

Poinsett Electronic Combat Range

Joint Compatibility Land Use Study

Prepared For:

The Sumter City – County Planning Commission

Final Draft Date: November 7, 2002

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The Sumter City-County Planning Commission

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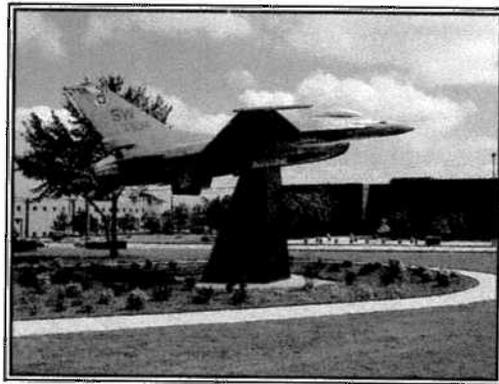
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BACKGROUND

A Joint Compatible Land Use Study (JCLUS) was undertaken in 1992-1993 to review overall development trends and zoning classifications, and document incompatible land uses within the immediate Shaw AFB area, Poinsett Gunnery Range and Sumter Airport. Completed and adopted in 1993, the plan has helped guide development around the military installations for the past decade. But expansion of training activities at the Poinsett Range has intensified the effects of aircraft noise on nearby land. Simultaneously, new residential development has begun to appear along the northeastern side of the Range, bringing households into more direct contact with otherwise unnoticed routine military operations. Thus the section of the existing JCLUS that addressed the bombing Range is in need of expansion to address current and potential conflicts between nearby development and range operations.



PURPOSE

Most Air Force installations make noise as a result of aircraft training activities. Persons living near Poinsett Electronic Combat Range hear aircraft noise on a daily basis. Those sounds are the result of routine exercises needed to maintain air defense readiness. Pilots must learn to function in conditions similar to those encountered in actual combat situations. Unfortunately, the sound levels produced by such exercises often extend beyond the boundaries of the installation and may disturb nearby residents. When this occurs, the sounds of base activities may be perceived as a nuisance to daily life.

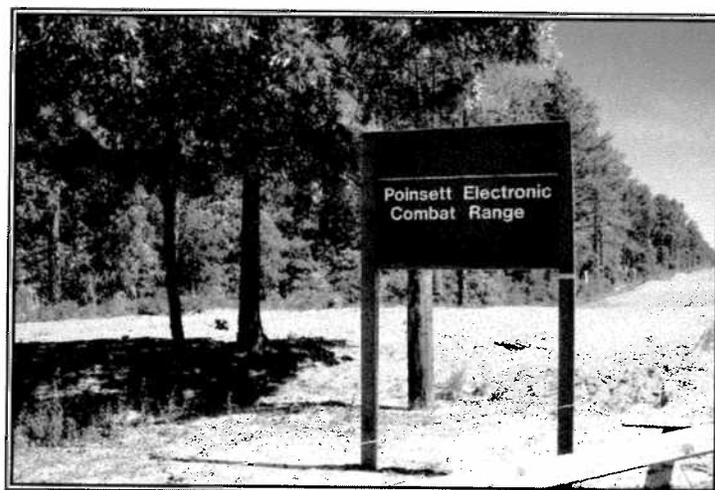
It might appear that the best way to solve conflicts between the noise produced by Air Force activities and noise-sensitive land uses would be to change the operations of the installation. At some installations this is possible, but Poinsett Range is among the few installations and facilities designed to accommodate larger, technologically complex, longer-range weapons systems. In addition, becoming proficient in fighting often requires night training. The County is experiencing new residential development in the vicinity of Poinsett Range. In the long term,

this development could lead to significant conflict between residents and the activities of the Range.

There are steps that citizens, local government, and the Air Force can take to mitigate such conflicts. The Joint Compatible Land Use Study (JCLUS) Program is designed to protect an installation's mission as well as the public safety and welfare. The program identifies noise-impacted areas so the installation, interested citizens, and local governments can work together using land-use planning techniques to minimize noise-sensitive development. This JCLUS contains recommendations specifically targeted to the Poinsett Range and surrounding residential areas for achieving compatible land uses in areas impacted by noise.

Federal legislation, national sentiment, and other external forces which directly affect the Air Force's mission have served to increase the Air Force's role in environmental and planning issues. The coordination of effective planning which bridges the gap between the Federal government and the local citizen is based upon establishing working relationships with local communities and planning officials. The combined resources of both entities can be much more effective than the separate efforts of each in resolving issues of mutual interest. To a great extent, the success of such group efforts depends on respect and understanding.

The JCLUS Program is presented as a statement of the joint perspective on operations and training noise generated in the vicinity of Poinsett Electronic Combat Range. This plan is intended to serve as input in the local comprehensive/master planning process for all jurisdictions adjacent to the Range. The objective of this study is to examine the effects of noise on adjacent communities and establish a background for relating land use to noise levels. This will help identify land use policies that are compatible with aircraft activities. It is the intent of this study to promote cooperation between the military and local communities in planning efforts.



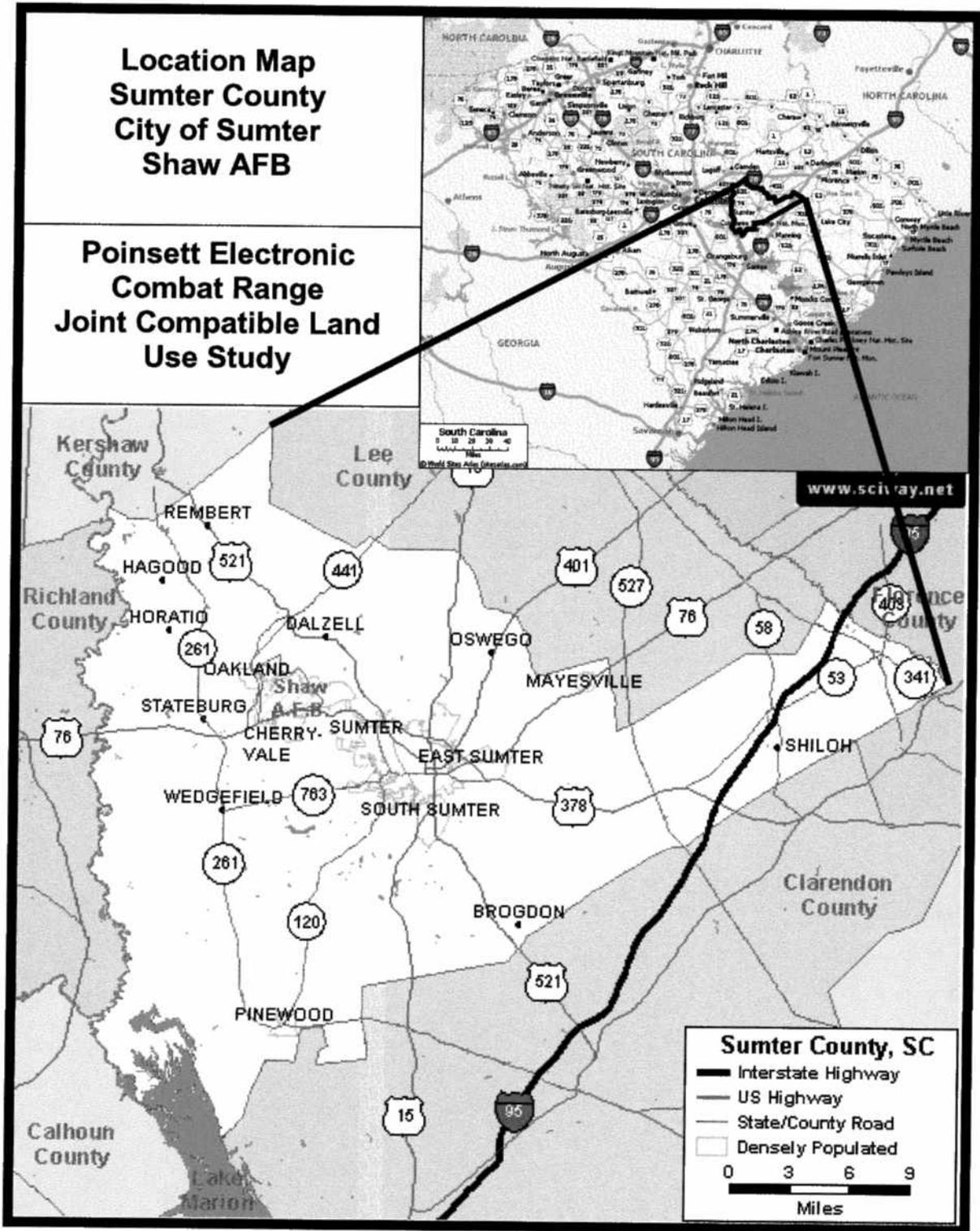


FIGURE 1

GEOGRAPHY

Sumter County and Poinsett Range are located in the central section of South Carolina, 25 miles east of Columbia. Located just north of Lake Marion, the County is surrounded by three interstate highways: I-20 to the north, I-95 to the east, and I-26 to the west.

