



MAXWELL AIR FORCE BASE
ALABAMA

VOLUME I

AIR INSTALLATION COMPATIBLE USE ZONE

TABLE OF CONTENTS

		<u>Page</u>
1.0	PURPOSE AND NEED.....	1-1
1.1	Introduction.....	1-1
1.2	Process and Procedure	1-2
1.3	Computerized Noise Exposure Models	1-2
2.0	INSTALLATION DESCRIPTION	2-1
2.1	Location, Geography, and Airspace.....	2-1
2.2	History of Maxwell Air Force Base.....	2-6
2.3	Mission.....	2-6
2.4	Economic Impact	2-7
2.5	Flying Activity.....	2-11
2.5.1	Flight Operations by Aircraft Type	2-11
2.5.2	Runway and Flight Track Utilization.....	2-13
2.5.3	Pre-Takeoff and Aircraft Maintenance Runup Operations	2-14
2.5.4	Aircraft Flight Profiles and Noise Data.....	2-14
3.0	LAND USE COMPATIBILITY GUIDELINES	3-1
3.1	Introduction.....	3-1
3.2	Airspace Control Surfaces	3-2
3.2.1	Land Uses Hazardous to Air Navigation.....	3-2
3.3	Noise Due to Aircraft Operations	3-4
3.4	Clear Zones (CZs) and Accident Potential Zones (APZs).....	3-7
3.4.1	Standards for CZs and APZs	3-7
3.4.2	CZs and APZs at Maxwell AFB.....	3-9
3.5	Land Use Compatibility.....	3-17
3.6	Participation in the Planning Process.....	3-17
4.0	LAND USE AND ANALYSIS	4-1
4.1	Introduction.....	4-1
4.2	Current Land Use.....	4-1
4.2.1	City of Montgomery	4-2
4.2.2	Montgomery County	4-8
4.2.3	Elmore County.....	4-9
4.3	Current Zoning.....	4-10
4.3.1	City of Montgomery	4-10
4.3.2	Montgomery County	4-16
4.3.3	Elmore County.....	4-16
4.4	Future Land Use.....	4-16
4.5	Obstructions to Air Navigation (FAR Part 77 Analysis).....	4-17
4.6	AICUZ Environs.....	4-18

TABLE OF CONTENTS (cont'd)

	<u>Page</u>
5.0 IMPLEMENTATION.....	5-1
5.1 AICUZ Environs.....	5-1
5.2 Air Force Responsibilities.....	5-1
5.3 Local Community Responsibilities.....	5-2

LIST OF FIGURES

<u>No</u>		<u>Page</u>
Figure 1-1.	Maxwell AFB Vicinity	1-3
Figure 2-1.	Installation Vicinity	2-2
Figure 2-2.	Installation Structures and Layout	2-4
Figure 2-3.	Air Traffic Control Airspace in Vicinity of Maxwell AFB	2-5
Figure 2-4.	RWY 15 Flight Departures	2-15
Figure 2-5.	RWY 33 Flight Departures	2-16
Figure 2-6.	RWY 15 Flight Arrivals.....	2-17
Figure 2-7.	RWY 33 Flight Arrivals.....	2-18
Figure 2-8.	Assault Strip Arrivals.....	2-19
Figure 2-9.	All Runways-Closed Patters	2-20
Figure 2-10.	All Aircraft-All Tracks	2-21
Figure 3-1.	Plan View of FAR Part 77 Imaginary Surfaces (Class B Runway).....	3-3
Figure 3-2.	Day-Night Average Sound Levels	3-5
Figure 3-3.	2000 Census Blocks and Noise Contours	3-6
Figure 3-4.	A-Weighted Sound Levels.....	3-8
Figure 3-5.	APZ and CZs.....	3-10
Figure 3-6.	North APZ and CZs	3-11
Figure 3-7.	South APZ and CZs	3-12
Figure 3-8.	North Assault Strip CZ and APZ.....	3-14
Figure 3-9.	South Assault Strip CZ and APZ.....	3-15
Figure 3-10.	Census Blocks and APZ.....	3-16
Figure 4-1.	Existing Land Uses in the Region.....	4-4
Figure 4-2.	Existing Land Uses and 2009 Noise Contours	4-5
Figure 4-3.	Existing Land Uses and CZs and APZs.....	4-7
Figure 4-4.	Generalized Zoning and Noise Contours.....	4-11
Figure 4-5.	Generalized Zoning and APZs.....	4-12
Figure 4-6.	Generalized Zoning, APZs, and Noise Contours.....	4-13
Figure 4-7.	Detailed Zoning Classifications, APZs, and Noise Contours	4-14
Figure 4-8.	Runway 15/33 Imaginary Surfaces.....	4-19
Figure 4-9.	Assault Strip (18A/36A) Imaginary Surfaces	4-20
Figure 4-10.	Maxwell AFB Imaginary Surfaces (All).....	4-21
Figure 4-11.	Maxwell AFB Imaginary Surfaces (3-Dimensional).....	4-22
Figure 4-12.	AICUZ Environs Map.....	4-23

LIST OF TABLES

<u>No</u>		<u>Page</u>
Table 2-1.	Population and Projections	2-3
Table 2-2.	Aircraft Assigned to Maxwell AFB in Fiscal Year 2007	2-6
Table 2-3.	Total Employment by Major Industry	2-8
Table 2-4.	Population Associated with Maxwell AFB.....	2-9
Table 2-5.	Annual Expenditures for Procurement and Contracts	2-10
Table 2-6.	Estimated Economic Impact	2-11
Table 2-7.	Baseline + Average Busy-Day Aircraft Operations at Maxwell AFB.....	2-12
Table 3-1.	Total Areas and Estimated Population (2000 Census) Residing within the 65 to 80+ dB Contours.....	3-7
Table 3-2.	Off-Base Areas and Populations within the 65 to 80+ dB Noise Contours.....	3-7
Table 3-3.	Total Acreage and Population within the Maxwell AFB Runway 15/33 CZ, APZs, and Assault Strip.....	3-13
Table 3-4.	Land Use Compatibility, Noise Exposure, and Accident Potential	3-18
Table 4-1.	US Census Population.....	4-2
Table 4-2.	Off-Base Compatibility within Noise Contours	4-6
Table 4-3.	Off Base Land Use Acreage for CZs and APZs	4-9

ACRONYMS and ABBREVIATIONS

ABW	Air Base Wing
ACTS	Air Corps Tactical School
AETC	Air Education and Training Command
AFB	Air Force Base
AFH	Air Force Handbook
AGL	above ground level
AICUZ	Air Installation Compatible Use Zone
AFH	Air Force Handbook
APZ	accident potential zone
APZ-LZ	accident potential zone-landing zone
AS	Airlift Squadron
ATC	air traffic control
AU	Air University
AW	Airlift Wing
BX	Base Exchange
CAP	Civil Air Patrol
CFR	Code of Federal Regulation
CNS	communications, navigation, surveillance
CZ	clear zone
dB	decibel
DNL	day-night average A-weighted sound level
DoD	Department of Defense
DoT	Department of Transportation
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
HUD	Housing and Urban Development
IFR	instrument flight rules
INM	Integrated Noise Model
LATN	Low Altitude Tactical Navigation
MSL	mean sea level
MWR	Morale, Welfare, and Recreation
OE/AAA	obstruction evaluation/airport airspace analysis
OG	Operations Group
SEATC	Southeast Air Corps Training Center
TRACON	terminal radar approach control
TRSA	Terminal Radar Service Area
VFR	visual flight rules
UFC	Unified Facility Criteria
USCB	U.S. Census Bureau

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1.0 PURPOSE AND NEED

1.1 Introduction

This study is an update to the 1998 Maxwell Air Force Base (AFB), Alabama Air Installation Compatible Use Zone (AICUZ) study. The update presents and documents the changes to the AICUZ amendment that have occurred for the period 1998-2008 and is based on the December 2008 aircraft operations condition. This AICUZ study reaffirms Air Force policy of assisting federal, state, regional, and local officials in the areas surrounding Maxwell AFB by promoting compatible development within the AICUZ area of influence and protecting Air Force operational capability from the effects of land use that are incompatible with aircraft operations. Specifically, the report documents changes in aircraft operations since the last study and provides noise contours and compatible use guidelines for land areas surrounding the installation based on the December 2008 operations.

The purpose of the Department of Defense's (DoD) long-standing AICUZ program is to promote compatible land development in areas subject to increased noise exposure and accident potential due to aircraft operations. In addition, the AICUZ program's goal is to protect military airfields and navigable airspace leading to them from encroachment by incompatible uses and structures. Recommendations from this updated AICUZ study should be included in any planning process undertaken by the city of Montgomery and Autauga or Elmore counties, with the goal of preventing incompatibilities that might compromise Maxwell AFB ability to fulfill its mission requirements. Accident potential and aircraft noise in the vicinity of military airfields should be major considerations in any planning process that the local municipal authorities may wish to undertake.

Land use guidelines for Air Force AICUZ outlined in Air Force Handbook (AFH) 32-7084 *AICUZ Program Manager's Guide* reflect preferred land use recommendations for areas underlying clear zones (CZs), accident potential zones (APZs) I and II, as well as for four noise exposure zones (a description of these areas can be found in Chapter 3).

- 65-70 decibel [dB] day-night average A-weighted sound level (DNL)
- 70-75 dB DNL
- 75-80 dB DNL
- 80+ dB DNL

The zones are delineated by connecting points of equal noise exposure (contours). Land use recommendations for these noise exposure zones have been established on the basis of sociological studies prepared and sponsored by several federal agencies, including the U.S. Department of Housing and Urban Development (HUD), the U.S. Environmental Protection Agency (EPA), the U.S. Department of Transportation (DoT), and the Air Force, as well as state and local agencies. The guidelines recommend land uses that are compatible with airfield operations while allowing maximum beneficial use of adjacent properties. Additionally, guidelines for maximum height of man-made structures are provided to protect the navigable airspace around an airfield, particularly the approach/departure corridors extending along the axis of the runway. The Air Force has no desire to recommend land use regulations that would render property economically useless. The Air Force does, however, have an obligation to the

citizens of the United States, especially those residing in the vicinity of Maxwell AFB environs (Figure 1-1) to point out ways to protect the adjacent communities.

The AICUZ program uses the latest technology to define noise levels in areas near Air Force installations. An analysis of Maxwell AFB's anticipated flying operations was performed, including types of aircraft, flight patterns, variations in altitude, power settings, number of operations, and hours of operations. This information was used to develop the noise contours contained in this study. The DoD NOISEMAP modeling software and the previously mentioned DNL metrics were used to define the noise exposure zones at Maxwell AFB.

1.2 Process and Procedure

Preparation and presentation of this update to Maxwell AFB's AICUZ study is part of the continuing Air Force participation in the local planning process. It is recognized that the Air Force has the responsibility of providing information on its activities that potentially affect the community. As local communities prepare land use plans and zoning ordinances, Maxwell AFB presents this study in the spirit of mutual cooperation and respect with the intent of assisting in the local land use planning process.

Aircraft operational data used in this study was collected at Maxwell AFB in December 2008. On-site interviews were performed to obtain aircraft operational and maintenance data. Using these data, average daily operations by runway and type of aircraft were derived. Analysis of Maxwell AFB's flying operation included the types of aircraft, flight patterns utilized, variations in altitude, power settings, number of operations, and hours of operations.

These data were supplemented by flight track information (where we fly), flight profile information (how we fly), and maintenance engine runs occurring while the aircraft is stationary (static run-ups). After verification of accuracy, data were input into the NOISEMAP program (Version 7.32) to produce DNL noise contours. The noise contours were plotted on an area map and overlaid with the CZ and APZ areas for the airfield. In addition, the Federal Aviation Administration (FAA) defined imaginary surfaces are depicted. These imaginary surfaces are designated to promote and maintain clear airspace for safe flight operations near the airfield. Objects that penetrate these surfaces are considered obstructions to air navigation. The sum of all three elements, (noise exposure, accident potential, and obstruction evaluation), constitute the AICUZ environs for a given airfield. Appendix A of Volume II contains detailed information on the development of the AICUZ report.

1.3 Computerized Noise Exposure Models

The Air Force adopted the NOISEMAP computer program to describe noise impacts created by aircraft operations. NOISEMAP is one of two EPA approved computer programs; the other is the Integrated Noise Model (INM), used by the FAA for noise analysis at civil airports. The NOISEMAP and INM programs are similar; however, INM does not contain noise data for all military aircraft.

