabrics, leather and similar materials; manufacturing	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
24	Lumber and wood products (except furniture); manufacturing	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
25	Furniture and fixtures; manufacturing	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
26	Paper and allied products; manufacturing	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
27	Printing, publishing, and allied industries	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
28	Chemicals and allied products; manufacturing	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
29	Petroleum refining and related industries	Y	Y	Y	Y[2]	Y[3]	Y[4]	N

TABLE 2 - AIR INSTALLATIONS COMPATIBLE USE ZONES
SUGGESTED LAND USE COMPATIBILITY IN NOISE ZONES (Continued)

Land Use		Suggested Land Use Compatibility						
		Noise Zone 1 *(DNL or CNEL)*		Noise Zone 2 *(DNL or CNEL)*		Noise Zone 3 *(DNL or CNEL)*		
SLUCM NO.	LAND USE NAME	< 55	55- 64	65 - 69	70 -74	75- 79	80 -84	85+
30	***Manufacturing (continued)***							
31	Rubber and misc. plastic products; manufacturing	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
32	Stone, clay and glass products; manufacturing	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
33	Primary metal products; manufacturing	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
34	Fabricated metal products; manufacturing	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
35	Professional scientific, and controlling instruments; photographic and optical goods; watches and clocks	Y	Y	Y	25	30	N	N
39	Miscellaneous manufacturing	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
40	***Transportation, communication and utilities.***							
41	Railroad, rapid rail transit, and street railway transportation	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
42	Motor vehicle transportation	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
43	Aircraft transportation	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
44	Marine craft transportation	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
45	Highway and street right-of-way	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
46	Automobile parking	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
47	Communication	Y	Y	Y	25 [5]	30 [5]	N	N
48	Utilities	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
49	Other transportation, communication and utilities	Y	Y	Y	25 [5]	30 [5]	N	N
50	***Trade***							
51	Wholesale trade	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
52	Retail trade – building materials, hardware and farm equipment	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
53	Retail trade – shopping centers	Y	Y	Y	25	30	N	N
54	Retail trade - food	Y	Y	Y	25	30	N	N

TABLE 2 - AIR INSTALLATIONS COMPATIBLE USE ZONES
SUGGESTED LAND USE COMPATIBILITY IN NOISE ZONES (Continued)

Land Use		Suggested Land Use Compatibility						
		Noise Zone 1 *(DNL or CNEL)*		Noise Zone 2 *(DNL or CNEL)*		Noise Zone 3 *(DNL or CNEL)*		
SLUCM NO	LAND USE NAME	< 55	55- 64	65 -69	70 -74	75-79	80 -84	85+
50	***Trade (Continued)***							
55	Retail trade – automotive, marine craft, aircraft and accessories	Y	Y	Y	25	30	N	N
56	Retail trade – apparel and accessories	Y	Y	Y	25	30	N	N
57	Retail trade – furniture, home, furnish-ings and equipment	Y	Y	Y	25	30	N	N
58	Retail trade – eating and drinking establishments	Y	Y	Y	25	30	N	N
59	Other retail trade	Y	Y	Y	25	30	N	N
60	***Services***							
61	Finance, insurance and real estate services	Y	Y	Y	25	30	N	N
62	Personal services	Y	Y	Y	25	30	N	N
62.4	Cemeteries	Y	Y	Y	Y [2]	Y [3]	Y [4,11]	Y [6,11]
63	Business services	Y	Y	Y	25	30	N	N
63.7	Warehousing and storage	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
64	Repair Services	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
65	Professional services	Y	Y	Y	25	30	N	N
65.1	Hospitals, other medical fac.	Y	Y [1]	25	30	N	N	N
65.16	Nursing Homes	Y	Y	N [1]	N [1]	N	N	N
66	Contract construction services	Y	Y	Y	25	30	N	N
67	Government Services	Y	Y [1]	Y [1]	25	30	N	N
68	Educational services	Y	Y [1]	25	30	N	N	N
69	Miscellaneous	Y	Y	Y	25	30	N	N
70	***Cultural, entertainment and recreational***							
71	Cultural activities (& churches)	Y	Y[1]	25	30	N	N	N
71.2	Nature exhibits	Y	Y[1]	Y[1]	N	N	N	N
72	Public assembly	Y	Y[1]	Y	N	N	N	N
72.1	Auditoriums, concert halls	Y	Y	25	30	N	N	N
72.11	Outdoor music shells, amphitheaters	Y	Y [1]	N	N	N	N	N
72.2	Outdoor sports arenas, spectator sports	Y	Y	Y [7]	Y [7]	N	N	N
73	Amusements	Y	Y	Y	Y	N	N	N
74	Recreational activities (include golf courses, riding stables, water rec.)	Y	Y[1]	Y[1]	25	30	N	N
75	Resorts and group camps	Y	Y [1]	Y [1]	Y [1]	N	N	N
76	Parks	Y	Y [1]	Y [1]	Y [1]	N	N	N
79	Other cultural, entertainment and recreation	Y	Y [1]	Y [1]	Y [1]	N	N	N