Shaw AFB is one of 16 Tactical Air Command bases in the United States Air Force and is responsible for operating the Poinsett Range. Poinsett is an air to ground bombing range that provides a combat training environment for air crews from Shaw AFB, McIntyre Air National Guard Base near Columbia, S.C., and several other military installations on the east coast. The Range is located primarily in the Manchester State Forest in the southern portion of Sumter County, about 15 miles south of the base. It occupies a forested area of approximately 12,500 acres. The Range, in operation since 1951, includes a conventional target complex and associated facilities for training aircrews in delivering inert practice bombs, rockets, and strafing rounds. A second target complex with seven tactical targets was added in 1993. The newer complex includes a Television Ordnance Scoring System (TOSS) that provides electronic scoring. Also in 1993, the vertical height of the restricted airspace overlying the Range was increased from 13,000 feet to 23,000 feet (mean sea level).

In addition, a new Military Operations Area (MOA) was created south of the Range to provide low altitude ingress to the Range. Nearly 90% of practice flights use the older and larger north array, the south range has been available for use only since 2000. The new electronic range currently accounts for just over 10% of all operations. This percentage may increase in the future as electronic training becomes a more significant component of training.

POPULATION

The decade of the 1980's witnessed a higher than normal population increase in Sumter County. The County grew by 14,000 residents, a 16.3% increase between 1980 and 1990. The 16.3% increase is a reversal of the growth rate in the 1970s that lagged behind the state. The state grew only 11.7% in the 1980's.

By 2000, Sumter County's population had increased to 104,646, a 2.0% increase since 1990 and an 18.6% increase since 1980. The location of this growth is critical to the long range planning for the County. Since 1990, census tracts west and southwest of Sumter, toward Poinsett Range experienced the largest population growth. Census tracts north and east of the

city and in the eastern part of the County experienced relatively minor gains or losses in population.

The net population gain in areas southwest of Sumter (toward Poinsett) was approximately 7,300. Growth in the tracts including and adjacent to the Range reached nearly 2,700. Using the average household size, this translates into approximately 1,000 new households, or about 1,000 new housing units.

EXHIBIT A
POPULATION GROWTH, 1960-2000

| | POPULATION | CHANGE |
|------|------------|--------|
| 1960 | 74,941 | NA |
| 1970 | 79,425 | 6.0% |
| 1980 | 88,243 | 11.1% |
| 1990 | 102,637 | 16.3% |
| 2000 | 104,646 | 2.0% |

SOURCE: U. S. Bureau of the Census

EXHIBIT B
MEDIAN AGE, 1980-2000
SUMTER COUNTY, S.C.

| | MEDIAN AGE |
|------|------------|
| 1980 | 25.7 |
| 1990 | 29.6 |
| 2000 | 33.4 |

SOURCE: U. S. Bureau of the Census

EXHIBIT C
POPULATION CHANGE BY CENSUS TRACT
1980-2000, SUMTER COUNTY S.C.

| CENSUS TRACT | 1980 | 1990 | 2000 | CHANGE 1990-2000 |
|--------------|---------------|----------------|----------------|------------------|
| 1 | 2,792 | 3,251 | 3,733 | 482 |
| 2.01 | 6,403 | 4,326 | 4,341 | 15 |
| 2.02 | | 3,810 | 4,205 | 395 |
| 3 | 7,366 | 13,236 | 7,119 | -6,117 |
| 4 | 6,261 | 6,192 | 7,504 | 1,312 |
| 5 | | | 2,702 | na |
| 6 | 3,735 | 3,807 | 4,043 | 236 |
| 7 | 4,966 | 4,996 | 4,980 | -16 |
| 8.97 | 5,208 | 688 | 526 | -162 |
| 8.98 | | 4,501 | 3,973 | -528 |
| 9 | 7,765 | 8,198 | 8,366 | 168 |
| 10 | 3,624 | 3,648 | 3,795 | 147 |
| 11 | 4,485 | 4,313 | 4,482 | 169 |
| 13 | 3,447 | 2,768 | 2,285 | -483 |
| 15 | 3,591 | 3,006 | 2,556 | -450 |
| 16 | 4,749 | 4,740 | 4,261 | -479 |
| 17.01 | 2,888 | 4,962 | 6,206 | 1,244 |
| 17.02 | 4,650 | 6,452 | 8,984 | 2,532 |
| 18.01 | 1,515 | 2,181 | 3,936 | 1,755 |
| 18.02 | 4,665 | 5,808 | 5,886 | 78 |
| 19.01 | 7,136 | 4,944 | 5,687 | 743 |
| 19.02 | | 4,061 | 5,076 | 1,015 |
| TOTAL | 88,243 | 102,637 | 104,646 | 2,056 |

SOURCE: U. S. Bureau of the Census

EXHIBIT D
PROJECTED POPULATION CHANGE BY CENSUS TRACT
2000-2020, SUMTER COUNTY S.C.

| CENSUS TRACT | 2010 | 2020 | CHANGE 2000-2020 |
|--------------|--------|--------|------------------|
| 17.01 | 7,502 | 9,200 | 2,994 |
| 17.02 | 10,984 | 11,514 | 2,530 |
| 18.01 | 4,300 | 4,300 | 364 |
| 18.02 | 6,700 | 8,000 | 2,114 |
| 19.01 | 6,687 | 7,600 | 1,913 |
| 19.02 | 6,076 | 7,100 | 2,024 |

SOURCE: Santee-Lynches Regional COG

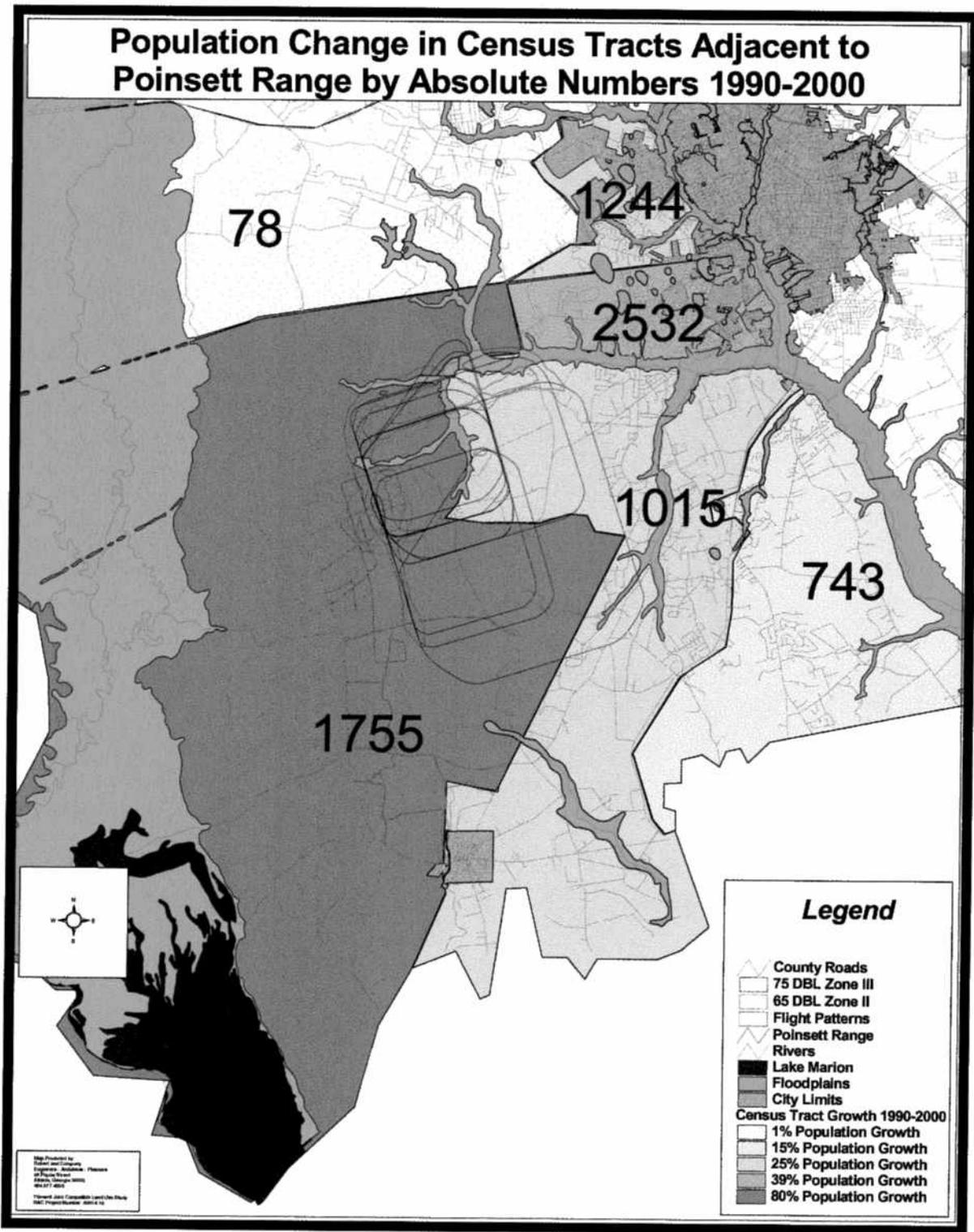


FIGURE 2

EXHIBIT E
HOUSEHOLDS, 1970-2000
SUMTER COUNTY, S.C.

| YEAR | HOUSEHOLDS | PERSONS/HOUSEHOLD |
|------|------------|-------------------|
| 1970 | 20,977 | 3.65 |
| 1980 | 27,268 | 3.13 |
| 1990 | 32,723 | 2.91 |
| 2000 | 37,728 | 2.68 |