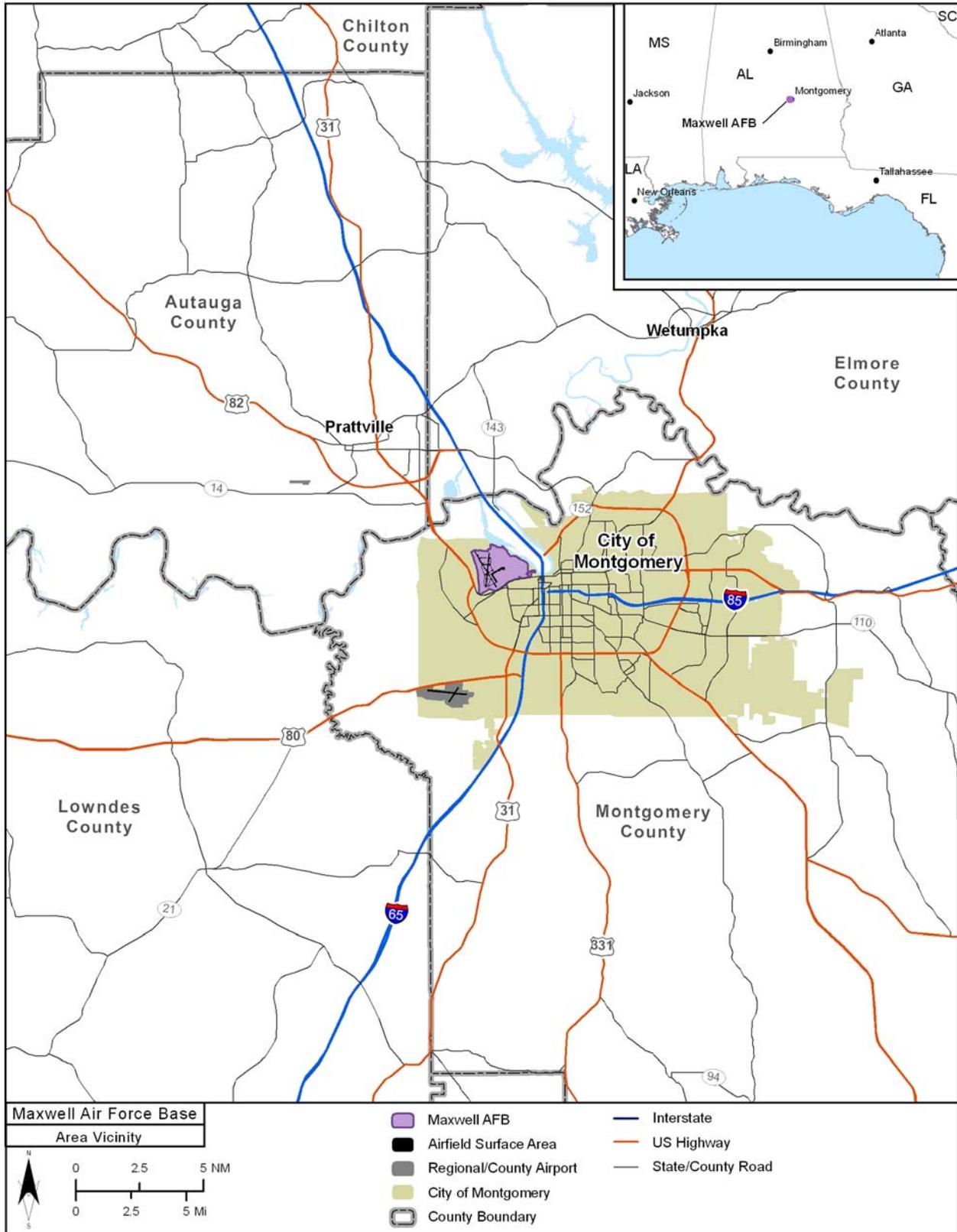


Figure 1-1. Maxwell AFB Vicinity

NOISEMAP is a suite of computer programs and components developed by the Air Force to predict noise exposure in the vicinity of an airfield due to aircraft flight, maintenance, and ground run-up operations. The components of NOISEMAP are:

- BASEOPS is the input module for NOISEMAP and is used to enter detailed aircraft flight track and profile and ground maintenance operational data.
- NOISEFILE is a comprehensive database of measured military and civil aircraft noise data. Aircraft operational information is matched with the noise measurements in the NOISEFILE after the detailed aircraft flight and ground maintenance operational data has been entered into BASEOPS.
- NMAP is the computational module in NOISEMAP. NMAP takes BASEOPS input and uses the NOISEFILE database to calculate the noise levels caused by aircraft events at specified grid points in the airbase vicinity. The output of NMAP is a series of georeferenced data points, specific grid point locations, and corresponding noise levels.
- NMPLLOT is the program for viewing and editing the sets of georeferenced data points. NMPLLOT plots the NMAP output in a noise contour grid that can be exported as files that can be used in mapping programs for analyzing the noise impacts

2.0 INSTALLATION DESCRIPTION

2.1 Location, Geography, and Airspace

Maxwell AFB is located entirely within the city of Montgomery, in the northwest section adjacent to the Alabama River. The city is the capital of Alabama, situated in the central region of the state. Montgomery is a mid-sized city that along with Montgomery County (within which it is located) along with the counties of Elmore and Autauga, form the metropolitan area (Figure 2-1). The U.S Census Bureau estimates that the 2007 city of Montgomery population was 201,998 persons, making it the greater part of the 2007 Montgomery County population of 225,791 (Table 2-1).

The immediate vicinity of Montgomery is generally flat with an elevation of approximately 172 feet above mean sea level (MSL). Maxwell AFB and the city of Montgomery are located southeast of the center of the state, in the Gulf Coastal Plain. The terrain gradually slopes downward south of Montgomery towards the Gulf of Mexico and rises to the north towards the Appalachian Mountains. The average rainfall in Montgomery is 54 inches. Rainfall is fairly consistent throughout the year with an average rainfall of 4.5 inches monthly.

The major transportation corridors for the region generally follow the terrain with Interstate 65 extending north/northwest towards Birmingham Alabama and Interstate 85 extending east/northeast towards Atlanta, Georgia. Outside of the city limits, U.S. highways and state/county roads provide access to other cities and counties in the region. The Montgomery Regional Airport provides air carrier, air taxi, and general aviation services for the region.

With respect to population trends, it is useful to consider the jurisdictions within the metropolitan areas separately. Within the city and close-in suburbs (Montgomery County) there has been little or no population growth during this decade. By comparison, the statewide rate of population growth is 3.4 percent. Further out from the urban core, the exurban and more rural counties of Autauga and Elmore are growing more rapidly than the state as a whole. The rate of population growth in these areas has correlated with the expansion of the services and manufacturing sectors, and information technology industry.

Maxwell AFB occupies approximately 2,251 acres, on the south side of the Alabama River in the northwest portion of the city of Montgomery. The airfield consists of a single runway (15/33) oriented along a northwest/southeast axis with associated taxiways and aircraft parking ramps. Runway 15/33 is 8,000 feet long by 150 feet wide. An assault strip intersects runway 15/33 midfield on the north side of the runway. The assault strip is 3,000 feet long by 60 feet wide. It is used by aircrews flying the C-130 *Hercules* aircraft stationed at Maxwell AFB when they conduct tactical departure and arrival training.

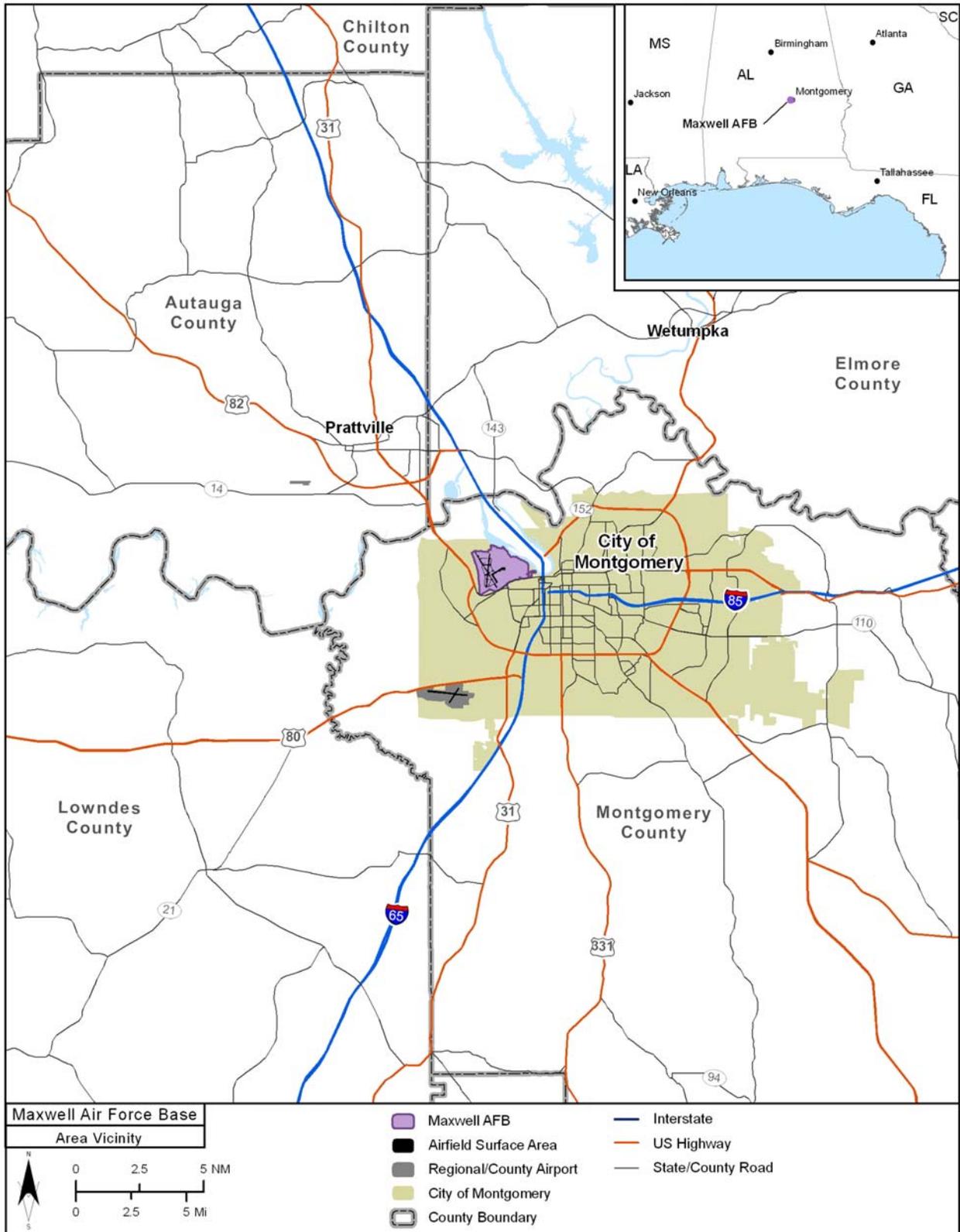


Figure 2-1. Installation Vicinity

Table 2-1. Population and Projections

AREA	2000 Census	2007 Estimated	2000-2007 Rate of Change %	2015 Projection
State of Alabama	4,447,100	4,627,851	4.06	4,663,111
Montgomery City	201,568	204,086	1.25	N/A
Montgomery County	223,510	225,791	1.02	237,378
Autauga County	43,671	49,960	14.40	58,273
Elmore County	65,874	77,525	17.69	81,959

Table T1: Population Estimates. Data Set: 2007 Population Estimates. 2015 Estimates prepared by University of Alabama in Huntsville, Center for Management and Economic Research.
Source: U.S. Census Bureau (USCB) 2000, 2007

The runway ends are accessed from parallel and intersecting taxiways. All aircraft parking, maintenance, and squadron operations facilities are located on the east side of the airfield. Aircraft maintenance and static engine runs occur in the parking areas or at the ends of the runways (Figure 2-2). The airfield elevation is 172 feet above MSL.

The airfield at Maxwell AFB lies within controlled airspace. This is a generic term referring to airspace within which aircraft separation (i.e., air traffic control [ATC]) is provided by FAA or military air traffic controllers. Separation of aircraft is achieved through a combination of the Montgomery Terminal Radar Approach Control (TRACON), an FAA facility, and a control tower, located at Maxwell AFB. The Montgomery TRACON also provides radar approach control services to Montgomery Regional Airport and five satellite airports within the Montgomery Terminal Radar Service Area (TRSA).

Controlled airspace has several variations that correlate with air traffic density and other operational considerations. As a result, the minimum pilot certification requirements, the minimum required equipment installed in the aircraft, and the minimum weather (cloud ceiling and prevailing visibility) vary with the airspace classification. For example, the airspace around Montgomery Regional Airport and Maxwell AFB is Class D airspace. This airspace classification requires an operational control tower and establishing two-way communication prior to entry (Figure 2-3).

The Maxwell Class D airspace extends 5 miles outward from the airfield and upward to 2,200 feet MSL. The Maxwell AFB southern portion of the Class D airspace and Montgomery Regional Airport northern portion of the Class D airspace overlap. Therefore, to define the two Class D airspaces, the FAA designated a portion of the overlap to each airport. Operations are coordinated with the FAA, and flight paths into and out of Maxwell AFB are integrated to minimize conflict with operations at Montgomery Regional Airport.

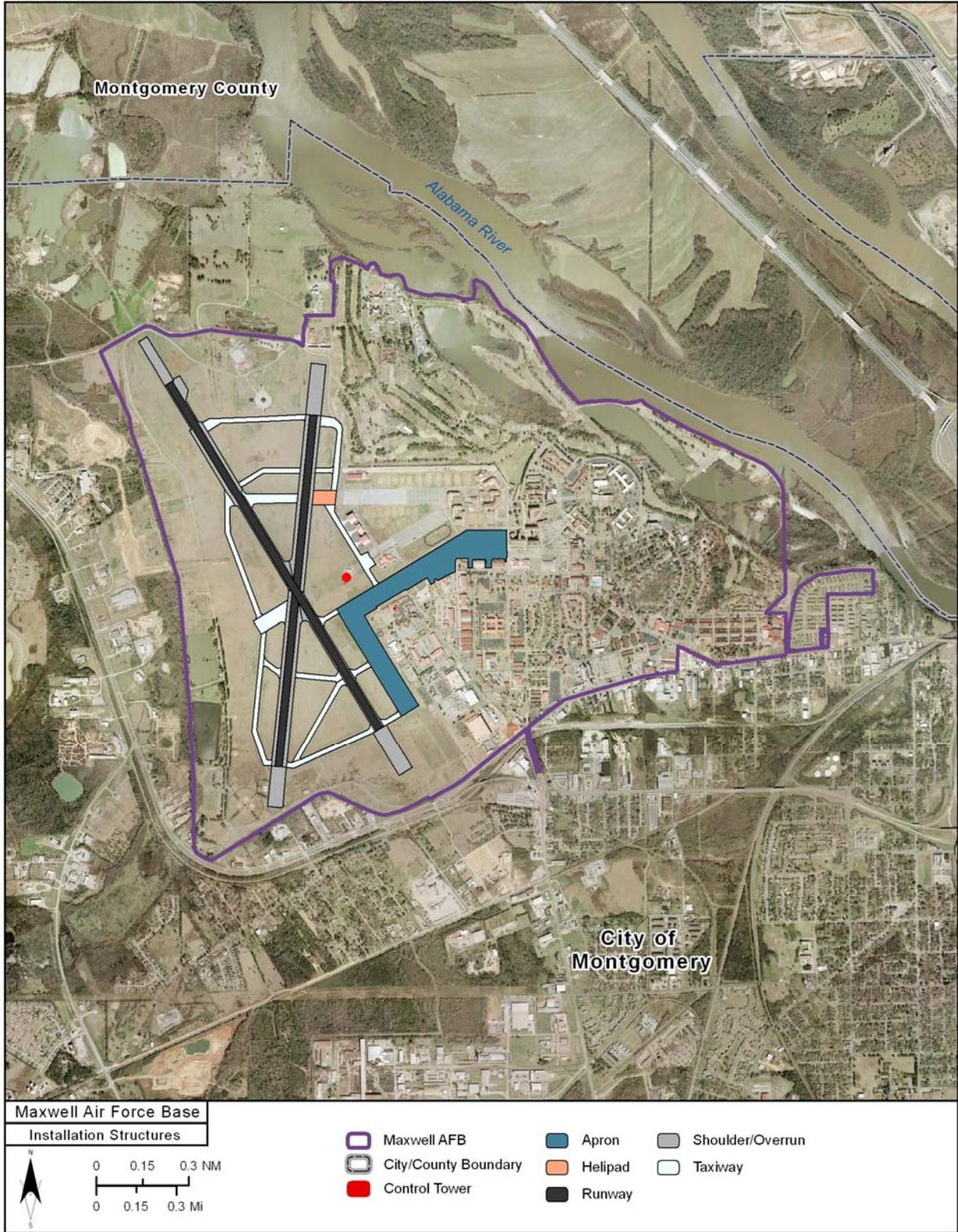


Figure 2-2. Installation Structures and Layout



Figure 2-3. Air Traffic Control Airspace in Vicinity of Maxwell AFB

2.2 History of Maxwell Air Force Base

Maxwell AFB is named after 2nd Lt. William C. Maxwell, an Atmore Alabama native who died in an air accident in the Philippines. The base opened in 1918. Initially, the base served as an Army Air Service repair depot in World War I, an aerial operations field in the 1920s, and home of the Air Corps Tactical School (ACTS) for senior officer education and air power doctrine and tactics in the 1930s. During World War II, Maxwell hosted the Southeast Air Corps Training Center (SEATC), training U.S. and Allied airmen. After World War II, Maxwell became home of the Air University (AU), resuming ACTS training for commissioned and non-commissioned officer personnel. Today, the AU, located at Gunter Annex, continues to serve as the intellectual and leadership center of the Air Force.