TABLE 2 - AIR INSTALLATIONS COMPATIBLE USE ZONES
SUGGESTED LAND USE COMPATIBILITY IN NOISE ZONES
(Continued)

Land Use		Suggested Land Use Compatibility						
		Noise Zone 1 *(DNL or CNEL)*		Noise Zone 2 *(DNL or CNEL)*		Noise Zone 3 *(DNL or CNEL)*		
SLUCM NO.	LAND USE NAME	< 55	55- 64	65 -69	70 -74	75-79	80 -84	85+
80	***Resource Production and Extraction***							
81	Agriculture (except live stock)	Y	Y	Y [8]	Y [9]	Y [10]	Y [10,11]	Y [10,11]
81.5,	Livestock farming	Y	Y	Y [8]	Y [9]	N	N	N
81.7	Animal breeding	Y	Y	Y [8]	Y [9]	N	N	N
82	Agriculture related activities	Y	Y	Y [8]	Y [9]	Y [10]	Y [10,11]	Y [10,11]
83	Forestry Activities	Y	Y	Y [8]	Y [9]	Y [10]	Y [10,11]	Y [10,11]
84	Fishing Activities	Y	Y	Y	Y	Y	Y	Y
85	Mining Activities	Y	Y	Y	Y	Y	Y	Y
89	Other resource production or extraction	Y	Y	Y	Y	Y	Y	Y

KEY TO TABLE 2 - SUGGESTED LAND USE COMPATIBILITY IN NOISE ZONES

SLUCM — Standard Land Use Coding Manual, U.S. Department of Transportation

Y (Yes) — Land Use and related structures compatible without restrictions.

N (No) — Land Use and related structures are not compatible and should be prohibited.

Y* (Yes with Restrictions) — The land use and related structures are generally compatible. However, see note(s) indicated by the superscript.

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

NLR (Noise Level Reduction) — Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.

25, 30, or 35	The numbers refer to Noise Level Reduction levels. Land Use and related structures generally compatible however, measures to achieve NLR of 25, 30 or 35 must be incorporated into design and construction of structures. However, measures to achieve an overall noise reduction do not necessarily solve noise difficulties outside the structure and additional evaluation is warranted. Also, see notes indicated by superscripts where they appear with one of these numbers.

DNL Day-Night Average Sound Level.

CNEL Community Noise Equivalent Level (Normally within a very small decibel difference of DNL)

Ldn Mathematical symbol for DNL.

NOTES FOR TABLE 2 - SUGGESTED LAND USE COMPATIBILITY IN NOISE ZONES

1.

a) Although local conditions regarding the need for housing may require residential use in these Zones, residential use is discouraged in DNL 65-69 and strongly discouraged in DNL 70-74. The absence of viable alternative development options should be determined and an evaluation should be conducted locally prior to local approvals indicating that a demonstrated community need for the residential use would not be met if development were prohibited in these Zones.

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

c) Normal permanent construction can be expected to provide a NLR of 20 dB, thus the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation, upgraded Sound Transmission Class (STC) ratings in windows and doors and closed windows year round. Additional consideration should be given to modifying NLR levels based on peak noise levels or vibrations.

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

2. Measures to achieve NLR of 25 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

3. Measures to achieve NLR of 30 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

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

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

6. No buildings.

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

8. Residential buildings require a NLR of 25

9. Residential buildings require a NLR of 30.

10. Residential buildings not permitted.

11. Land use not recommended, but if community decides use is necessary, hearing protection devices should be worn.

TABLE 3-AIR INSTALLATIONS COMPATIBLE USE ZONES
SUGGESTED LAND USE COMPATIBILITY IN ACCIDENT POTENTIAL ZONES [1]

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

TABLE 3-AIR INSTALLATIONS COMPATIBLE USE ZONES SUGGESTED LAND USE COMPATIBILITY IN ACCIDENT POTENTIAL ZONES [1] (Continued)