SOURCE: U.S. Bureau of The Census

EXHIBIT F
RACIAL COMPOSITION, 1980-2000
SUMTER COUNTY, S.C.

| | WHITE | PERCENT | BLACK | PERCENT |
|------|--------|---------|--------|---------|
| 1980 | 48,277 | 55% | 39,966 | 45% |
| 1990 | 56,779 | 55% | 44,340 | 43% |
| 2000 | 52,462 | 50% | 48,850 | 47% |

SOURCE: U.S. Bureau of the Census

HOUSING

Owner occupancy in Sumter County leveled out in the decade 1980-1990. The 1990's saw a slight decrease in owner occupied housing units in Sumter County. By 2000, owner occupied housing units accounted for 63% of the total, down about 2% from 1990. Housing values increased by 125% between 1980 and 2000. Between 1970 and 2000, the County also experienced a dramatic increase in the number of manufactured homes. The 2000 total of 10,942 manufactured units is 37% greater than the 1990 total and nearly 300% greater the 1980 total. Manufactured units now represent almost 30% of all occupied units in the county. The growth of manufactured units may explain the increase in the rate of owner occupancy. Many former renters have taken advantage of the wide availability and affordability of manufactured homes, leaving behind rental units for home ownership. This indicates a potentially growing stability among county residents. A potential problem with this growth in home ownership is that of the 1,000 new households in the Census tracts near the range, approximately 30% could be manufactured homes, which are subject to greater levels of noise impact from nearby range operations.

EXHIBIT G
HOUSING OCCUPANCY STATUS, 1970-2000

| YEAR | RENTER OCCUPIED | OWNER OCCUPIED | PERCENT OWNER OCCUPIED |
|------|-----------------|----------------|------------------------|
| 1970 | 9,456 | 11,521 | 55% |
| 1980 | 9,939 | 17,329 | 64% |
| 1990 | 11,395 | 21,328 | 65% |
| 2000 | 11,511 | 26,217 | 63% |

SOURCE: U.S. Bureau of the Census

EXHIBIT H
OWNER OCCUPIED HOUSING VALUE, 1980-2000
SUMTER COUNTY AND SOUTH CAROLINA

| SUMTER COUNTY | MEDIAN HOUSE VALUE | % CHANGE |
|---------------|--------------------|----------|
| 1980 | 35,000 | N/A |
| 1990 | 56,900 | 62.5 |
| 2000 | 78,700 | 124.9% |

SOURCE: U.S. Bureau of the Census

EXHIBIT I
MOBILE HOME GROWTH, 1970-2000
SUMTER COUNTY, S.C.

| | MANUFACTURED HOMES | % OF TOTAL OCCUPIED UNITS |
|------|--------------------|---------------------------|
| 1970 | 2,320 | 11.0% |
| 1980 | 3,357 | 12.3% |
| 1990 | 7,996 | 24.4% |
| 2000 | 10,942 | 29.0% |

SOURCE: U.S. Bureau of the Census



ECONOMY

The composition and size of a community's labor force is linked closely to demographic and economic conditions and trends of the surrounding region. Sumter County experienced a population increase during the 1980's and 1990's, and, as would be expected, a corresponding increase in the size and breadth of the civilian labor force. The unemployment rate for the County has decreased from a forty year high of 10.9% in 1982 to 7.6% in 2000.

Employment by sector has not experienced significant distributional shifts in the last 20 years. The largest sectors in both 1982 and 1997 in terms of employment were manufacturing and government (state, local, federal, military). By 1997, each accounted for 22% of the total jobs in Sumter County. During the same period, services and retail trade remained the third and fourth largest sectors, with 21% and 16% of 1997 county employment, respectively. Other sectors were considerably smaller. None accounted for more than 7% of total employment, either in 1982 or 1997. A list of the largest employers in Sumter County indicates that Shaw AFB is the largest employer in the County. However, five industries, the regional medical center, and the public school system are also major area employers. This diversity points to stability in the local economy.

EXHIBIT J
 CIVILIAN LABOR FORCE, 1980-2000
 SUMTER COUNTY, S.C.

| | 1980 | 1990 | 2000 |
|----------------------|--------|--------|-------|
| CIVILIAN LABOR FORCE | 36,120 | 39,960 | 44776 |
| EMPLOYMENT | 32,170 | 36,080 | 41372 |
| UNEMPLOYMENT | 3,950 | 3,880 | 3404 |
| RATE | 10.9% | 9.7% | 7.6% |

SOURCE: U.S. Bureau of the Census

EXHIBIT K
EMPLOYMENT BY SECTOR, 1980-1990
SUMTER COUNTY, S.C.

| | 1982 | 1987 | 1992 | 1997 |
|--------------------------|-------|-------|-------|-------|
| TOTAL | 39745 | 44842 | 48677 | 55166 |
| FARM | 1761 | 1194 | 1237 | 1076 |
| AGRICULTURAL SERVICES | 342 | 381 | 421 | NA |
| MINING | 40 | NA | 33 | NA |
| CONSTRUCTION | 2337 | 2866 | 2924 | 3569 |
| MANUFACTURING | 8678 | 8943 | 10053 | 12329 |
| TRANSPORTATION/UTILITIES | 1137 | 1216 | 1417 | 2139 |
| WHOLESALE | 1267 | 1344 | 1096 | 994 |
| RETAIL | 5173 | 6630 | 7415 | 8596 |
| FIRE | 1527 | 1631 | 1746 | 2301 |
| SERVICES | 6562 | 8111 | 9402 | 11301 |
| TOTAL GOVERNMENT | 10921 | 12520 | 12533 | 12366 |
| FEDERAL | 1246 | 1268 | 1328 | 1208 |
| MILITARY | 6020 | 7097 | 6328 | 5732 |
| STATE AND LOCAL | 3655 | 4155 | 4877 | 5426 |

Source: U.S. Census Bureau, County Business Patterns

PLANNING CRITERIA

Additional background information, noise impacts, land use, transportation, water/sewer infrastructure, existing regulatory controls, range activities, will be used to guide planning in the areas of the unincorporated County adjacent to the Range.

Aircraft Operations and Noise

In this section, criteria related to aircraft activities and operations associated with Poinsett Range will be briefly discussed. These include noise contours, restricted airspace, prohibited overflights, and flight tracks.

Noise

The JCLUS program is designed to protect both installations and the public by identifying noise impacted areas so that concerned citizens, local governments, and military officials can coordinate development in areas impacted by military noise. Noise level zones are mapped so that the installation and the public can work together to devise compatibility guidelines and appropriate planning techniques to insure that land uses in noise-impacted areas are compatible. Noise contours are defined by three noise zones (as defined in the 1993 JCLUS):

- ❖ Zone I - Acceptable
- ❖ Zone II - Normally Unacceptable
- ❖ Zone III - Unacceptable

These compatibility zones are used for land use planning to prevent conflicts with noise-sensitive land uses, such as housing and hospitals. Most commercial, industrial, and agricultural (except livestock) uses are compatible with noisy environments. An abbreviated listing of land use compatibilities is shown in the following chart.

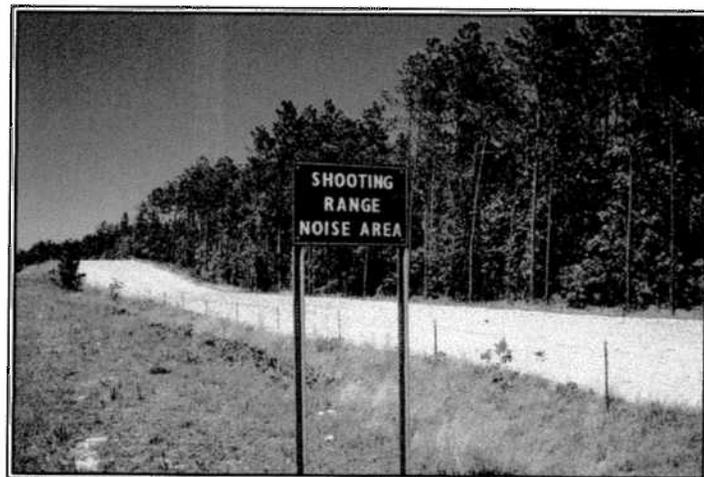


EXHIBIT L
RECOMMENDED LAND USES FOR AICUZ PROGRAM NOISE ZONES

| <u>Land Use</u> | <u>Zone I</u> | <u>Zone II</u> | <u>Zone III</u> |
|---|---------------|-------------------------|-----------------|
| Residential | Acceptable | *Generally Unacceptable | Unacceptable |
| Manufacturing | Acceptable | Acceptable | **Acceptable |
| Transportation, Communication & Utilities | Acceptable | Acceptable | Acceptable |
| Trade | Acceptable | Acceptable | Acceptable |
| Public Servcs. | Acceptable | *Generally Unacceptable | Unacceptable |
| Cultural, Recreational & Entertainment | Acceptable | *Generally Unacceptable | Unacceptable |
| Agricultural | Acceptable | Acceptable | Acceptable |
| Livestock Farming & Animal Breeding | Acceptable | Acceptable | Unacceptable |

*Use is generally discouraged; however, if allowed, sound attenuation techniques should be required.