2.3 Mission

The primary mission performed at Maxwell AFB is that of the base's host command, the 42nd Air Base Wing (ABW), a subordinate unit of the Air Education and Training Command (AETC). The AETC mission is to provide basic military training, initial and advanced technical training, flying training, and professional military and degree granting professional training. The mission of the 42nd ABW is to provide support to the AU, and more than 50 units at Maxwell AFB and Gunter Annex. The 42 ABW supports two tenant flying units; the 908th Airlift Wing (AW), and the Civil Air Patrol (CAP) (Table 2-2).



The 908th AW, a U.S. Air Force Reserves unit, operates C-130 aircraft providing worldwide airlift support. Subordinate to the 908th AW is the 908th Operations Group (OG), to which the 357th Airlift Squadron (AS) is assigned. The 357th AS operates the 9 C-130 aircraft assigned to the 908th AW.

The CAP, an Air Force auxiliary service aviation unit, operates a C-182 *Skylane* and a Gippsland GA-8 *Airvan*. Both are normally aspirated piston (as opposed to turbo propeller), single-engine aircraft. The CAP performs search and rescue missions supporting civil aviators along with other missions in support of the Department of Homeland Security.

Table 2-2. Aircraft Assigned to Maxwell AFB in Fiscal Year 2007

Unit Designation	Aircraft Type	Number of Aircraft
908 AW	C-130	9
CAP	GA-8	1
CAP	C-182	1

Note: There are no CAP aircraft stationed at MAFB. CAP aircraft have been re-located to Montgomery Regional Airport; however, they routinely fly to and from Maxwell AFB

2.4 Economic Impact

As noted above, Maxwell AFB is within the city of Montgomery and the city lies entirely within the boundaries of Montgomery County, Alabama. The base's economic region of influence is thought to extend outward 50 miles. The general economic health of the region has improved over the years and the presence of Maxwell AFB is undoubtedly significant to the local economy. Even so, the local economy is a well-diversified one based on public administration, manufacturing, retail trade, health service, leisure and hospitality, and education, all of which account for 64 percent of its civilian employment. The local economy also relies on construction, information technology and financial services employers (Table 2-3). The 2007 census data indicate that the average household income in Montgomery County was \$41,973 compared to a national average of \$50,007 and statewide average of \$40,052.

The relationship between base personnel and the city and county has historically been one of cooperation, mutual respect, and support. Strong ties between the local governments, the business community, and the military have existed for decades. Base personnel are actively involved in town affairs, frequently attending city meetings to discuss any Maxwell AFB issues that could potentially affect the city.

The economic impact of Maxwell AFB on this region of Alabama is significant, especially within the 50-mile radius of the economic impact region generally associated with military installations. In 2007, Maxwell AFB employed 8,739 personnel on base making it the leading employer in the region. These personnel include active duty military, appropriated fund civilians, non-appropriated fund contracts, and private business civilians. Approximately three percent of the military personnel stationed at Maxwell AFB reside on base, with the remainder living in the local area. In 2007, the annual total payroll was approximately \$874,100,058.

The population associated directly with Maxwell AFB in fiscal year (FY) 2007 (07) totaled 23,039 persons; including 5,753 permanent military personnel, 11,891 dependents, and 5,395 civilians (Table 2-4). Through procurement and contracts, an additional \$450,258,361 million entered the local economy in 2007 (Table 2-5).

The FY07 total economic impact of Maxwell AFB on the local economy was \$1.4 billion dollars (Table 2-6).

Table 2-3. Total Employment by Major Industry

NAICS	Industry	Employment ¹				Average Annual Growth ²	
		2006	2016	Net Change	Percent Change	Region 7	Alabama
	Total Employment	204,720	233,990	29,270	14.30	1.35	1.38
	Total Wage & Salary Employment	187,000	215,440	28,440	15.21	1.43	1.47
	Goods Producing	31,830	34,570	2,740	8.61	0.83	0.59
21	Natural Resources	610	550	-60	-9.84	-1.03	-0.82
23	Construction	8,460	9,520	1,060	12.53	1.19	1.70
31-33	Manufacturing	22,760	24,510	1,750	7.69	0.74	0.22
	Durable Goods	16,240	18,620	2,390	14.72	1.38	1.07
	Nondurable Goods	6,520	5,880	-640	-9.82	-1.03	-1.33
	Service Producing	155,170	180,870	25,700	16.56	1.54	1.70
	Trade, Transportation, & Utilities	34,670	37,270	2,600	7.50	0.73	1.09
42	Wholesale Trade	6,700	7,020	320	4.78	0.47	0.81
44-45	Retail Trade	20,570	22,350	1,780	8.65	0.83	1.25
48-49	Transportation & Warehousing	6,580	7,090	510	7.75	0.75	1.11
22	Utilities	820	800	-20	-2.44	-0.25	-0.24
51	Information	2,710	2,920	210	7.75	0.75	0.95
52	Finance & Insurance	8,700	9,120	420	4.83	0.47	0.70
53	Real Estate, Rental, & Leasing	2,260	2,560	300	13.27	1.25	1.66
54	Professional, Scientific, & Technical Services	7,540	9,420	1,880	24.93	2.25	2.52
55	Management of Companies & Enterprises	660	740	8	12.12	1.15	1.92
56	Administrative, Support, Waste Management, and Remediation	11,370	15,910	4,540	39.93	3.42	3.15
61	Educational Services	12,280	14,560	2,280	18.57	1.72	1.53
62	Health Care & Social Assistance	19,510	25,470	5,960	30.55	2.70	2.44
71	Arts, Entertainment, & Recreation	2,320	3,020	700	30.17	2.67	2.92
72	Accommodation & Food Services	15,460	17,960	2,500	16.17	1.51	1.84
81	Other Services (Except Public Administration)	8,900	10,610	1,710	19.21	1.77	1.60
90	Government ³	28,820	31,310	2,490	8.64	0.83	1.00
91	Federal	5,080	5,130	50	0.98	0.10	1.03
92	State	15,870	17,130	1,260	7.94	0.77	0.59
93	Local	7,870	9,050	1,180	14.99	1.41	1.16
	ALL OTHER⁴	17,720	18,550	830	4.68	0.46	0.41

¹ Employment data is rounded to the nearest 10 and may not add due to rounding. Percentages may not add due to rounding

² Average Annual Growth Rate is compounded

³ For projections purposes Government, only includes Government administration. It does not include post office, education, or hospitals

⁴ All Other includes industries such as agriculture, self-employed, unpaid family workers, and private household not covered by unemployment insurance

Table 2-4. Population Associated with Maxwell AFB

Classification	Living on-base	Living off-base	Total
APPROPRIATED FUND MILITARY			
Active Duty	255	2,977	3,202
Permanent Party ¹			
Air Force Reserve	0	1	1
Permanent Party ²			
TOTAL	225	5,528	5,753
ACTIVE DUTY MILITARY DEPENDENTS			
TOTAL	0	11,891	11,891
APPROPRIATED FUND CIVILIANS			
General Schedule, Wage Grade, National Security Personnel System			2,409
NON-APPROPRIATED FUND CONTRACT CIVILIANS AND PRIVATE BUSINESS			
Contract Civilians and Private Business Civilians Non-Appropriated			574
Contractor			2,161
Civilians, Base Exchange and Commissary			230
		TOTAL	5,395
		Grand Total	23,039

¹Active Duty living on base are single airmen residing in dormitories

²Due to Military Family Housing Privatization, members in base housing now receive Basic Allowance for Housing and are reported under the "Off Base" Category

Table 2-5. Annual Expenditures for Procurement and Contracts

Procurements	Expenditure (\$)
SERVICES	
Services Contracts ¹	205,871,267
Other Services (not elsewhere included)	64,312,343
Total	270,183,610
CONSTRUCTION	
Military Construction Program	11,294,942
Non-Appropriated Fund ²	330,472
Military Family Housing	3,991,000
Operations and Maintenance	63,204,833
Total	78,821,247
MATERIALS, EQUIPMENT, AND SUPPLIES PROCUREMENT	
Commissary	1,645,009
Base Exchange (BX)	4,191,368
Health (CHAMPUS, Government cost only)	30,352,000
Education (Impact Aid and Tuition Assistance) ³	133,860
Temporary Duty	7,919,879
Other Materials, Equipment and Supplies (not elsewhere included)	57,011,388
Total	101,253,504
TOTAL ANNUAL EXPENDITURES	450,258,361

¹Includes only contracts in the local economic area or contracts requiring the use of locally supplied goods and services

²FY07 NAF Bowling Alley Project

³Centralized Education and tuition assistance program

Table 2-6. Estimated Economic Impact

ANNUAL PAYROLL		\$874,100,058
Military	\$328,954,992	
Federal Civilian	\$206,077,253	
Other Civilian	\$339,067,813	
ANNUAL EXPENDITURES		\$450,258,361
ESTIMATED INDIRECT IMPACT		\$145,029,444
Grand Total		\$1,469,387,863

Source: Maxwell AFB Economic Impact Statement (EIS) 2007

2.5 Flying Activity

Prior to the data collection that occurred in December 2008, the most recent full AICUZ study for Maxwell AFB was accomplished in 1998. A noise contour analysis occurred June 2007 in conjunction with an operational change, resulting in a decrease in aircraft assigned to Maxwell AFB. Given these changes in aircraft fleet mix and numbers, new contours were created. Since the 1998 AICUZ study, the primary aircraft type (C-130) based at Maxwell AFB has not changed. There have been changes to the mix of other aircraft that are stationed at Maxwell AFB since the 1998 study. As part of the 2005 Base Closure and Re-alignment Commission (BRAC) decisions taken throughout the DoD, the C-21 *Learjet* aircraft were relocated from Maxwell AFB. Additionally, the base Aero Club, previously operated by the Services Squadron as a Morale, Welfare, and Recreation (MWR) activity, was disbanded and closed. Finally, the CAP aircraft were re-located to the Montgomery Regional Airport and their fleet mix changed slightly with the acquisition of the GA-8 *Airvan*.

The mix of transient aircraft also can and usually does change from year to year. Transient aircraft generally fall into one of three categories: VIP transport (light business turboprop aircraft, such as the C-12 *Huron*), heavy airlift (including passenger jets such as DC-10s), or fighter aircraft based elsewhere that are temporarily visiting Maxwell AFB or using it as an emergency divert field (e.g., F-16 *Fighting Falcon*). The number of transient aircraft sorties also varies over time as operational requirements dictate; however, they represent a small fraction of airfield operations compared to activity from based aircraft.

2.5.1 Flight Operations by Aircraft Type

An operation is defined as one takeoff, one arrival, or half of a closed pattern. A closed pattern consists of both a departure portion and an approach portion (i.e., two operations). In addition to the C-130 based aircraft, transient aircraft from other military installations often land and take off at Maxwell AFB.

While the number of assigned, transient, and civil aircraft operations varies from day to day at an installation, the NOISEMAP computer program requires input of a specific number of daily flights and of aircraft maintenance engine run-up operations. For purposes of an AICUZ study, the “average busy day” is modeled in recognition that the level of flight operations can vary over the course of a year (Table 2-7). For example, at most bases, weekend flying operations are typically much less common. The use of an average busy day concept simply entails normalizing the data so that they are representative of the activity occurring when the 908th AW is flying (i.e., seldom on holidays and weekends).

Table 2-7. Baseline + Average Busy-Day Aircraft Operations at Maxwell AFB

Unit	Aircraft Type	Flying Days Per year	Average Daily Operations	Average Annual Operations
908 th AW	C-130	200	19.2	3,840
CAP	GA-8 / C-172	210	4.2	840
		TOTAL	23.4	4,680

Note: Baseline indicates data collected/validated during 2007 noise contour analysis and AICUZ re-validation in 2008

Note: An operation is one departure (take-off) or one arrival (landing). A closed pattern consists of two operations (i.e., one departure and one arrival)

Source: GMI 2008

The typical C-130 sortie would likely include a departure, airwork (including practice approaches at nearby civilian airports), assault strip training, and closed pattern touch and goes, culminating ultimately in a full-stop landing.

Departures from Runway 33 head northwest to de-conflict with traffic using the Montgomery Regional Airport, located 5 NM south of Maxwell AFB. The typical arrivals are from the north to runway 15. Typical flight profiles also normally entail local instrument flight rules/visual flight rules (IFR/VFR) patterns at Maxwell AFB or Montgomery Regional Airport. Aircrews use the two airfields to develop and maintain proficiency at takeoffs and landings. Furthermore, the assault landing strip on Maxwell AFB is used for practicing tactical landings and departures. The 908th AW does not manage or operate in special use airspace (e.g., military operations areas, restricted Areas) but it does have designated training areas. Aircrews depart the local area for Low Altitude Tactical Navigation (LATN). LATN airspace is used by aircraft that can safely operate at speeds of 250 knots or less and are capable of safely merging with general aviation traffic. Military aircraft conducting LATN are required to comply with FAA regulations to ‘see and avoid’ other aircraft and obstacles.