SLUCM NO.	LAND USE NAME	CLEAR ZONE Recommendation	APZ-I Recommendation	APZ II Recommendation	Density Recommendation
30	***Manufacturing [3] (continued)***				
31	Rubber and misc. plastic products; manufacturing	N	N	N	
32	Stone, clay and glass products; manufacturing	N	N	Y	Maximum FAR 0.56
33	Primary metal products; manufacturing	N	N	Y	Same as above
34	Fabricated metal products; manufacturing	N	N	Y	Same as above
35	Professional scientific, & controlling instrument; photographic and optical goods; watches & clocks	N	N	N	
39	Miscellaneous manufacturing	N	Y	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
40	***Transportation, communication and utilities [4].***				See Note 3 below.
41	Railroad, rapid rail transit, and street railway transportation	N	Y[5]	Y	Same as above.
42	Motor vehicle transportation	N	Y[5]	Y	Same as above
43	Aircraft transportation	N	Y[5]	Y	Same as above
44	Marine craft transportation	N	Y[5]	Y	Same as above
45	Highway and street right-of-way	N	Y[5]	Y	Same as above
46	Auto parking	N	Y[5]	Y	Same as above
47	Communication	N	Y[5]	Y	Same as above
48	Utilities	N	Y[5]	Y	Same as above
485	Solid waste disposal (Landfills, incineration, etc.)	N	N	N	
49	Other transport, comm. and utilities	N	Y[5]	Y	See Note 3 below
50	***Trade***				
51	Wholesale trade	N	Y	Y	Maximum FAR of 0.28 in APZ I. & .56 in APZ II.
52	Retail trade – building materials, hardware and farm equipment	N	Y	Y	Maximum FAR of 0.14 in APZ I & 0.28 in APZ II

TABLE 3-AIR INSTALLATIONS COMPATIBLE USE ZONES

SUGGESTED LAND USE COMPATIBILITY IN ACCIDENT POTENTIAL ZONES [1] (Continued)

SLUCM NO.	LAND USE NAME	CLEAR ZONE Recommendation	APZ-I Recommendation	APZ-II Recommendation	Density Recommendation
50	***Trade (Continued)***				
53	Retail trade – shopping centers	N	N	Y	Maximum FAR of 0.22.
54	Retail trade - food	N	N	Y	Maximum FAR of 0.24
55	Retail trade – automotive, marine craft, aircraft and accessories	N	Y	Y	Maximum FAR of 0.14 in APZ I & 0.28 in APZ II
56	Retail trade – apparel and accessories	N	N	Y	Maximum FAR 0.28
57	Retail trade – furniture, home, furnishings and equipment	N	N	Y	Same as above
58	Retail trade – eating and drinking establishments	N	N	N	
59	Other retail trade	N	N	Y	Maximum FAR of 0.22
60	***Services*** [6]				
61	Finance, insurance and real estate services	N	N	Y	Maximum FAR of 0.22 for "General Office/Office park"
62	Personal services	N	N	Y	Office uses only. Maximum FAR of 0.22.
62.4	Cemeteries	N	Y[7]	Y[7]	
63	Business services (credit reporting; mail, stenographic, reproduction; advertising)	N	N	Y	Max. FAR of 0.22 in APZ II
63.7	Warehousing and storage services	N	Y	Y	Max. FAR 1.0 APZ I; 2.0 in APZ II
64	Repair Services	N	Y	Y	Max. FAR of 0.11 APZ I; 0.22 in APZ II
65	Professional services	N	N	Y	Max. FAR of 0.22
65.1	Hospitals, nursing homes	N	N	N	
65.1	Other medical facilities	N	N	N	
66	Contract construction services	N	Y	Y	Max. FAR of 0.11 APZ I; 0.22 in APZ II
67	Government Services	N	N	Y	Max FAR of 0.24
68	Educational services	N	N	N	
69	Miscellaneous	N	N	Y	Max. FAR of 0.22

TABLE 3-AIR INSTALLATIONS COMPATIBLE USE ZONES
SUGGESTED LAND USE COMPATIBILITY IN ACCIDENT POTENTIAL ZONES [1] (continued)