** For a CNDL level above 70, sound attenuation techniques should be required.

Source: 1993 Shaw AFB/Sumter County JCLUS (Exhibit O, Page 35)

The noise Zone II and III contours for the Poinsett Range extend beyond the Range boundaries to the north and northeast toward Shaw AFB and the city limits of Sumter. The northeastern limits of Zone II extend up St. Paul's Church Road, approximately 3 miles north from the intersection with Pinewood Road. The zone reaches westerly over McCray's Lake and along Bells Mill Road toward Brunson (sic) Swamp. A small Zone III contour is centered over McCray's Lake. Another smaller Zone III contour is centered just east of the right angle turn in Burnt Gin Road and just north of Krystal Road. The only other Zone III contour is directly above the North Array of the target range. The majority of the area under the noise contours is undeveloped and includes farmland, swamps, and floodplain. However, the noise contours eastern edge is in close proximity to the western approach of development from Sumter along Pinewood Road, and the northern extent is in close proximity to recent developments around McCray's Lake at St. Paul's Church Road.

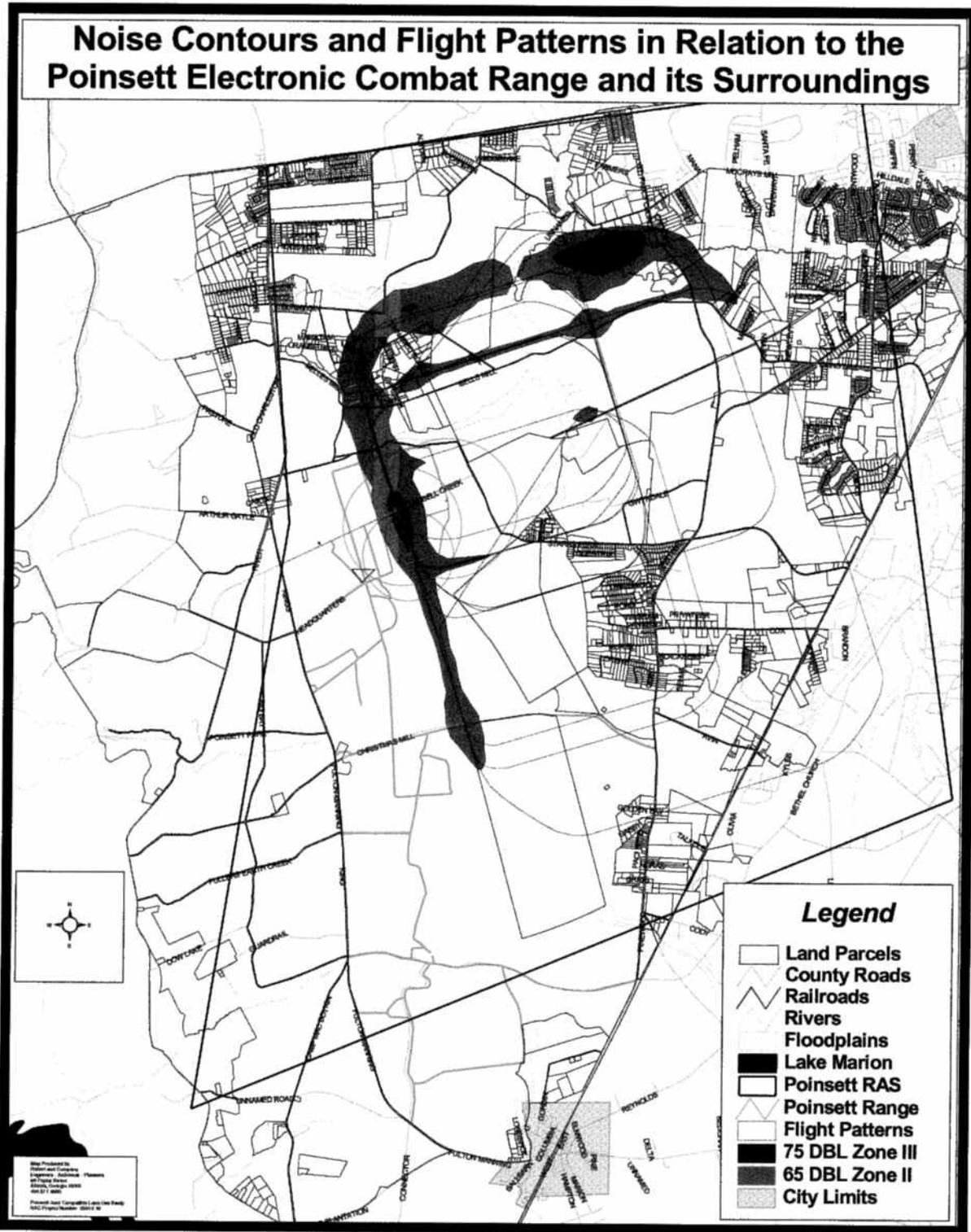


FIGURE 3

Avoidance Areas

In 1992 there were four areas on the ground within the restricted airspace boundary around the range that were restricted from overflights below 2,500 feet. According to Air Force instruction 13-212, Volume I, these “avoidance areas” were subsequently expanded to include four additional areas. The 8 avoidance areas now include:

1. The area around Burnt Gin Handicapped Children’s Camp
2. Houses on the southern boundary of McCray’s Lake at St. Paul’s Church Road
3. House and horse stable near Elliot Lake
4. Houses at the northeastern boundary of the Range
5. Houses along Pinewood Road below Harris Crossroads
6. House and tower on the western range boundary near 261 and Poinsett State Park
7. Houses on the northern boundary of McCray’s Lake at St. Paul’s Church Road
8. Area around Furman High School
9. Pinewood Community

Range Operations

Although a variety of different aircraft use the Poinsett Range in some capacity, the principal types are F-16’s and OA-10’s operating from the four squadrons assigned to Shaw. The majority of flying activity takes place in the vicinity of the base and around the Range. Operations are coordinated with the FAA and flight paths are integrated to minimize conflict with civilian aircraft operations. Official published hours of operation for the Range are 8am to 12am, Monday through Thursday, and 8am to 12pm Fridays, though the majority (approximately 95%) of flights are completed by 10:15pm. Weekend operations occur occasionally, but only with pre-arranged permission. The Range is closed for maintenance every third Friday, one week during September, and two weeks during January. Through 2001 and early 2002, the frequency of nighttime flying has curtailed considerably, along with the total number of sorties. This could shift if Air Force operations change. As of this writing, the Range averaged about 100 flights during a fully scheduled week.