The flight patterns (also referred to as flight tracks) are designed taking several factors into account and the operations most commonly observed along these tracks are a function of several factors including:

- The mission or purpose for which the sortie is being flown, and, closely related, the locations of the most commonly used training airspace units
- The availability of training airspace

- Noise abatement considerations
- The prevailing weather conditions and winds
- Separation requirements from other aircraft in the vicinity

Of these factors, the prevailing winds (which influences whether operations occur on Runway 15 or Runway 33) and the mission (i.e., what training or operational scenario is being flown) are the predominant factors that influence which of the many flight tracks possible are the ones most commonly observed.

2.5.2 Runway and Flight Track Utilization

Maxwell AFB has one runway and one assault landing strip (15/33 and 18A/36A) oriented northwest/southeast and north/south, respectively. The closed pattern traffic is generally kept to the north side of the runway complex to de-conflict with arriving/departing traffic at Montgomery Regional Airport.

Generally, Runway 15 is used due to the prevailing winds, noise abatement, and other operational considerations. It is the preferred calm wind runway.

Other factors influencing the flight tracks observed at Maxwell AFB include:

- Takeoff patterns routed to avoid densely populated areas as much as practicable;
- Air Force criteria governing the speed, rate of climb, and turning radius for each type of aircraft;
- Coordination with the FAA to minimize conflict with civilian air carrier and general aviation aircraft operations in the region.

As a result, aircraft operating at Maxwell AFB use the following basic flight patterns:

- Turning departures (departure on Runways 15 followed by a left turn to the west);
- Turning departures (departure on Runway 15 followed by a right turn to the west);
- Straight out departure off Runway 33;
- Straight in approach (typically used by transient aircraft); and
- Overhead landing pattern during which aircraft overfly the landing threshold at approximately 1,500 feet above ground level (AGL), turn 180 degrees, fly outbound briefly, and then begin a continuous turn and descent while intercepting the final approach course. The overhead landing pattern describes an oval racetrack shaped course with about a 1-mile final approach segment. Compared to the straight-in approach, this is a less common arrival pattern.

Static engine run-ups are performed at Maxwell AFB, most often in conjunction with maintenance activities. To the maximum extent possible, engine runup locations have been established in areas that minimize noise exposure for people on-base as well as for those in the surrounding communities. Normal base operations may include a limited number of late night (after 10 PM and before 7 AM) engine runups.

The area of influence for airfield planning is concerned with three primary aircraft operational/land use determinants: (1) accident potential to occupants on the ground; (2) aircraft noise; and (3) hazards to operations from land uses (height obstructions, increased potential for bird-aircraft strike hazards, operations such as factories that emit smoke, dust, or light that adversely affect flight operations). Each of these concerns is addressed in conjunction with

mission requirements and safe aircraft operation to determine the optimum flight profile for each aircraft type. The flight tracks (Figures 2-4 through 2-10) are the result of such planning.

2.5.3 Pre-Takeoff and Aircraft Maintenance Runup Operations

Pre-takeoff aircraft engine runs occur with every sortie. These runs usually occur in the parking space while the pre-flight checks are being performed and on taxiways at the ends of the runways while additional checks take place. Post-landing engine runs may also occur, again at the taxiways near the ends of the runway and in the parking space prior to shutdown at the end of a sortie. Additionally, engine maintenance run-ups occur in the parking area.

While the pre-takeoff and post-landing engine runs occur generally during the same timeframe as the sorties (i.e., day versus night), the maintenance runs have a greater night-time count than do flight operations. The maintenance personnel often use the period after the aircraft are finished flying for the day to perform required checks and maintenance so that aircraft are operational for the next day's flying activities.

2.5.4 Aircraft Flight Profiles and Noise Data

For the purposes of this AICUZ study, an aircraft flight profile denotes the engine power settings, altitudes above ground level, and aircraft airspeeds along a flight track. All Maxwell AFB aircraft flight profiles were obtained by interviewing pilots assigned to units based at Maxwell AFB that operate the aircraft. The data is then put into the NOISEMAP computer program and DNL contours are computed. NOISEMAP computes DNLs by either interpolating or extrapolating sound levels from a standard noise library to match the aircraft's configuration. The standard noise library is the result of controlled field measurements for each aircraft type.

Atmospheric temperature and relative humidity are important factors in the propagation of noise since they affect the ability of the atmosphere to absorb or attenuate noise. Maxwell AFB's climate is temperate, characterized by long hot summers and shorter, usually mild winters. With its humid climate, the daily temperature swings are less pronounced compared to other regions of the country. The moisture and heat from air masses that form in the Gulf of Mexico tend to moderate the colder, drier air masses that originate in Canada and move from north to south.