SLUCM NO.	LAND USE NAME	CLEAR ZONE Recommendation	APZ-I Recommendation	APZ-II Recommendation	Density Recommendation
70	***Cultural, entertainment and recreational***				
71	Cultural activities	N	N	N	
71.2	Nature exhibits	N	Y[8]	Y[8]	
72	Public assembly	N	N	N	
72.1	Auditoriums, concert halls	N	N	N	
72.11	Outdoor music shells, amphi-theaters	N	N	N	
72.2	Outdoor sports arenas, spec-tator sports	N	N	N	
73	Amusements -fairgrounds, miniature golf, driving rang-es; amusement parks, etc	N	N	Y	
74	Recreational activities (in-cluding golf courses, riding stables, water recreation)	N	Y[8]	Y[8]	Max. FAR of 0.11 APZ I; 0.22 in APZ II
75	Resorts and group camps	N	N	N	
76	Parks	N	Y[8]	Y[8]	Same as 74
79	Other cultural, entertainment and recreation	N	Y[8]	Y[8]	Same as 74
80	***Resource production and extraction***				
81	Agriculture (except live stock)	Y[4]	Y[9]	Y[9]	
81.5, 81.7	Livestock farming and breed-ing	N	Y[9,10]	Y[9,10]	
82	Agriculture related activities	N	Y[9]	Y[9]	Max FAR of 0.28 APZ I; 0.56 APZ II no activity which produc-es smoke, glare, or involves explosives
83	Forestry Activities [11]	N	Y	Y	Same as Above
84	Fishing Activities [12]	N[12]	Y	Y	Same as Above
85	Mining Activities	N	Y	Y	Same as Above
89	Other resource production or extraction	N	Y	Y	Same as Above
90	***Other***				
91 93	Undeveloped Land Water Areas	Y N[13]	Y N[13]	Y N[13]	

KEY TO TABLE 3 - SUGGESTED LAND USE COMPATIBILITY IN ACCIDENT POTENTIAL ZONES

SLUCM - Standard Land Use Coding Manual, U.S. Department of Transportation

Y (Yes) - Land use and related structures are normally compatible without restriction.

N (No) –	Land use and related structures are not normally compatible and should be prohibited.
Y^x – (Yes with restrictions)	the land use and related structures are generally compatible. However, see notes indicated by the superscript.
N^x – (No with exceptions)	the land use and related structures are generally incompatible. However, see notes indicated by the superscript.
FAR – Floor Area Ratio.	A floor area ratio is the ratio between the square feet of floor area of the building and the site area. It is customarily used to measure non-residential intensities.
Du/Ac – Dwelling Units per Acre.	This metric is customarily used to measure residential densities.

NOTES FOR TABLE 3 - SUGGESTED LAND USE COMPATIBILITY IN ACCIDENT POTENTIAL ZONES

The following notes refer to Table 3.

1. A "Yes" or a "No" designation for compatible land use is to be used only for general comparison. Within each, uses exist where further evaluation may be needed in each category as to whether it is clearly compatible, normally compatible, or not compatible due to the variation of densities of people and structures. In order to assist installations and local governments, general suggestions as to floor/area ratios are provided as a guide to density in some categories. In general, land use restrictions which limit commercial, services, or industrial buildings or structure occupants to 25 per acre in APZ I, and 50 per acre in APZ II are the range of occupancy levels considered to be low density. Outside events should normally be limited to assemblies of not more that 25 people per acre in APZ I, and maximum assemblies of 50 people per acre in APZ II.

2. The suggested maximum density for detached single-family housing is one to two Du/Ac. In a Planned Unit Development (PUD) of single family detached units where clustered housing development results in large open areas, this density could possibly be increased provided the amount of surface area covered by structures does not exceed 20 percent of the PUD total area. PUD encourages clustered development that leave large open areas.

3. Other factors to be considered: Labor intensity, structural coverage, explosive characteristics, air-pollution, electronic interference with aircraft, height of structures, and potential glare to pilots.

4. No structures (except airfield lighting), buildings or aboveground utility/ communications lines should normally be located in Clear Zone areas on or off the installation. The Clear Zone is subject to severe restrictions. See NAVFAC P-80.3 or Tri-Service Manual AFM 32-1123(I); TM 5-803-7, NAVFAC P-971 "Airfield and Heliport Planning & Design" dated 1 May 99 for specific design details.

5. No passenger terminals and no major above ground transmission lines in APZ I.

6. Low intensity office uses only. Accessory uses such as meeting places, auditoriums, etc. are not recommended.

7. No Chapels are allowed within APZ I or APZ II.

8. Facilities must be low intensity, and provide no tot lots, etc. Facilities such as clubhouses, meeting places, auditoriums, large classes, etc. are not recommended.

9. Includes livestock grazing but excludes feedlots and intensive animal husbandry. Activities that attract concentrations of birds creating a hazard to aircraft operations should be excluded.

10. Includes feedlots and intensive animal husbandry.

11. Lumber and timber products removed due to establishment, expansion, or maintenance of Clear Zones will be disposed of in accordance with appropriate DOD Natural Resources Instructions.

12. Controlled hunting and fishing may be permitted for the purpose of wildlife management.

13. Naturally occurring water features (e.g., rivers, lakes, streams, wetlands) are compatible.