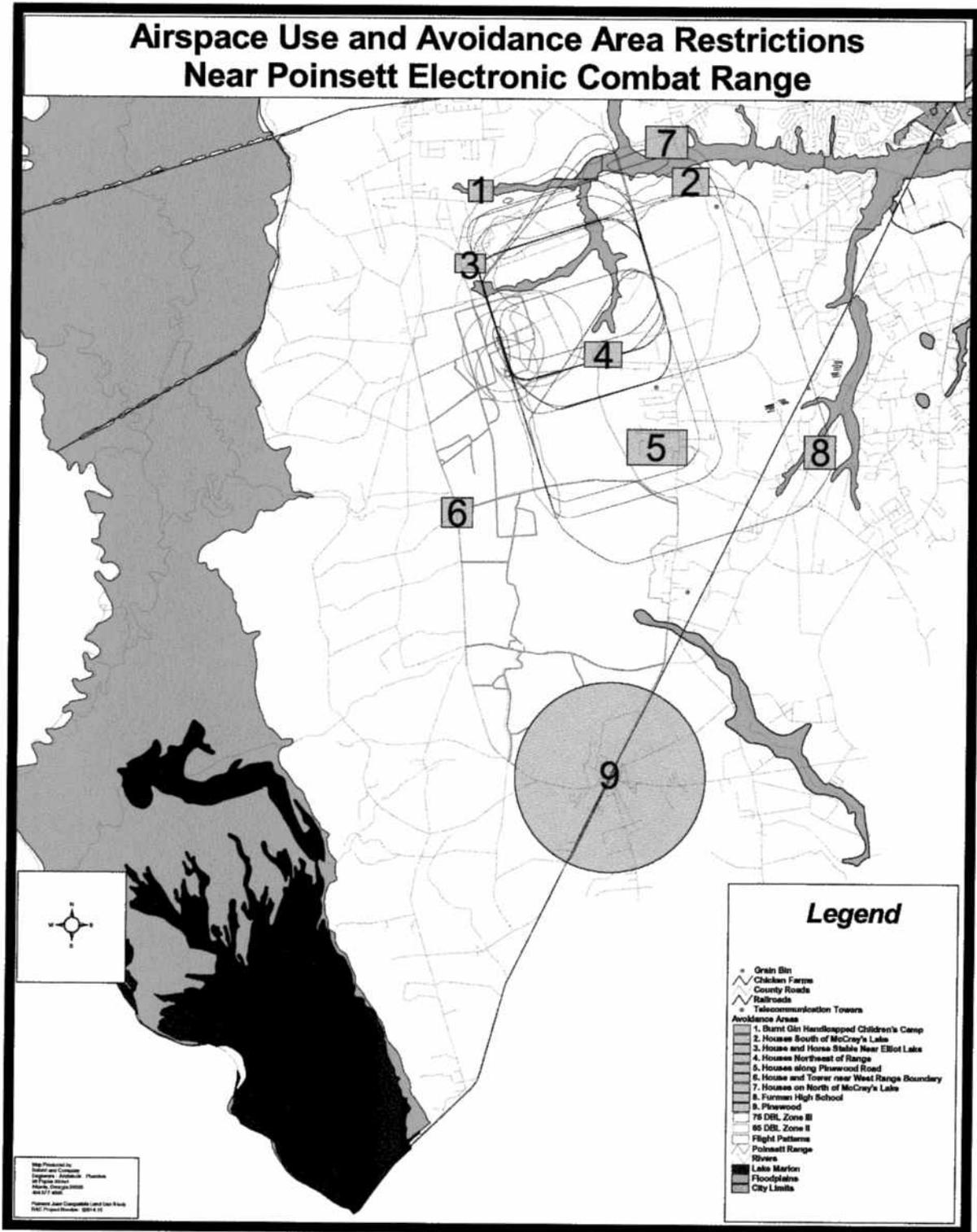


FIGURE 4

Land Use

Identification and location of existing land uses in the areas of unincorporated Sumter County adjacent to the Poinsett Range was accomplished by conducting a windshield survey and studying aerial photographs. The survey was carried out by driving along the roads around the Range and recording the uses appearing across the landscape. A windshield survey is a remarkably accurate method of inventory, not only because it renders details about two-dimensional uses into three dimensions, but also because it reveals trends, juxtapositions of incompatible uses, new construction projects, and specific environmental conditions.

When the survey was complete and each parcel of land within the study area was identified according to its use, the information was classified and coded by color and transferred onto a base map of the Poinsett area. Field survey observations indicated 9 land use classifications, each represented by a unique color on the base map.

The 9 land use classifications in the vicinity of Poinsett Range are:

- ❖ Agricultural
- ❖ Single-Family Housing
- ❖ Mobile Home Housing
- ❖ Commercial
- ❖ Institutional
- ❖ Church/Cemetery
- ❖ State Forest
- ❖ Timberlands/Undeveloped
- ❖ Poinsett Range

Of the above categories, agriculture, and commercial uses are considered the most compatible with aircraft noise. Other uses such as industrial and transportation/communications/utilities category also have a high noise level compatibility because such uses are not typically personnel-intensive. Retail trade and business services are usually compatible up to 70 Ldn, but generally incompatible above 75 Ldn.

Although recreational uses have often been recommended as compatible with high noise levels, recent research has resulted in a more conservative view. Above the 75 Ldn level, noise limits the ability of individuals to enjoy outdoor uses. Where relative silence is a requirement of the use, compatibility is further limited. With the exception of forestry and livestock farming, uses in the resource production, extraction, and open space category are compatible almost without restriction.

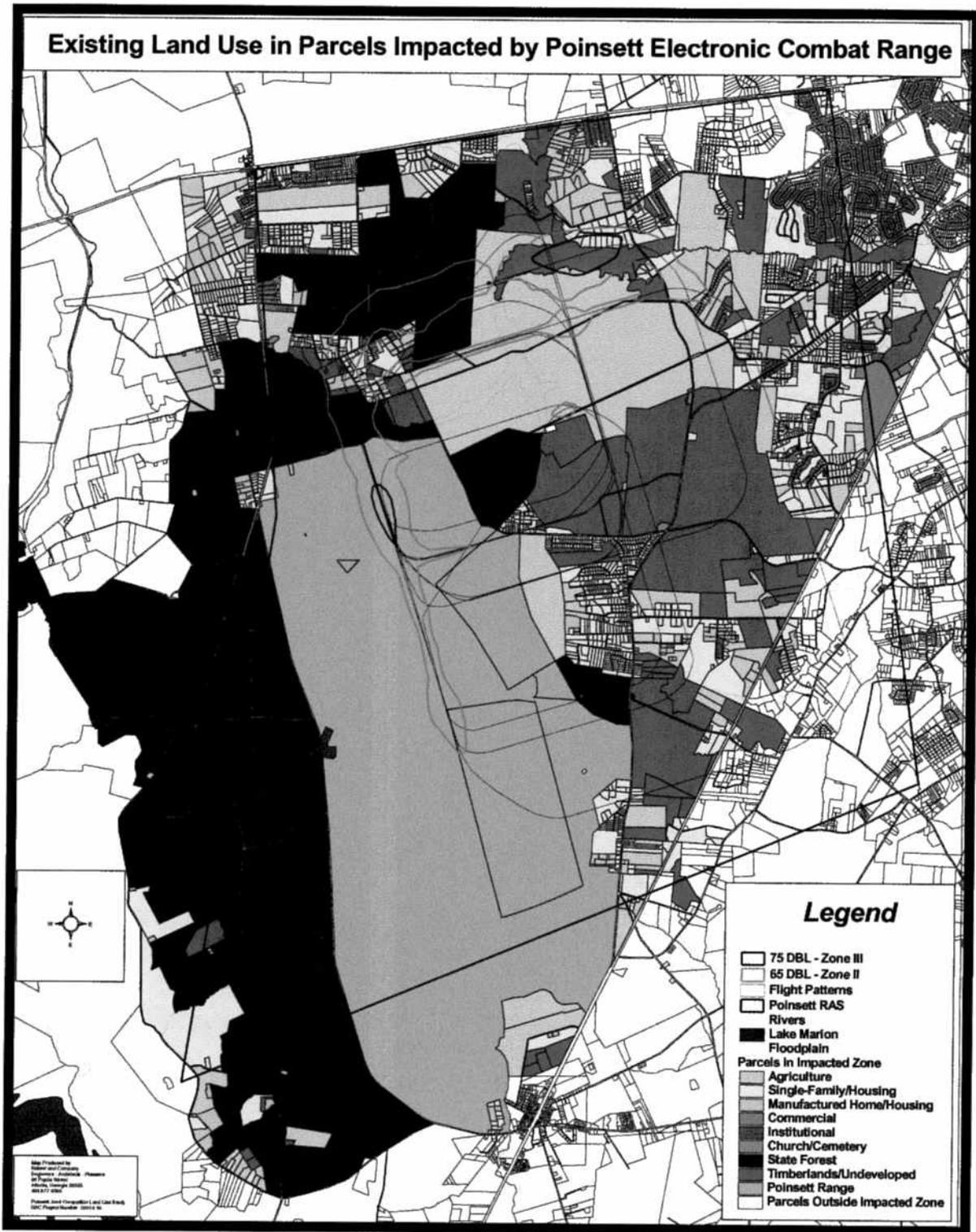


FIGURE 5

The Range is located southwest of the City of Sumter and due South of Shaw AFB proper. It lies in the midst of the Manchester State Forest. It is bounded on the west and south by public/private park land which contains a state park, scattered low density residential units, a small number of churches and other institutional buildings, SC Highway 261 and the Town of Pinewood. Major natural features in the area around the Range include the Wateree River, Wateree and Big Bay Swamps, and the northern most section of Lake Marion.

Poinsett State Park sits just west of the boundary between the forest and the Range. To the east of the Range is a smattering of residential development, a few churches, occasional commercial properties, and agricultural and vacant land. To the north is scattered low density residential, public park land including Burnt Gin Camp, and agricultural land. Many of these uses are within the impact areas around the Range and are exposed to significant noise levels. Consequently, it may be surmised that a few incompatible land uses lie adjacent to the Range.

Fortunately, the Range area has experienced relatively slow population and infrastructure growth. This trend will likely continue into the near future. Barriers like the state forest, floodplains/wetlands, and lack of sewer and water infrastructure will ultimately limit development potential, particularly on sensitive lands west and north of the Range.

Transportation

An inventory and classification of major transportation paths proximate to the Poinsett area was undertaken. In order to evaluate existing roads, it is helpful to describe the functional roadway classification system which organizes roads into four categories: primary divided arterial, primary arterial, secondary arterial, and collector. Major Transportation Improvement Program (TIP) projects approved by the Sumter Area Transportation Study Policy Committee that affect the parts of the County adjacent to the Range were also identified.

Primary Divided Arterials

These are roadways that provide access into and through the County. They are multi-laned, with a median and serve urban areas or high volume traffic corridors.

- ❖ U.S. 76/378 - East and west of the city of Sumter
- ❖ U.S. 15 - South of the city of Sumter
- ❖ U.S. 521 - Northwest of the city of Sumter

Primary Arterials

These are roadways that provide access into and through the County. They are multi-laned and serve urban areas and high volume traffic corridors.

- ❖ U.S. 15 - North and south of the city of Sumter

- ❖ U.S. 521 - Through the city of Sumter and north and south of the city
- ❖ U.S. 401 - Northeast of the city of Sumter

Secondary Arterials

The primary purpose of these roadways is to funnel traffic from the collector roads onto the primary arterials. They provide access to all parts of the County.

- ❖ S.R. 261 - West of Poinsett Range and Shaw AFB
- ❖ S.R. 120 - East of Poinsett Range to the city of Sumter
- ❖ S.R. 763 - East/West road between S.R. 261 and S.R. 120
- ❖ S.R. 441 - North of Shaw AFB linking U.S. 76/378 and U.S. 521

Collectors

These roads provide internal, reduced volume traffic circulation throughout the County. They provide access between the arterials and the neighborhoods and subdivisions throughout the County. There are numerous collector roads in the County.