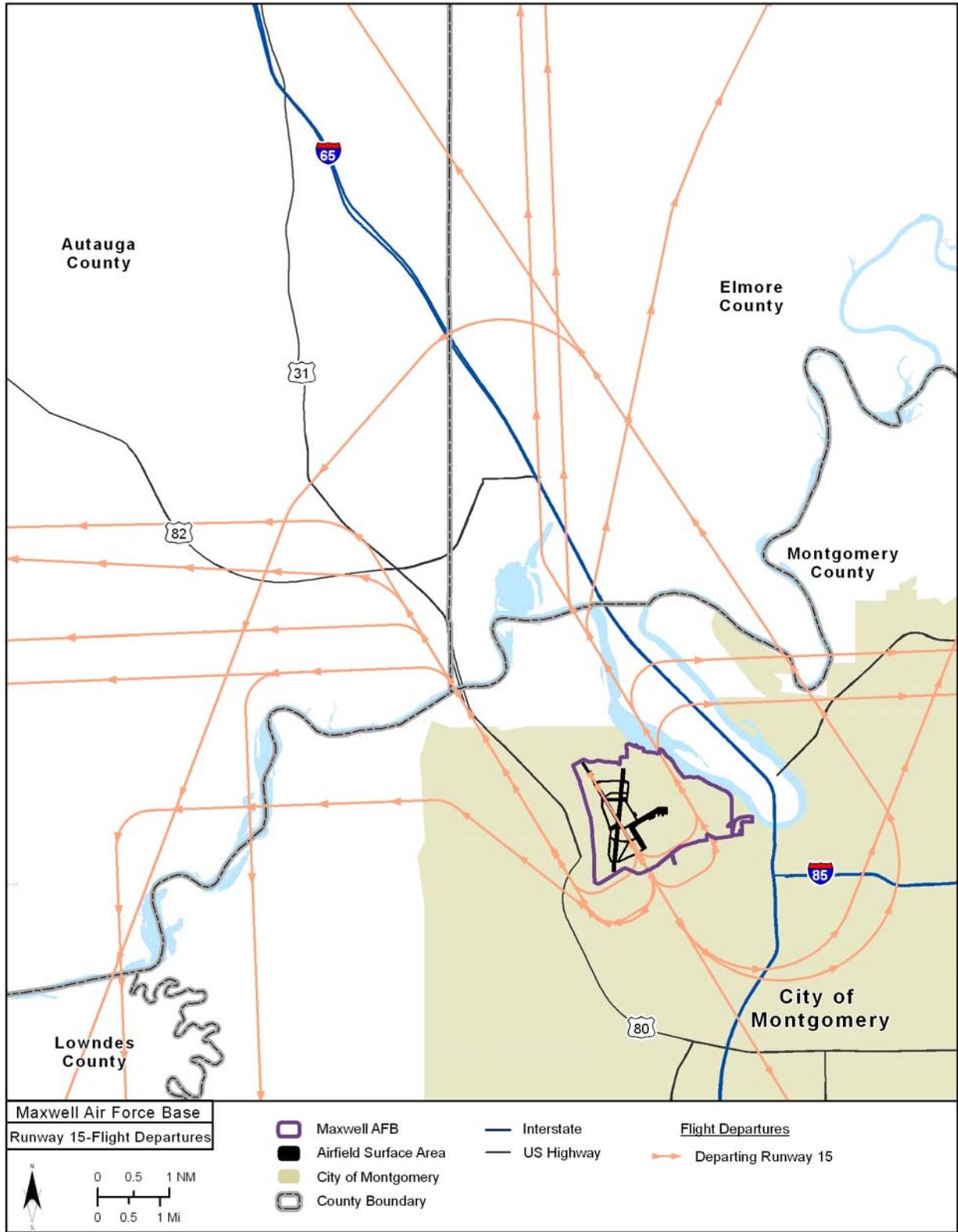


Figure 2-4. RWY 15 Flight Departures

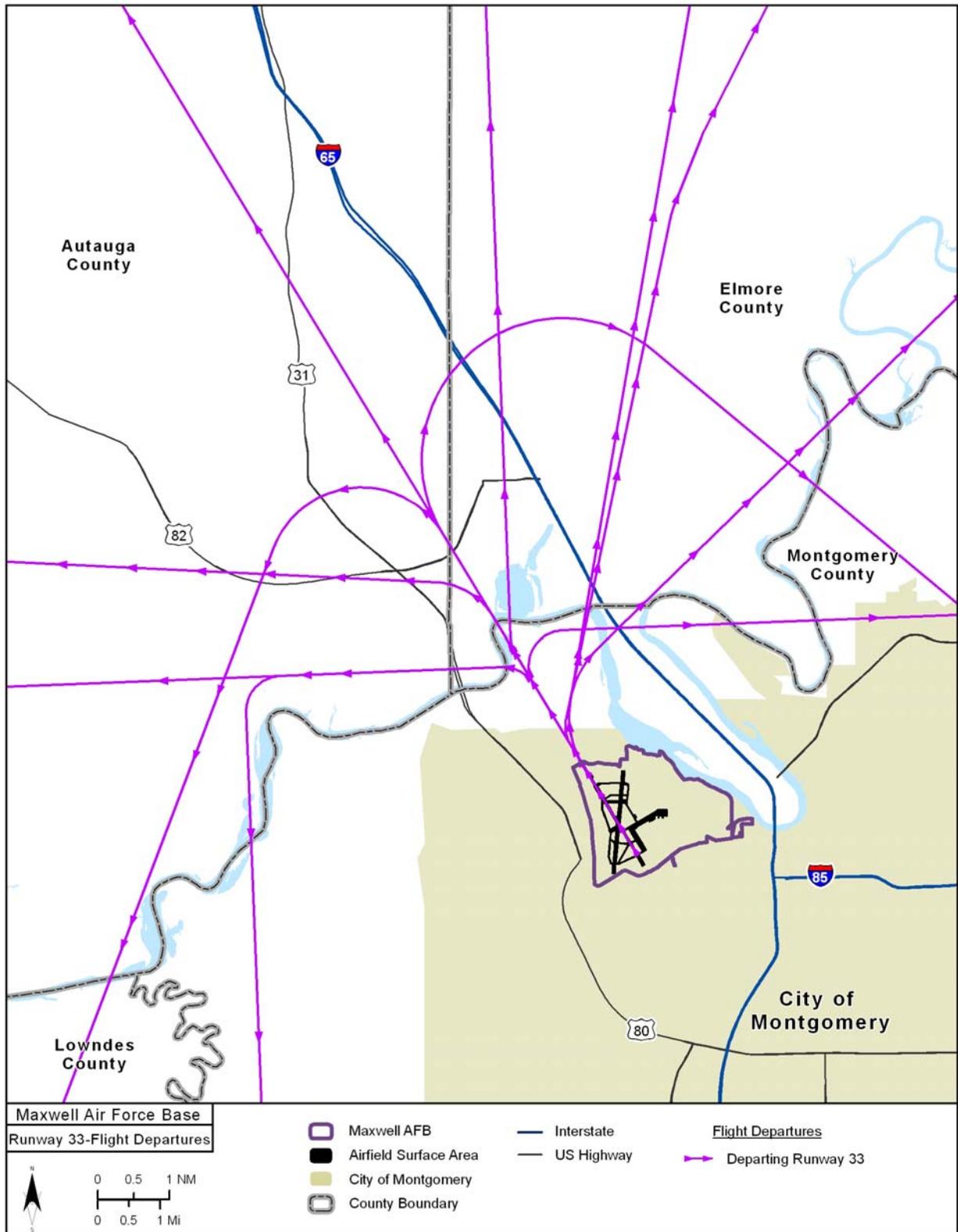


Figure 2-5. RWY 33 Flight Departures

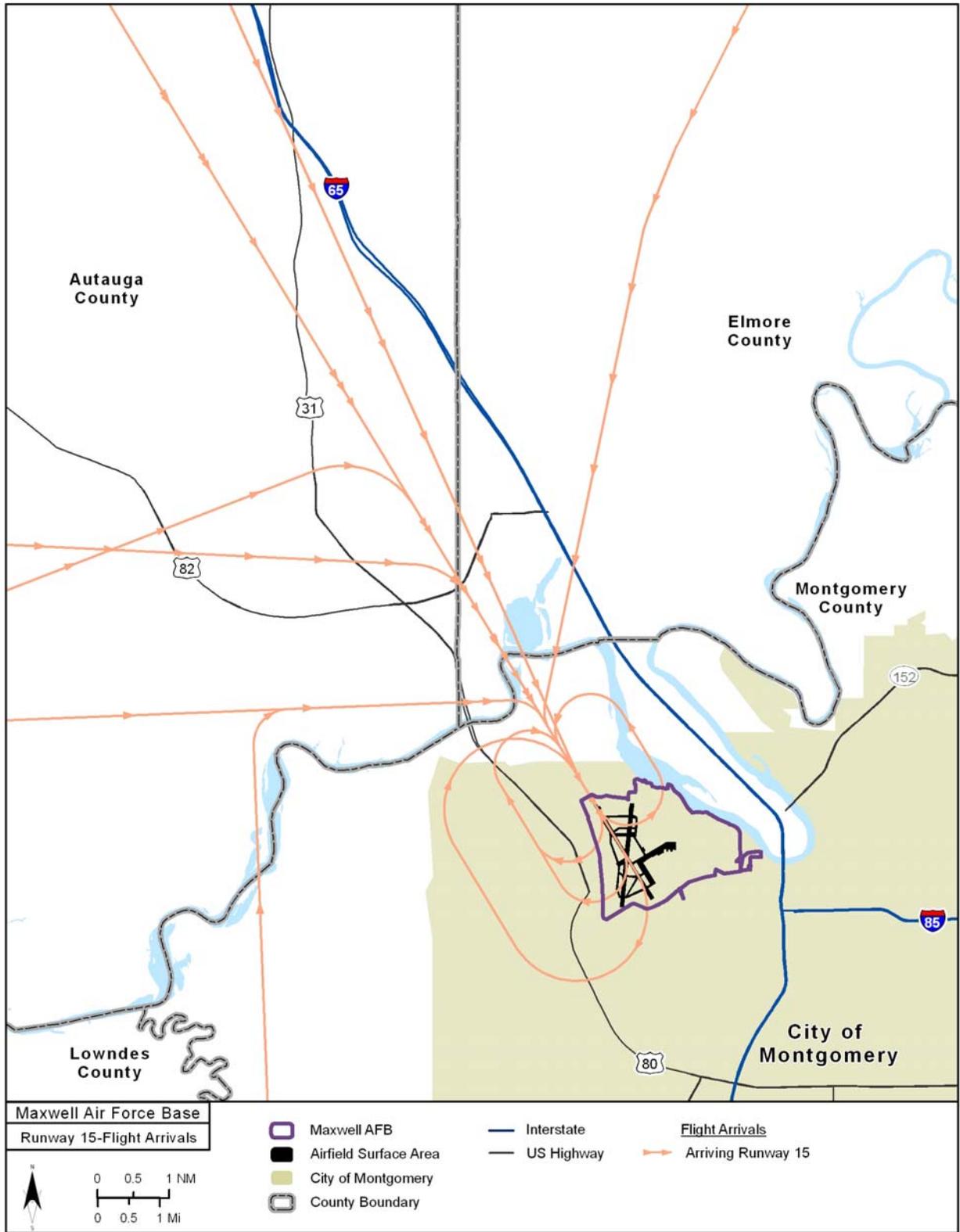


Figure 2-6. RWY 15 Flight Arrivals

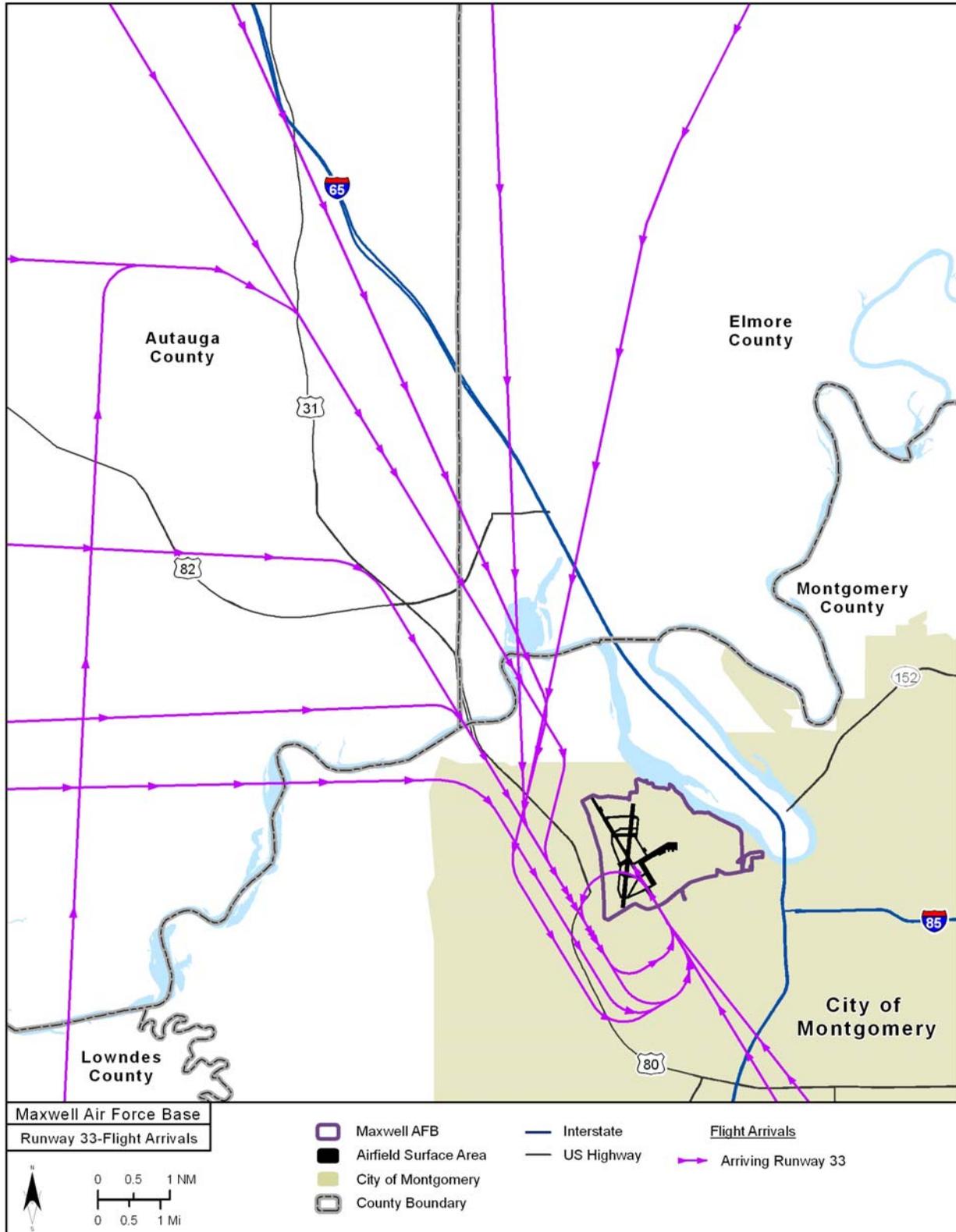


Figure 2-7. RWY 33 Flight Arrivals

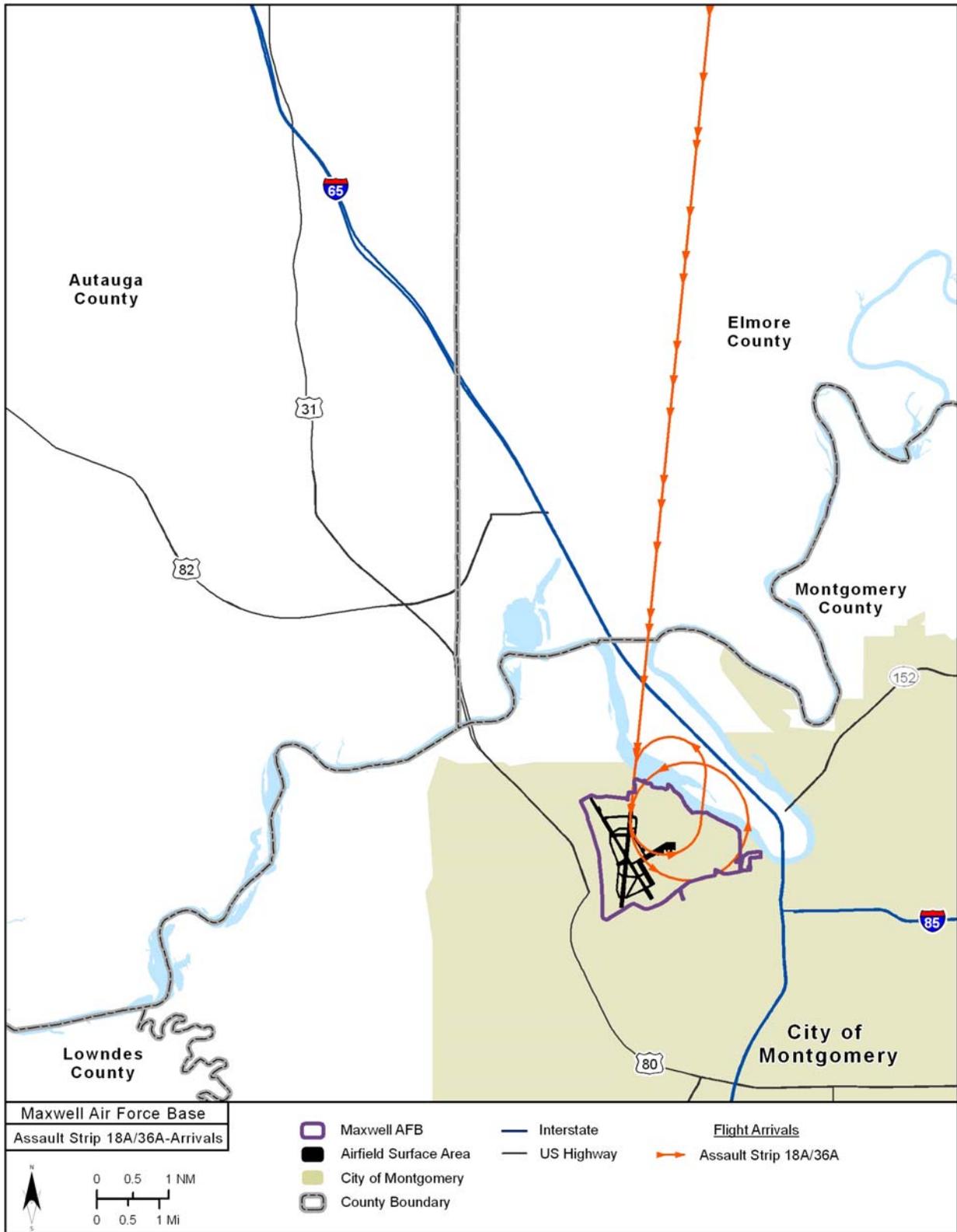


Figure 2-8. Assault Strip Arrivals

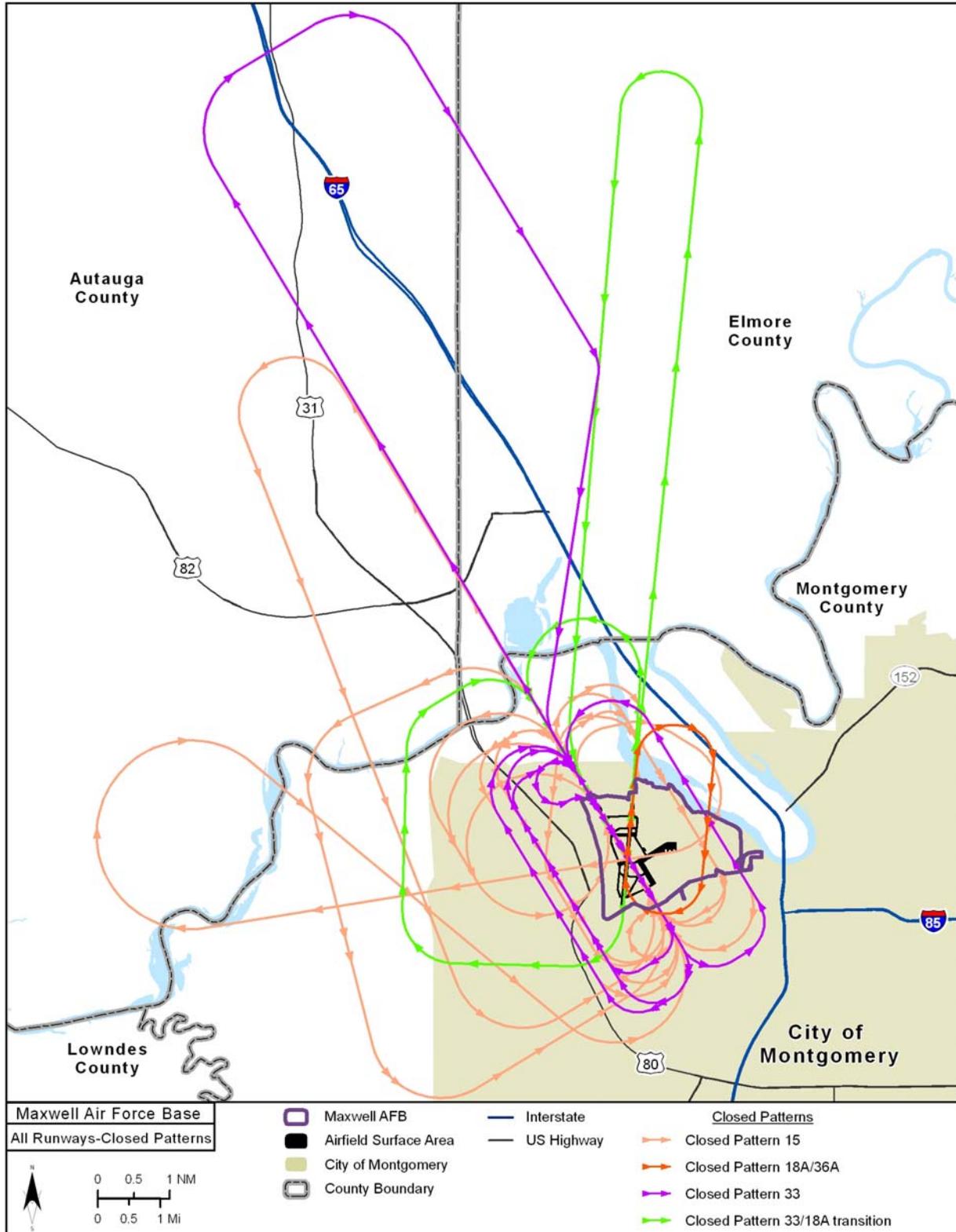


Figure 2-9. All Runways-Closed Patters

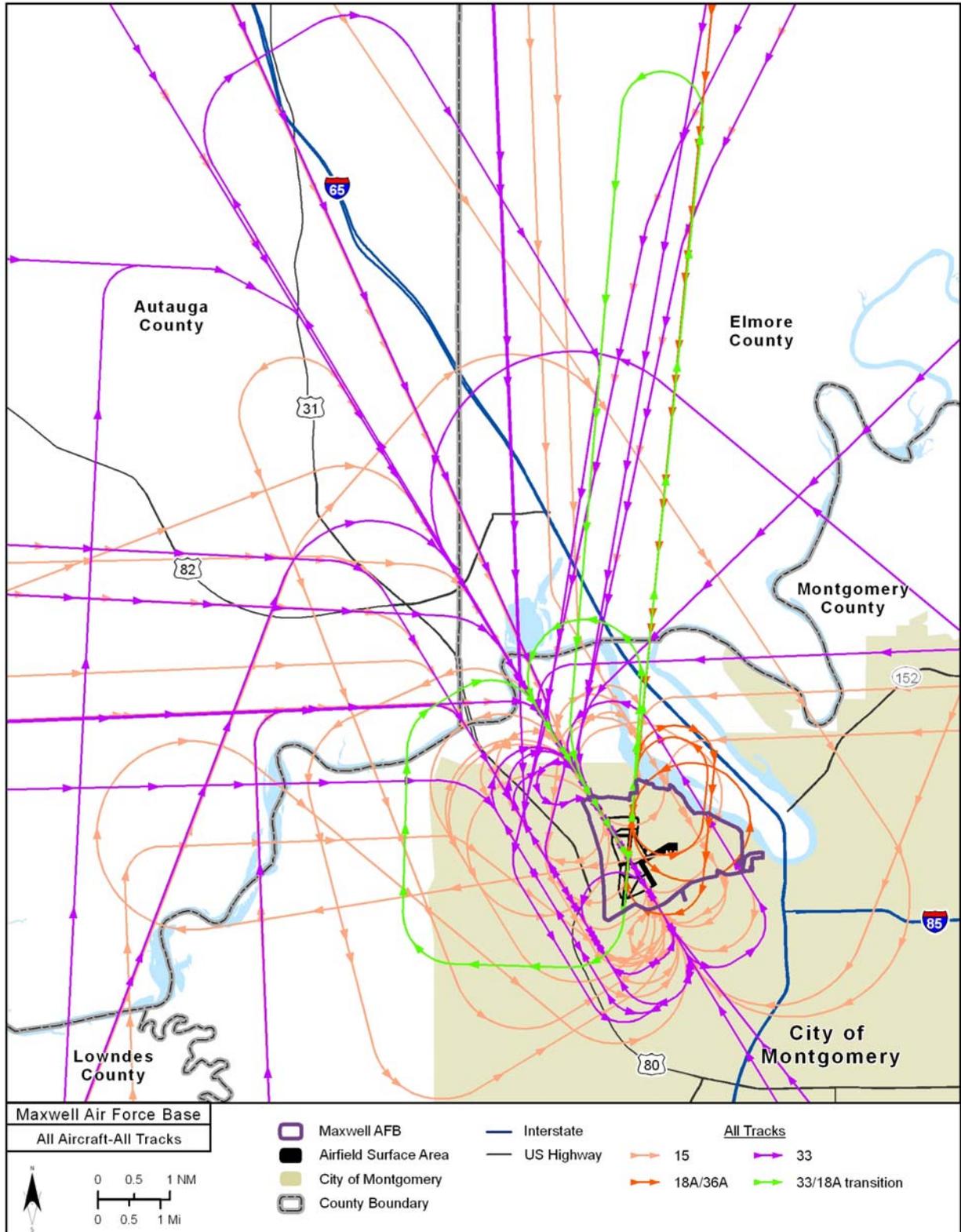


Figure 2-10. All Aircraft-All Tracks

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3.0 LAND USE COMPATIBILITY GUIDELINES

3.1 Introduction

The DoD developed the AICUZ Program to protect aircraft operational capabilities at its military airfields and to assist local government officials in protecting and promoting the public health, safety, and quality of life. The goal of the program is to promote compatible land use development around military airfields by providing information on aircraft noise levels and accident potential.

AICUZ reports describe three basic types of constraints that affect or result from flight operations. The first constraint involves areas identified by the FAA and DoD where height limitations on structures exist to prevent obstructions to air navigation. Airspace Control Surface Plans, which are based on Federal Aviation Regulations, designate height standards that determine whether an object constitutes an obstruction to air navigation.

The second constraint regarding flight operations involves the potential effects arising from noise exposure resulting from aircraft overflight and ground engine runs. Detailed sociological studies conducted by federal agencies over the past few decades have shown a correlation between certain noise exposure levels and increased levels of human annoyance. One of the purposes of the DoD AICUZ Program is a comparison of the land uses in the vicinity of its airfields to noise zones. Using the NOISEMAP computer program, which is similar to the FAA's INM, the DoD produces noise contours showing the DNL that would be generated by current levels of aircraft operations. These contours (lines connecting points of equal noise exposure) are expressed in terms of the DNL. Essentially, the DNL metric is the average noise level over a 24-hour period with a 10 dB penalty added to aircraft flights that occur between 10 PM and 7 AM to account for their increased annoyance. This AICUZ report contains noise contours plotted in increments of 5 dB, ranging from a DNL of 65 dB to 80 plus dB. Additional information on the methodology used for analyses in this report is contained in Appendix C of Volume II.

The third constraint involves APZs based on statistical analyses of past DoD aircraft accidents. DoD analyses have determined that the areas immediately beyond the ends of runways and along the approach and departure flight paths have significant potential for aircraft accidents. Based on these analyses, DoD developed three zones that have high relative potential for accidents. The CZ, or area closest to the runway's end, is the most hazardous area. The overall risk of an accident is so high that DoD generally acquires the land through purchase or easement to prevent development. APZ I is an area beyond the CZ that possesses a significant potential for accidents. APZ II is an area beyond APZ I having lesser, but still significant potential for accidents. While the aircraft accident potential in APZs I and II does not warrant land acquisition by the Air Force, land use planning and controls are strongly encouraged in these areas for the protection of the public. The CZ for the runway at Maxwell AFB (15/33) is 3,000 feet wide by 3,000 feet long. APZ I for this runway is 3,000 feet wide by 5,000 feet long, and APZ II is 3,000 feet wide by 7,000 feet long. Maxwell AFB also has an assault strip (18A/36A). Hazard areas associated with the assault strip is a CZ and a single accident potential zone-landing zone (APZ-LZ) at each end of the assault strip. The CZ inner edge begins at the assault strip edge and extends outward 500 feet along the extended assault strip centerline. The inner edge width is 135 feet on each side of the centerline and tapers outward to 250 feet on each side of the centerline. The APZ-LZ starts at the end of the CZ and extends outward 2500 feet along the extended assault strip

centerline. The APZ-LZ width is 250 feet on each side of the extended assault strip centerline. Additional information on the methodology associated with accident potential is contained in Appendix B of this report's Volume II.

3.2 Airspace Control Surfaces