Transportation Improvement Program

The following TIP projects have been approved for future construction.

- ❖ Shaw Parkway: New 2 lane roadway on R.O.W. for ultimate 5 lane facility for a length of 8.8 miles. Paved shoulder for use by bicycles. Construction will include a new overpass into Shaw AFB.
- ❖ McCray's Mill Road: Widening to 5 lane curb and gutter roadway with bike lanes and sidewalks. Partially on a new location. The project includes bridge replacement at Green Swamp.
- ❖ Loring Mill Road: 5 lane widening on Wedgefield Road with bicycle lanes and sidewalks. Plan for a 3 lane curb and gutter section with sidewalk and share use bicycle lane grade separated from travelway for length of 2.77 miles.
- ❖ Eastern Connector: Connection of existing South Guignard Drive with U.S. Route 378 on new location. R.O.W. to accommodate future widening to 5 lanes. Project includes bike lanes and a new Turkey Creek Bridge.

It is unlikely that any of the planned road improvements will affect development around Poinsett Range. The widening of McCray's Mill Road may facilitate long-term residential growth west of Sumter and towards the northern impact areas of the Poinsett Range.

Water and Sewer Infrastructure

Water systems abound in Sumter County. In 1986 there were 119 according to the South Carolina Department of Health and Environmental Control. These systems serve approximately

71% percent of total households; the remaining 29% percent are served by individual wells. About one-half of households are served by the City of Sumter. The towns of Pinewood and Mayesville provide water to a few hundred households each. Smaller systems covering unincorporated portions of the County serve several thousand households; Shaw AFB provides for nearly 2,000 on-base households (with assistance from the city of Sumter).

Municipal water supply is available in some rural areas east of the bombing Range. One line runs south along Kings Highway to Wedgefield Road; an extension of this line is currently under construction. Other lines follow Pinewood Road south toward the intersection with St. Paul's Church Road and along Bethel Church Road to Furman High School. The town of Pinewood has its own small distribution system, but it does not extend beyond the city limits. More sparsely developed areas of the County depend on individual wells as the primary source of water.

Water suppliers do not appear to be a problem or detriment to the future growth of the County, as some systems identified have reported capacities far in excess of "average daily consumption" measured in millions of gallons per day (MGD). This is also true of the city of Sumter's system, which is capable of pumping 13 MGD, but is currently consuming only 10 MGD.

Currently, limited sewer service is available outside the city of Sumter, Shaw AFB, or the towns of Mayesville and Pinewood. Recently, sewer lines have been extended southwest of the city of Sumter along both Bethel Church Road and Starks Ferry Road, reaching to within a few miles of the eastern range boundary. Yet more than 50% of the County's households are without access to a sewer connection. This means that nearly all developments in unincorporated areas of the County, including many places adjacent to Poinsett Range, must use on-site septic tanks. South Carolina law states that septic systems can be placed only on parcels 20,000 square feet in area or larger (if no municipal water is available, the minimum jumps to 40,000 square feet). This requirement establishes a baseline for low-density development in the unincorporated areas of the County (like Poinsett Range).



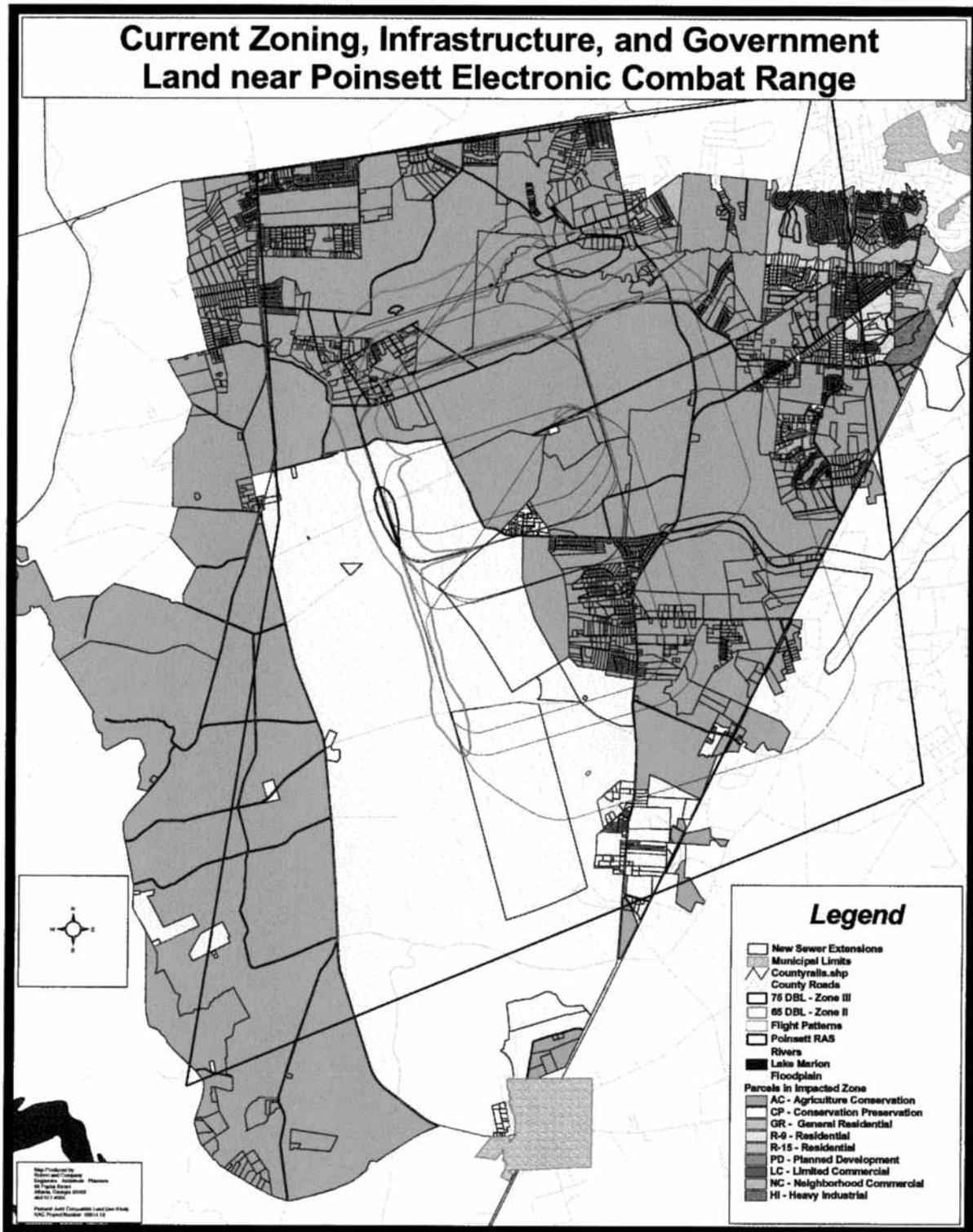


FIGURE 6

Natural Environment

Soils are generally interpreted for land use planning in terms of suitability for development of buildings and roads. The soil conservation service has identified soils for the entire County and provided interpretation guidelines for 8 broad soil associations in the County. Generally, poorly suited soil associations which severely limit building development follow the 100 year flood plain, river and stream corridors, and wetland areas. Using these guidelines, large portions of the County along the western boundary (the Wateree River), south toward Lake Marion, the swamp in the Manchester State Forest, and the Pocotaligo River corridor are difficult to develop. The majority of the remaining areas of the western half of the County pose only moderate limitations to development. Generally, areas north and east of the city limits of Sumter have less favorable soil conditions for development than those on the western side.

Existing Regulatory Controls

Sumter County has been aggressive in its efforts to incorporate Air Installation Compatibility Use Zone (AICUZ) concepts into all phases of the community's planning and development process. Many recommendations contained in the original JCLUS have been implemented, and the development patterns of the County (particularly around Shaw) reflect such. However, revised land use controls targeted specifically at areas adjacent to Poinsett Gunnery Range are necessary to avoid future impacts on public health and safety. The absence of adequate controls will ultimately exacerbate an array of land use incompatibilities, further complicating efforts to engage in constructive cooperation between the military and civil society.

A Height Restriction Ordinance was passed by the Sumter County Council in October 1981 and applies to all of Sumter County. This ordinance regulates the height of structures and other activities in the vicinity of Shaw AFB, Poinsett Gunnery Range and Sumter Airport, and provides penalties for violations. The ordinance reflects height restrictions and obstruction criteria established by the Federal Aviation Administration (FAA) and the Air Force to ensure aircraft safety from obstructions in the approach and departure zones of the base. The ordinance is also consistent with the requirements contained in Federal Air Regulation Part 77 under Subpart C. To date, this ordinance has been effectively used to protect the use of land around these facilities.

In October 1985, Sumter County amended its zoning ordinance to add the Airfield Landing Zone Ordinance which regulated the location and use of the land in the vicinity of Shaw AFB and its properties. The ordinance created an Airfield Landing Zone District consisting of all land that fell within an area formed by Safety Zones I and II existing on the north and south sides of the runways. (See Section 3.p.1 through Section 3.p.10, pages 93-105, of the December 14,

1999 Sumter County Zoning and Development Standards Ordinance for a complete explanation and description of Safety Zones.) Only certain compatible land uses were permitted in these areas. This ordinance served as an active regulatory control restricting incompatible land uses in the Shaw AFB vicinity until the Sumter County Council adopted a new county-wide zoning ordinance in December 1991.

This ordinance comprehensively addressed the protection of Shaw AFB and the Sumter Airport by creating Special Purpose Districts known as Airfield Compatibility Districts (ACD). These ACD's are intended to prevent incompatible use or the creation of flight hazards in the vicinity of Shaw AFB and the Sumter Airport, and to promote the enhancement of the quality of life and safety of individuals residing in areas affected by these facilities. Although some incompatibilities exist around Shaw AFB, the new Sumter Zoning Ordinance has done a good job of protecting these facilities from serious encroachment.

Most of the land adjacent to Poinsett Range is currently zoned Agriculture Conservation (AC), a category created to protect areas of the County suited for agricultural use. The Range itself is zoned Conservation Preservation (CP), a more restrictive category created to protect environmentally sensitive areas of Sumter County from potentially destructive development. With on-going training activity at Poinsett and the addition of the south target array, it is imperative that development proposals in the vicinity of the Range be evaluated closely for incompatibilities because most uses are allowable conditionally or by right in the AC district.

Poinsett MOA

The expansion of the Poinsett Range necessitated the establishment of a low-altitude Military Operations Area (MOA). This MOA is used for training activities associated with typical range activities and accompanying flight paths. The MOA extends south of the range boundaries, encompassing parts of Sumter, Calhoun, and Clarendon Counties and the towns of Pinewood and Summerton. Because most of the flight activity in the MOA is higher altitude, noise impacts on the ground are minimal.

It is important to bear in mind that land use and zoning in the range environs should not be based solely on aircraft-generated effects. Other factors, including surface geology, vegetation, soil, existing land use patterns, infrastructure, and prevailing socio-economic conditions, should be considered.

Summary of Major Observations:

The following summary points are drawn from study area analysis and previous discussions.

- ❖ Low Density Residential growth has occurred southwest of the city of Sumter.
- ❖ Industrial Growth has occurred south of the city of Sumter.
- ❖ There are several new residential subdivision developments just north of Poinsett, near existing flight paths and noise impact areas.
- ❖ There is scattered low-density residential development including mobile homes in the vicinity of the eastern edge of Poinsett Range.
- ❖ Extensive land areas north of Poinsett Range are within the 100 year flood plain, inhibiting any intensive future development.
- ❖ Extensive areas of land surrounding the Poinsett Range are in active agricultural/timber cultivation or simply lie vacant and undeveloped.
- ❖ New water and sewer infrastructure appears to be moving south into the vicinity of the Range.
- ❖ Residential density is currently limited because of state-mandated minimum lot size requirements in areas without municipal sewer infrastructure.
- ❖ The Manchester State Forest serves as an official barrier for new development west and in some areas north of the Range.
- ❖ The total estimated number of residents impacted by noise emanating from range-related activities is a very small percentage of total county population.
- ❖ A height restriction ordinance prevents intrusion of tall structures into low altitude flight operations areas.
- ❖ Most land around Poinsett is zoned to prevent dense development in the area of unincorporated Sumter County near the Range, but does not adequately prohibit noise sensitive uses.
- ❖ The Sumter Comprehensive Plan (1999) encourages support for land use measures to maintain compatibility with Shaw and Poinsett.
- ❖ The Sumter Zoning Ordinance (2001) establishes Agriculture Conservation (AC) and Conservation Preservation (CP) districts that prohibit high density development, preserve existing agricultural lands, and protect environmentally-fragile open spaces.
- ❖ The expansion of the Poinsett MOA has not affected the underlying landscape in terms of development potential or environmental quality.
- ❖ Of the approximately 1,200 new housing units in the Census Tracts near the range, a significant percentage are manufactured homes. Such units are subject to heightened levels of noise disturbance from nearby range operations.

MAJOR RECOMMENDATIONS

The preceding sections of the Poinsett Electronic Combat Range Joint Compatible Land Use Study (JCLUS) have provided a framework of information about existing physical, social, and economic conditions in Sumter County and the areas adjacent to the Poinsett Range. The following recommendations will identify the major issues impacting future development around Poinsett Range.

In general, most existing development regulations, if properly implemented, are sufficient to provide for the protection of land within the study area as well as other development-sensitive areas throughout Sumter County. A few changes are needed, however, in some sections of the regulations to further clarify future compatibility issues regarding land near and adjacent to Poinsett Gunnery Range.

For each major topic addressed in the plan, general recommendations have been offered for guiding future development activity. The recommendations have been conceived from a broad perspective, taking note of socio-economic, environmental, development, and military-related conditions in the County. They are intended to relate to the goals and policies presented in the subsequent section of this document.

Noise

Recommendation - In noise impacted areas, the density of development and intensity of all uses should be limited as much as possible. While it is not possible to eliminate all conflicting uses, particularly those pre-existing, certain uses should be strongly discouraged. Where these conditions are sufficiently severe, it is not consistent with the public health, safety, and general welfare to allow the following types of uses: Residential; Retail business; Office buildings; Public buildings (school, churches, etc.); Recreational buildings and structures.

Recommendation - A standard Noise Level Reduction (NLR) zone governing all new construction should be implemented to prohibit certain uses where they might otherwise be permitted (see Appendix B, Table B-1).

Recommendation – The Air Force should alter its methods of categorizing civilian complaints about aircraft noise to ensure that each complaint is assigned to a specific address. This will enable longitudinal tracking of complaint intensity and geographic distribution.

Regulatory Controls

Recommendation – Certain areas around the Range currently zoned AC (minimum 1 acre) should be changed to CP (minimum 5 acres). The parcels in these areas lie primarily north and northeast of the Range. The use limitations in the CP classification still allow for single-family residential development but control the incidence of incompatible uses in the vicinity of the Range and limit overall structural density by requiring large lots. (See Goal 1, Policy 1 below.)

Land Use

Recommendation - Land west and south of the Range should be identified for permanent, undisturbed preservation to prevent further higher-density residential encroachment. Land east and north of the Range should be targeted for low-density, noise compatible development and designated a “Range Compatibility District”. This district will establish specific standards for future compatible development.

Recommendation – The future use of the Southern Array installation should increase and proactive efforts should be made to avoid the same types of land use incompatibilities currently being encountered by the Northern Array.

Recommendation – The 1999 – 2020 Future Land Use Plan map should be amended to include range compatibility areas.

Water and Sewer Infrastructure

Recommendation - Capital improvements related to new sewer and water service or expansion of existing service should be avoided in or adjacent to areas around the Range, particularly to the north and northeast.

Recommendation - The town of Pinewood should be discouraged from extending sewer or water lines into unincorporated areas to the north of its boundaries.

Recommendation – A committee of representatives from the Sumter City-County Planning Commission, Shaw AFB, and the Sumter Public Works Department should be formed to meet bi-annually to discuss the impact of infrastructure expansions on the operations of the Poinsett Range.

Environment

Recommendation - The Poinsett State Forest should be maintained as a relatively undisturbed natural area and reserved for infrequent recreational use.

Recommendation – Environmentally sensitive areas within the Range area should be permanently protected and preserved.

Future Land Use and Planning Recommendations Map

The Future Land Use and Planning Recommendations Map is intended to provide specific geographic guidance for the application of JCLUS recommendations. In addition to base map information such as land parcels, roads, railroads, rivers/creeks/lakes, city limits and Poinsett flight patterns, seven distinct areas related to recommendations are mapped.

Limited Business Development – Areas recommended for limited commercial land use concentrated around significant transportation intersections. Small neighborhood commercial services could be located here but no major enterprises or amenities that would attract more residential development.

Residential Housing Type Optional – Areas with existing residential land use recommended as appropriate for infill development at densities higher than Agriculture Conservation, including development served by extended water/sewer infrastructure. Although development in these areas would not immediately threaten operations at the Poinsett Range, care should be taken to make sure development is still limited in scale and intensity by various means as appropriate.