Airspace Control Surfaces or "Imaginary Surfaces" are graphic representations resulting from the application of criteria for height and obstruction clearance found in the Code of Federal Regulations (CFR), Title 14, Part 77 (FAR Part 77) and in Air Force design standards for its airfields. The design standards for Runway 15/33 at Maxwell AFB are found in the DoD's Unified Facility Criteria (UFC) 3-260-01 *Airfield and Heliport Planning and Design* (Figure 3-1). Under the standards of the UFC, Maxwell AFB has a Class B runway. For a more complete description of obstruction evaluation/airport airspace analysis (OE/AAA), see FAR Part 77 and the UFC. Additional information on this topic is provided in Volume II, Appendix D. The design standards for the 18A/36A assault strip are found in the *Engineering Technical Letter (ETL) 04-7: C-130 and C-17 Landing Zone (LZ) Dimensional, Marking, and Lighting Criteria*.

The purpose of these airspace control surfaces is to prevent construction of structures whose height would tend to compromise the ability of airplanes to land in adverse weather and, in the case of military airfields, to designate airspace required to safely conduct military training maneuvers. During periods of adverse weather conditions, course guidance is provided to pilots and minimum flight altitudes are observed to prevent collisions with terrain and man-made structures. If tall structures are built near airfields, the minimum in-flight altitude must also be increased.

The utility of an airfield is diminished when its minimum obstacle avoidance altitudes are increased, because the likelihood of having to divert to other airfields during adverse weather increases. A weather divert to another airfield consumes additional fuel and to allow for that possibility, flight time is diminished. At Maxwell AFB, increases to minimums in flight altitudes would diminish the viability of C-130 operations conducted by the 908th AW.

3.2.1 Land Uses Hazardous to Air Navigation

Controls discouraging land uses that are inherently hazardous to aircraft or flight crews should be developed. The following uses should be restricted or prohibited in the vicinity of an airfield:

- Uses which release into the air any substance which would impair visibility or otherwise interfere with the operation of aircraft (i.e., steam, dust, or smoke from industrial operations);
- Uses which produce light emissions, either direct or indirect (reflective), which would interfere with pilot vision;
- Uses which produce electrical emissions which would interfere with aircraft communications systems or navigational equipment;
- Uses which would attract birds or waterfowl, including but not limited to, operation of sanitary landfills, maintenance of feeding stations, sand and gravel dredging operations, storm water retention ponds, created wetland areas, or the growing of certain vegetation; and
- Uses that provide for structures within ten feet of aircraft approach-departure and/or transitional surfaces outlined above.

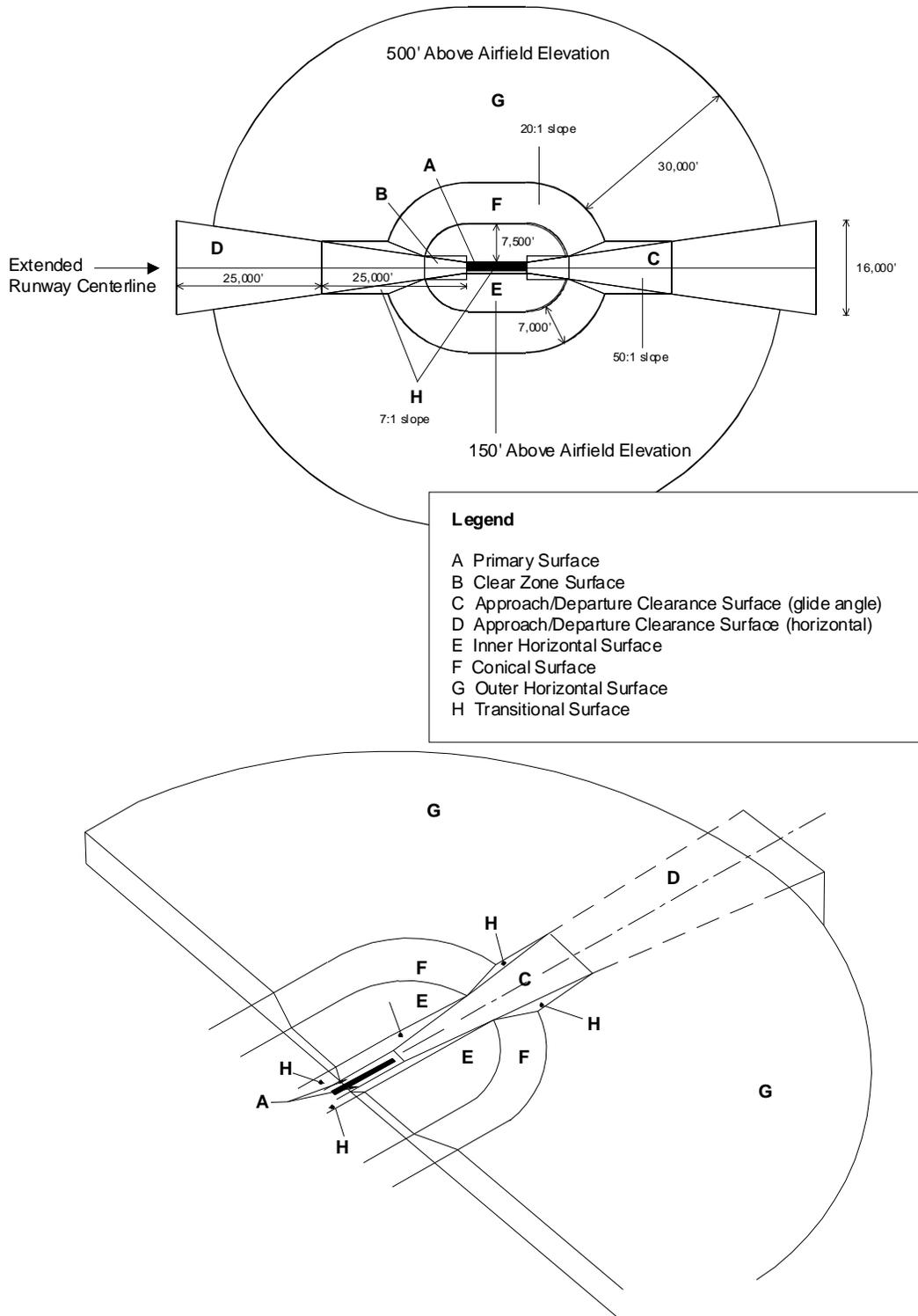


Figure 3-1. Plan View of FAR Part 77 Imaginary Surfaces (Class B Runway)

3.3 Noise Due to Aircraft Operations

Using the NOISEMAP computer program, which is similar to FAA's INM, the Air Force produces DNL noise contours showing the areas with significant exposure to aircraft noise. The DNL noise metric averages aircraft sound levels over a complete 24-hour period with a 10 dB penalty added to those noise events taking place between 10 PM and 7 AM. This adjustment is made because most people are sleeping during these hours and generally winds diminish during this period, enabling the same sound energy to carry further than it would otherwise during the day. This AICUZ study contains noise contours plotted in increments of 5 dB, ranging from 65 DNL to 80+ DNL.

Based on the aircraft operations data presented in Section 2.5, NOISEMAP (Version 7.0) was used to calculate and plot the average busy-day contours for DNL 65 dB through DNL 80+ dB for the anticipated aircraft operations. At the current operational tempo of 23.4 daily operations (4,680 annual operations) along the mix of flight tracks depicted in Chapter 2, the DNL 65 dB contour extends northwest from the center of the runway approximately 7,609 feet; to the southeast the contour extends 5,435 feet from the center of the runway; this reflects the usage pattern favoring Runway 33. To the sides of the runway, the 65 dB contour extends northeastward approximately 1,637 feet; to the southwest, the 65 dB contour extends somewhat less, around 963 feet (Figure 3-2).

Using year 2000 population data from the U.S. Census Bureau (USCB) combined with aerial photography, it is possible to estimate the number of persons occupying land that falls within a noise contour (Figure 3-3). The total area in each contour outside the base boundary and the number of residents within each contour were calculated for comparison purposes.