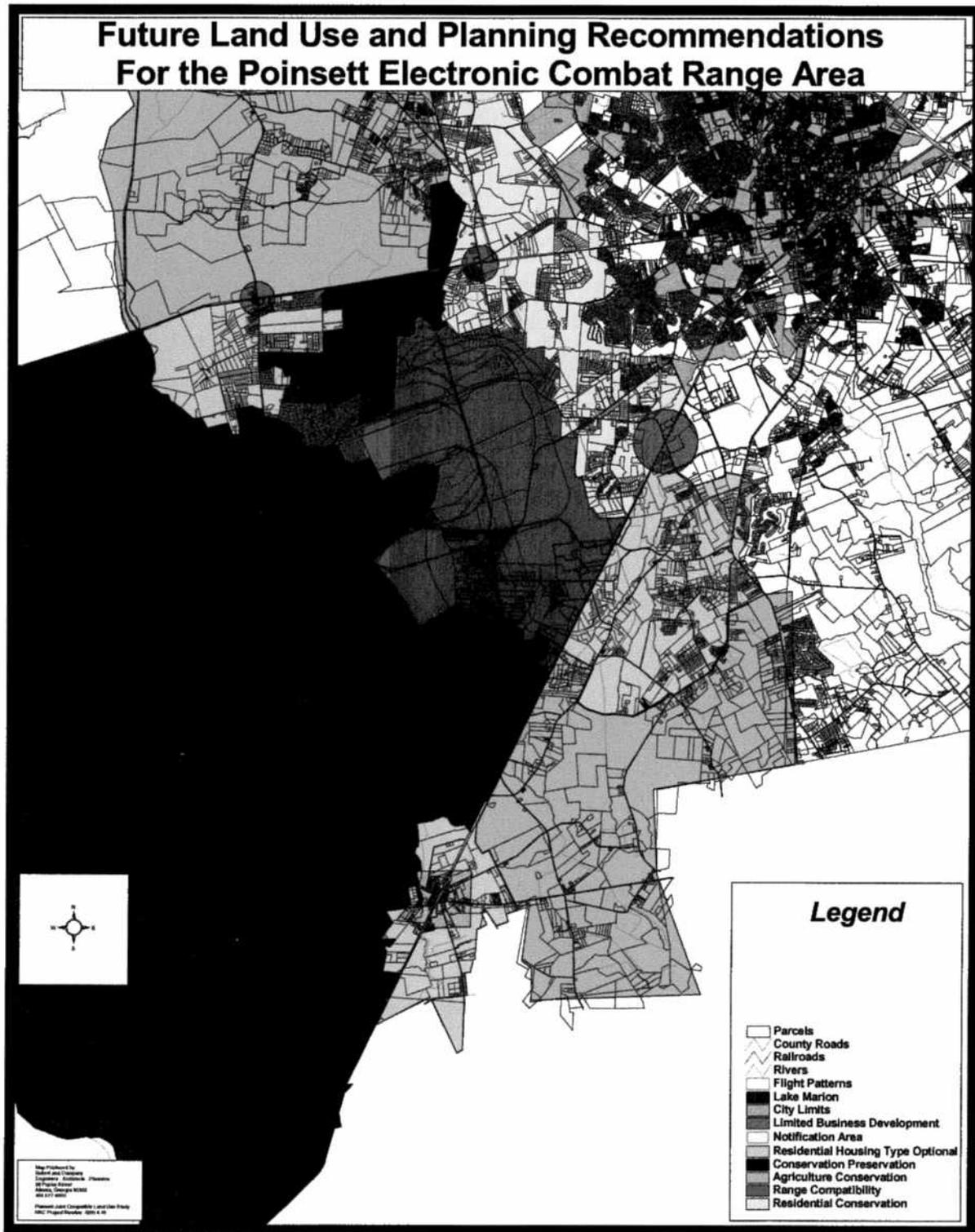
Conservation Preservation – Area recommended for Conservation Preservation zoning and primarily intended to remain as permanently undeveloped open space. No infrastructure upgrades should be allowed in this area that would lead to increased residential development. Minimum lot sizes would be the largest in this zone at 5 or more acres per dwelling unit.

Agriculture Conservation – Area recommended for Agriculture Conservation zoning and appropriate for agriculture activities and residential development at low-density levels that is not served by water/sewer infrastructure. Minimal infrastructure upgrades could be allowed but residents should not ever expect urban level of services to be provided in this zone. Minimum lot sizes would still be relatively large in this zone at 1 or more acres per dwelling unit.

Range Compatibility – Area recommended for low-density, noise compatible development with specific standards for future range-compatible development. The area immediately north and east of the Poinsett Range should be targeted as a range compatibility zone with noise level reduction inside of residences to be achieved through modification of existing structures and improved construction standards for future homes. Minimum lot sizes would need to be greater than .5 acres per dwelling unit.

Residential Conservation – Area recommended as transitional between Range Compatibility area and the City of Sumter. Conservation measures such as limitations on development density, infrastructure extension (sewer), conservation easements/trusts, purchase of development rights, transfer of development rights, etc. should be encouraged.

Notification Area – Area within which real estate transactions should include disclosure of noise levels related to Poinsett Range activities. Signs should also be posted on the borders of this area along all public roads indicating when the noise area is 65 decibels or greater. Sumter Board of Realtors should add a category to property listings that designates that a home is in a high noise area.



FIGURE

VISION STATEMENT

Recognizing the symbiotic relationship between Shaw Air Force Base/Poinsett Range and Sumter County reaffirms the importance of a military and community partnership that encourages balanced, efficient, stable and controlled growth and development. The social and economic health of the Sumter community further impacts quality of life in the central region of South Carolina.

GOALS AND POLICIES

Developing, and then updating, a JCLUS plan is a complex process involving more than just consideration of the physical characteristics of land. The goals and policies presented below offer specific ideas about the future direction of planning and development for Poinsett Range and the unincorporated areas of Sumter County that surround it. The goals and policies attempt to define an agenda that addresses most of the significant development-related issues affecting the area.

Goal 1 - Control development in the vicinity of Poinsett Range that would interfere with the continued operation of the facility.

- ➔ Policy 1 - Rezone areas north and northeast of the Poinsett Range from Agriculture Conservation (AC) to Conservation Preservation (CP) to limit future development density.
- ➔ Policy 2 - Encourage use of noise-sensitive review procedures to evaluate the suitability of proposed developments.
- ➔ Policy 3 - Allow only the most compatible uses for noise impacted areas where development cannot otherwise be avoided.
- ➔ Policy 4 - Strongly discourage scattered location of new commercial and industrial developments.'
- ➔ Policy 5 - Discourage the extension of continuous and scattered residential and commercial development along thoroughfares near the Poinsett Range.
- ➔ Policy 6 - Promote and encourage new population growth and land development in urban areas and areas already served by public infrastructure.

- Policy 7 - Sumter County and municipalities should adopt building codes with criteria for mitigating the effects of noise in the Poinsett Range area.
- Policy 8 - Encourage the establishment of a Range Compatibility District to control future development.

Goal 2 - *Plan for the orderly accommodation of new development.*

- Policy 1 - Encourage all development to be located, sited and designed to carefully fit its surroundings, to protect and enhance the quality of the environment, and to maintain the character of the area.
- Policy 2 - Capital improvements such as sewer and water services and road widening should be avoided in or adjacent to areas susceptible to annoying levels of noise.
- Policy 3 - Sumter County should participate in coordinated planning efforts with Shaw Air Force Base and related facilities.
- Policy 4 - Discourage development of mobile home parks in areas susceptible to annoying levels of noise.
- Policy 5 - Promote the clustering of urban developments and discourage scattered and strip development.
- Policy 6 - Improve public understanding and awareness of planning and zoning in the noise environment.

Goal 3 - *Minimize the impact of growth on existing development, streets and resources.*

- Policy 1 - Minimize hazardous levels of water, air, noise, and other forms of pollution throughout the Sumter area.
- Policy 2 - Promote the clustering of development to increase the efficiency of transportation and reduction of energy consumption.

- Policy 3 - Prohibit encroachment of incompatible developments into established areas. Protect the integrity of aircraft related facilities by not allowing incompatible land uses into the area.
- Policy 4 - Encourage future development to locate on vacant parcels which are properly zoned rather than in areas which are zoned for incompatible land uses.
- Policy 5 - Encourage the on-going implementation of zoning in the County that is consistent with the Joint Compatible Land Use Study.

Goal 4 - Promote the public health, safety, comfort, and general welfare of the inhabitants of Shaw Air Force Base and Sumter County.

- Policy 1 - Plan, guide, and regulate future growth and development.
- Policy 2 - Promote orderly development and appropriate land use.
- Policy 3 - Protect the character and stability of existing conforming land uses.
- Policy 4 - Prevent the elimination or impairment of airfield operations and protect the public investment therein.
- Policy 5 - Enhance the quality of life in the affected areas.
- Policy 6 - Protect the general economic welfare of the Sumter community by restricting incompatible land uses that could threaten or limit existing and future operations.
- Policy 7 - Establish guidelines for land use compatibility.
- Policy 8 - Recognize the economic role of Shaw Air Force Base and Poinsett Range in the Sumter region and reaffirm the importance of protecting this vital public investment and its socio-economic contributions to the community.
- Policy 9 - Prevent the establishment of any land use which would unreasonably endanger aircraft operations and the continued use of the airfield.
- Policy 10 - Incorporate all elements of this plan along with the 1993 Joint Compatible Land Use Study into the Sumter County 1999 - 2020 Comprehensive Development Plan, modifying it where necessary.

- Policy 11 - Adopt and enforce appropriate zoning, building code, and subdivision ordinances to implement the land use recommendations.

Goal 5 - *Restrict and prohibit land uses that are recognized as inherently incompatible in noise sensitive areas and are not in the public interest.*

- Policy 1 – Restrict uses that release into the air any substance such as steam, dust, or smoke, which could impair visibility or otherwise interfere with the safe operation of aircraft.
- Policy 2 – Restrict uses that produce light emissions, either direct or indirect (reflective), which could interfere with pilot vision.
- Policy 3 – Restrict uses that produce electrical emissions which would interfere with aircraft communication systems or navigation equipment.
- Policy 4 – Restrict uses that attract birds or waterfowl, such as operation of sanitary landfills, maintenance of feeding stations, construction of lakes and ponds, or growth of certain vegetation.
- Policy 5 – Restrict uses that provide for structures within ten feet of aircraft approach-departure and/or transitional surfaces.