The estimated total number of persons exposed to a DNL of greater than 65 dB is zero. The total land area underlying an area of noise exposure greater than 65 dB DNL is 506 acres, with 27 of those acres located off-base (Tables 3-1 and 3-2).

The comparison of the contour plots from the 2007 data and the 1997 AICUZ study indicates that during the 10 year time frame, the land area exposed to noise greater than 65 dB DNL has decreased (Figure 3-4). This is largely due to variations in the number of flight operations and changes to the mix of aircraft stationed at Maxwell AFB. The flight tracks have not changed significantly during this time, although some minor changes in procedures have occurred.

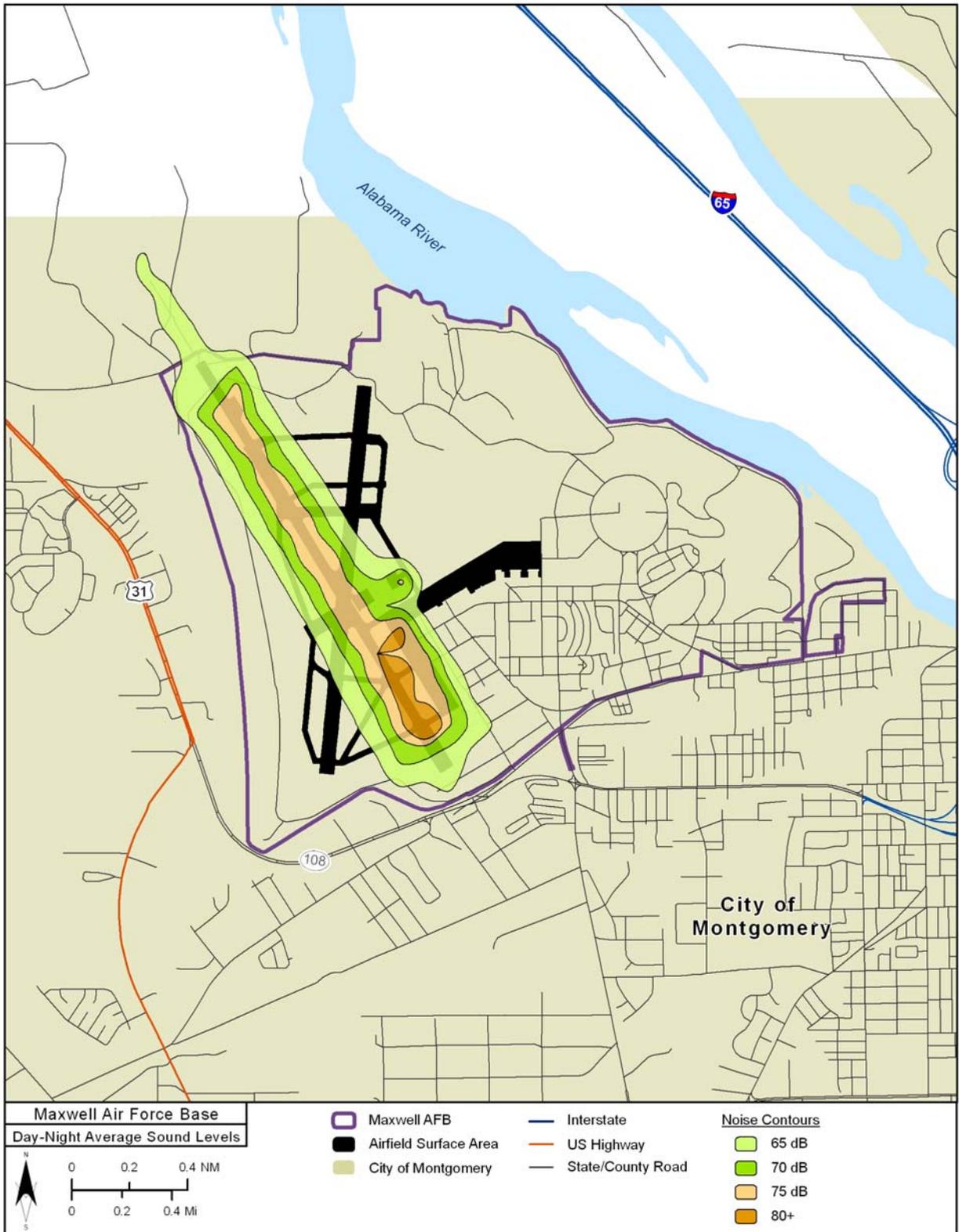


Figure 3-2. Day-Night Average Sound Levels

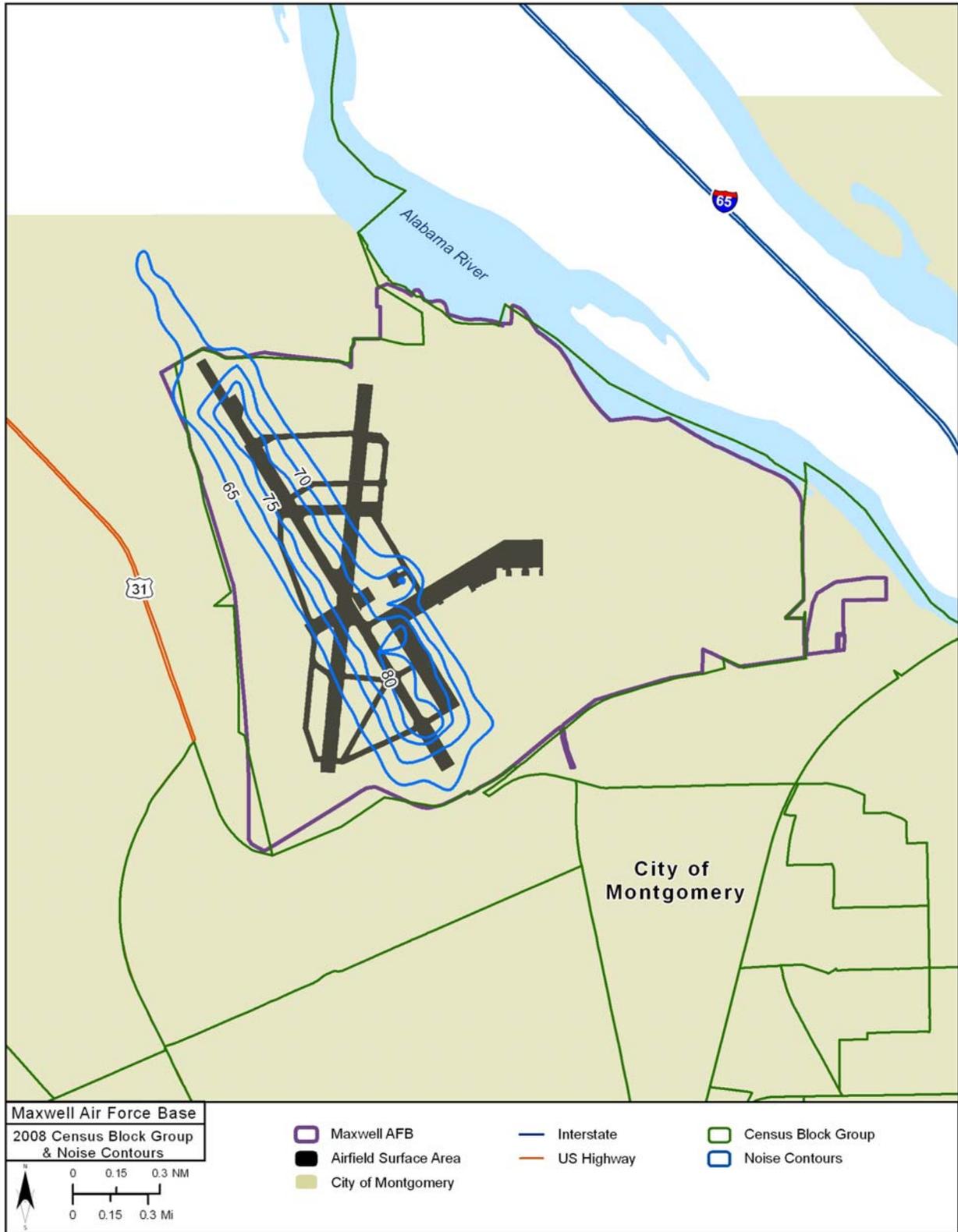


Figure 3-3. 2000 Census Blocks and Noise Contours

Table 3-1. Total Areas and Estimated Population (2000 Census) Residing within the 65 to 80+ dB Contours

DNL Noise Zone	Acres	Population
65–69	222	0
70–74	130	0
75–79	125	0
80+	29	0
TOTAL	506	0

Source: US Census Bureau 2000 SF1 (Block Level); 108th CD Census 2000 TIGER/Line

Table 3-2. Off-Base Areas and Populations within the 65 to 80+ dB Noise Contours

DNL Noise Zone	Acres	Population
65–69	27	0
70–74	0	0
75–79	0	0
80+	0	0
TOTAL	27	0

Source: US Census Bureau 2000 SF1 (Block Level); 108th CD Census 2000 TIGER/Line

3.4 Clear Zones (CZs) and Accident Potential Zones (APZs)

This section describes the accident potential criteria that are used to define the CZs and APZs and apply them to Maxwell AFB. Section 3.4.1 presents the standards for defining CZs and APZs and Section 3.4.2 indicates how those standards apply to Maxwell AFB.

3.4.1 Standards for CZs and APZs

Areas around military airfields are exposed to the possibility of aircraft accidents. While the maintenance of aircraft and the training of aircrews are rigorous, it should be understood that military flights at Maxwell AFB are primarily for the purpose of training. Despite stringent maintenance requirements and countless hours of training, history shows that accidents occur. Accidents of military aircraft differ from accidents of commercial air carriers and general aviation due to the variety of aircraft flown, the type of missions, and the number of training flights.

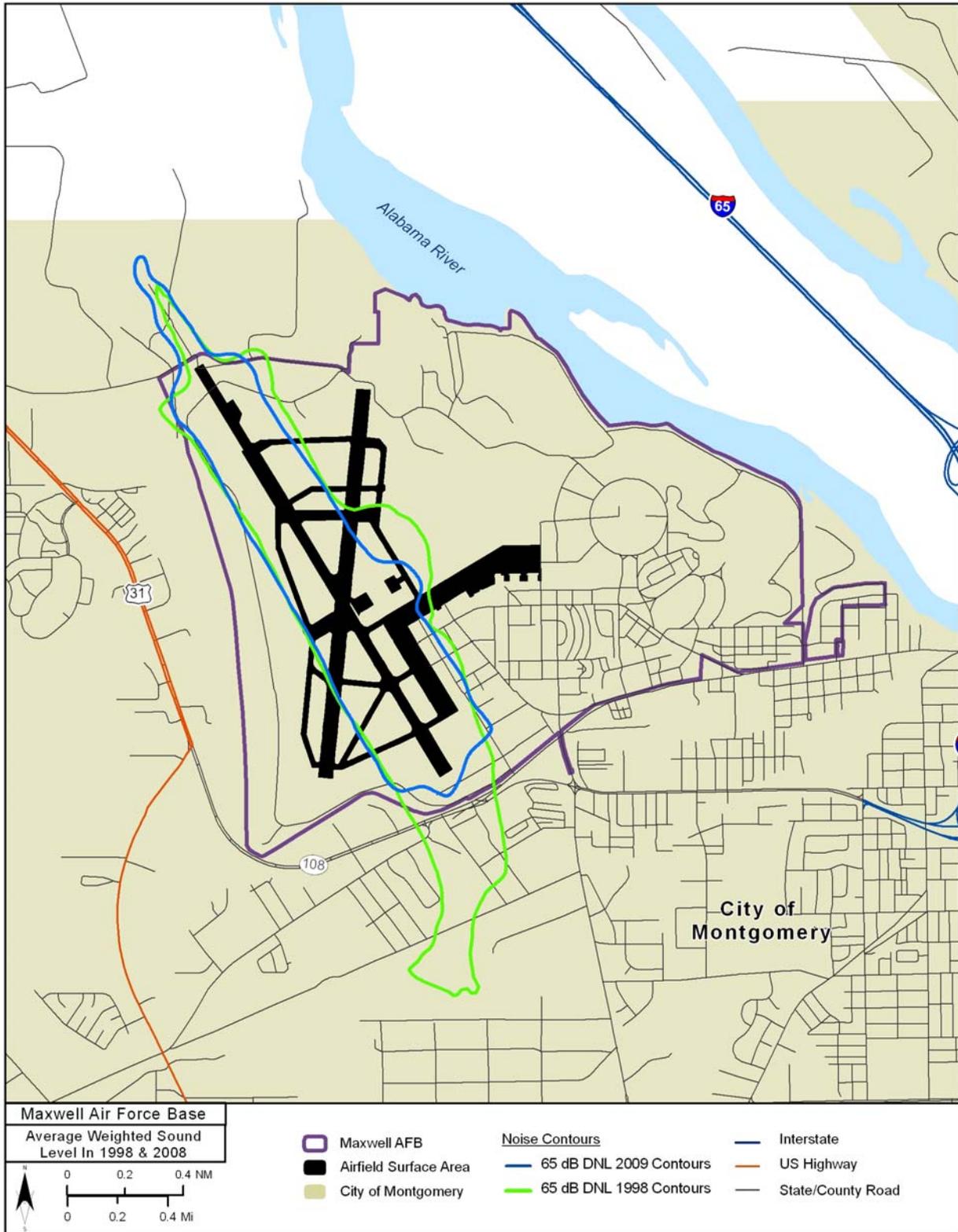


Figure 3-4. A-Weighted Sound Levels

Although the risk of being killed or injured by aircraft accidents to persons on the ground is small, an aircraft accident is a high-consequence event. When a crash occurs, the result is often catastrophic. As a result, the Air Force does not attempt to base its safety standards on accident probabilities, but instead approaches this safety issue from a land-use planning perspective. Designation of safety zones around airfields and restrictions of incompatible land uses can reduce the public's exposure to aircraft safety hazards.

Based on analysis of 834 Air Force accidents at Air Force bases from 1968 through 1995 that occurred within 10 miles of the associated base, three planning zones were established; the CZ, APZ I, and APZ II. Each end of a runway has a CZ that starts at the runway threshold and extends outward 3,000 feet with a width of 3,000 feet. Of the three safety zones, the CZ has the highest potential for accidents with 27 percent of the total accidents studied having occurred in this zone. The Air Force has adopted a policy of acquiring property rights through purchase or easement to areas designated as CZs.

APZ I extends outward from the CZ an additional 5,000 feet. This area has a significant though reduced accident potential. Ten percent of the accidents studied occurred in this area. APZ I is 3,000 feet wide and 5,000 feet long beginning 3,000 feet from the runway endpoint along and centered on the extended runway centerline.

APZ II extends from the outer end of APZ I an additional 7,000 feet. This is an area having lesser, but still significant potential for accidents. Five percent of the accidents studied occurred in this area. APZ II is 3,000 feet wide and 7,000 feet long beginning 8,000 feet from the runway endpoint along and centered on the extended runway centerline.

While the aircraft accident potential in APZs I and II does not warrant land acquisition by the Air Force, land use planning and controls are strongly encouraged in these areas for the protection of the public. Of the Air Force accidents studied, 15 percent occurred in APZs I and II. The area extending 1,000 feet out from each side of the runway centerline for the length of the runway accounted for 25 percent of the accidents analyzed. The remaining 33 percent occurred outside APZ II but were dispersed within 10 miles of the associated airfield.

The assault strip (18A/36A) similarly has a CZ and APZ-LZ at each end. Their sizes, however, are smaller, reflecting their limited use and reduced probability of accidents. The CZ is flared in shape, measuring 270 feet wide at the end closest to the runway and 500 feet wide at the far end. The CZ is 500 feet long. The APZ-LZ begins at the end of the CZ and measures 500 feet wide by 2,500 feet long.

3.4.2 CZs and APZs at Maxwell AFB

The Maxwell AFB CZs and APZs are based on the configuration of the runway (Figures 3-5, 3-6, 3-7). Just as population estimates and areas were derived for land within the noise contours, population (based on 2000 census data) and areas associated with CZs and APZs can be estimated. It is estimated that 138 persons reside within the CZs for Runway 15/33; an estimated 1,718 persons reside within the APZs associated with this runway (Table 3-3). Approximately nine acres of the north end assault strip APZ-LZ are off-base (Figure 3-8). The south end APZ-LZ and both CZs for the assault strip are contained within the confines of the base (Figure 3-9). No persons reside within the APZ or CZs for the assault strip (Figure 3-10). A review of aerial photography and census data indicates that none of the estimated CZs or APZs I or II population resides on the base.

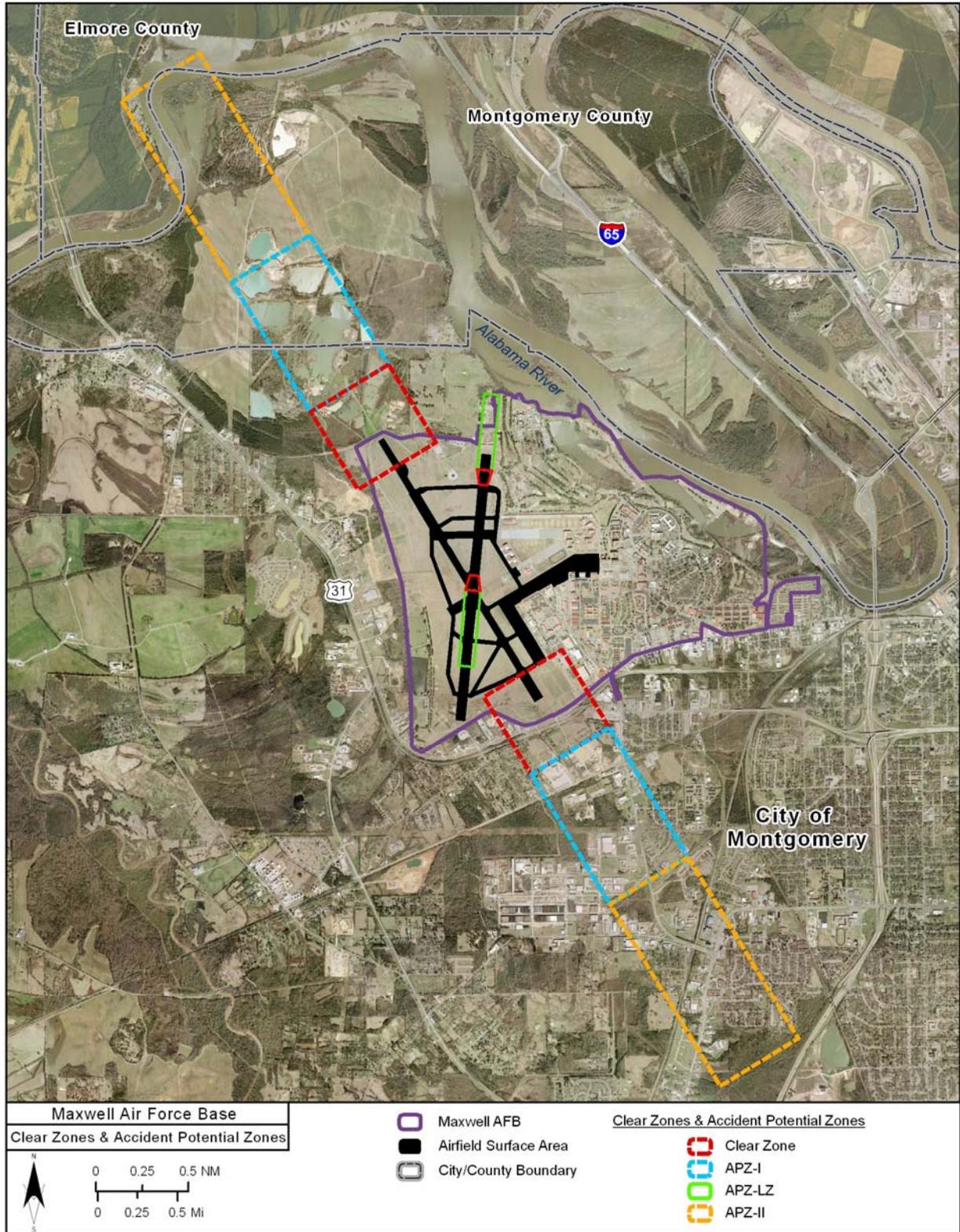


Figure 3-5. APZ and CZs

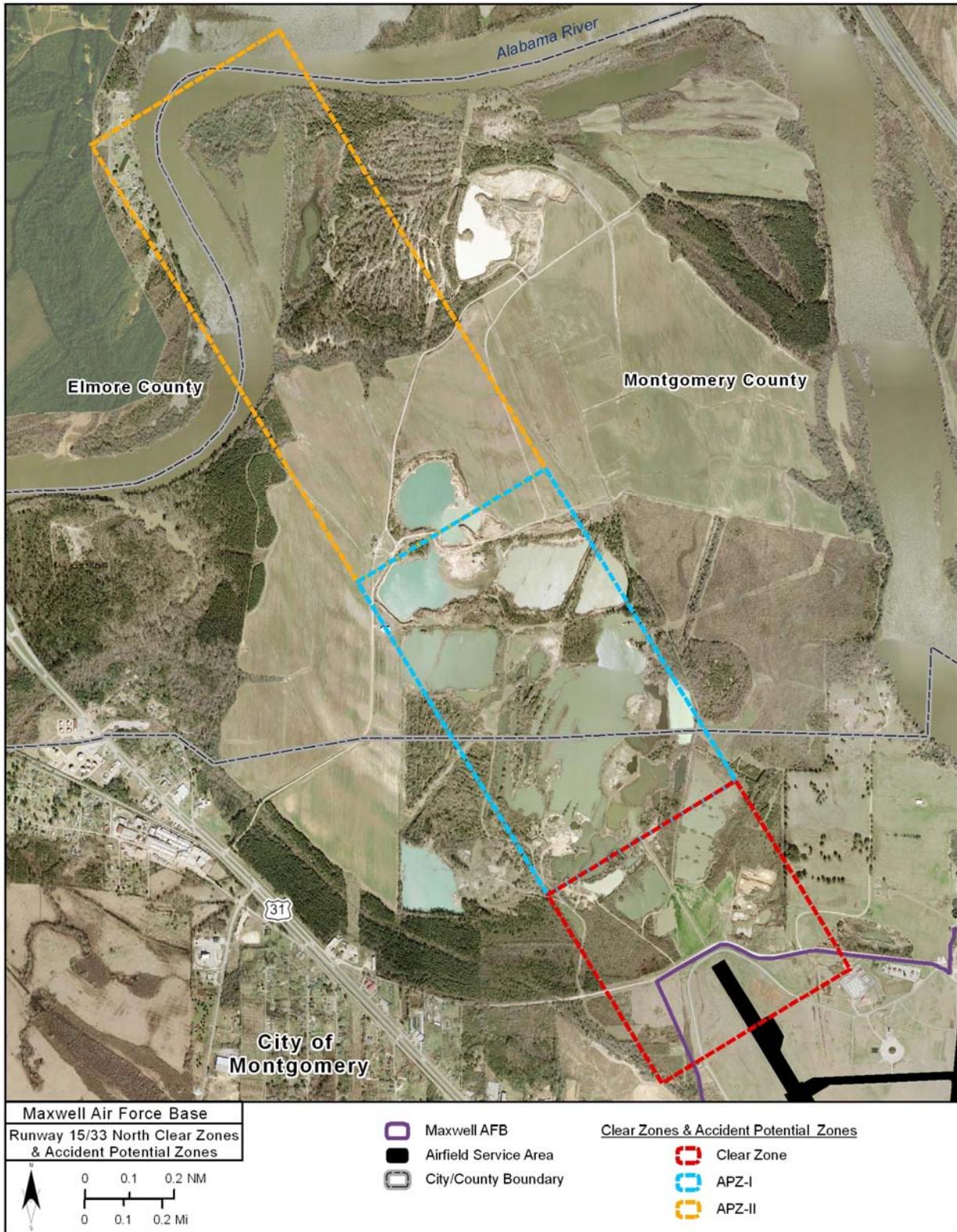


Figure 3-6. North APZ and CZs



Figure 3-7. South APZ and CZs

Table 3-3. Total Acreage and Population within the Maxwell AFB Runway 15/33 CZ, APZs, and Assault Strip

Runway 15/33 Zone	Acres	Off-Base Acres	Population
Clear Zone	414	258	138
APZ I	689	689	618
APZ II	965	965	1100
Total	2,068	1,912	1,856
Assault Strip 18A/36A Zone	Acres	Off-Base Acres	Population
Clear Zone	9	0	0
APZ-LZ	57	9	0
Total	66	9	0
Grand Total	2,134	1,921	1,856

Source: U.S. Census Bureau 2000 SFI (Block Level); 108th CD Census TIGER/Line

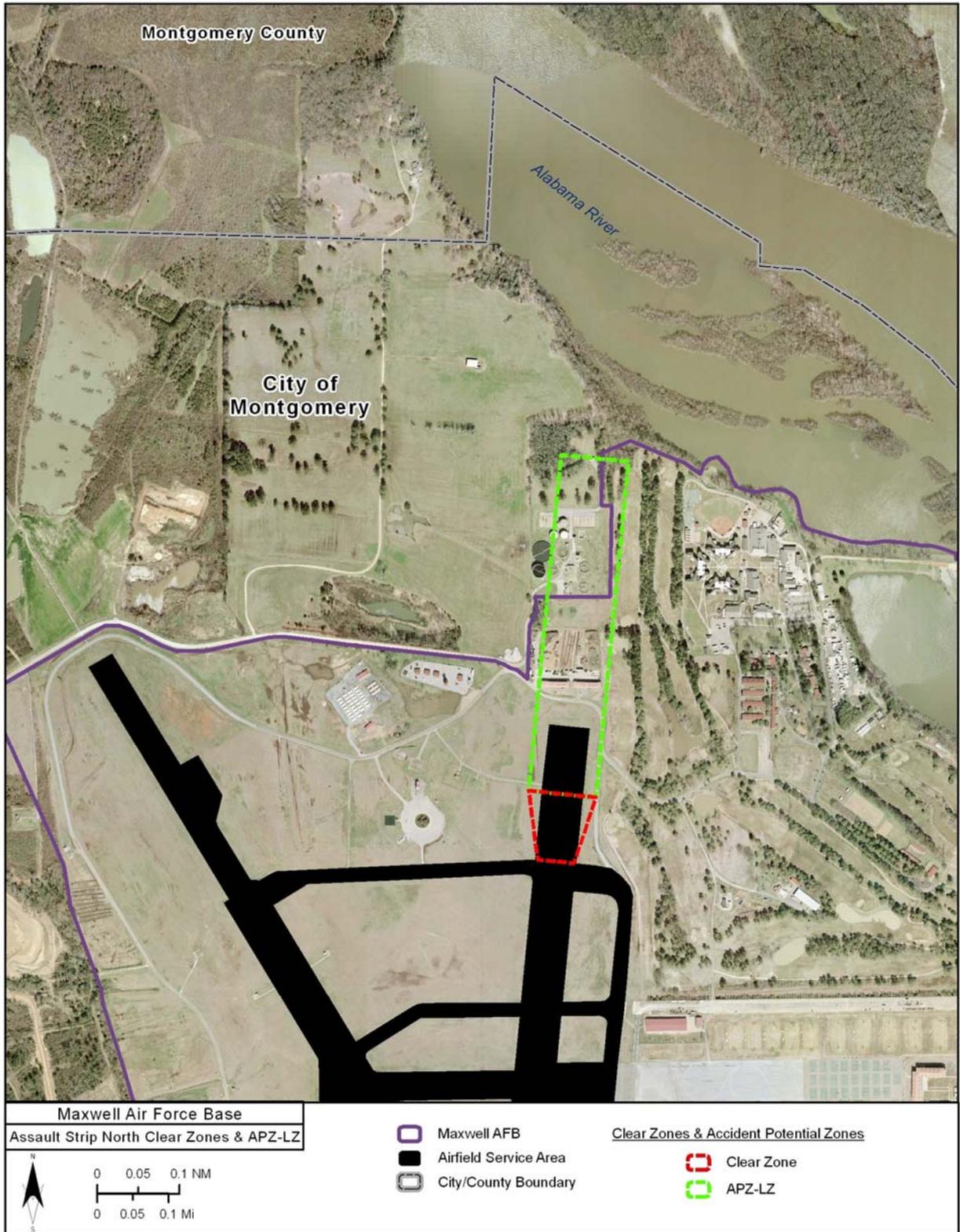


Figure 3-8. North Assault Strip CZ and APZ

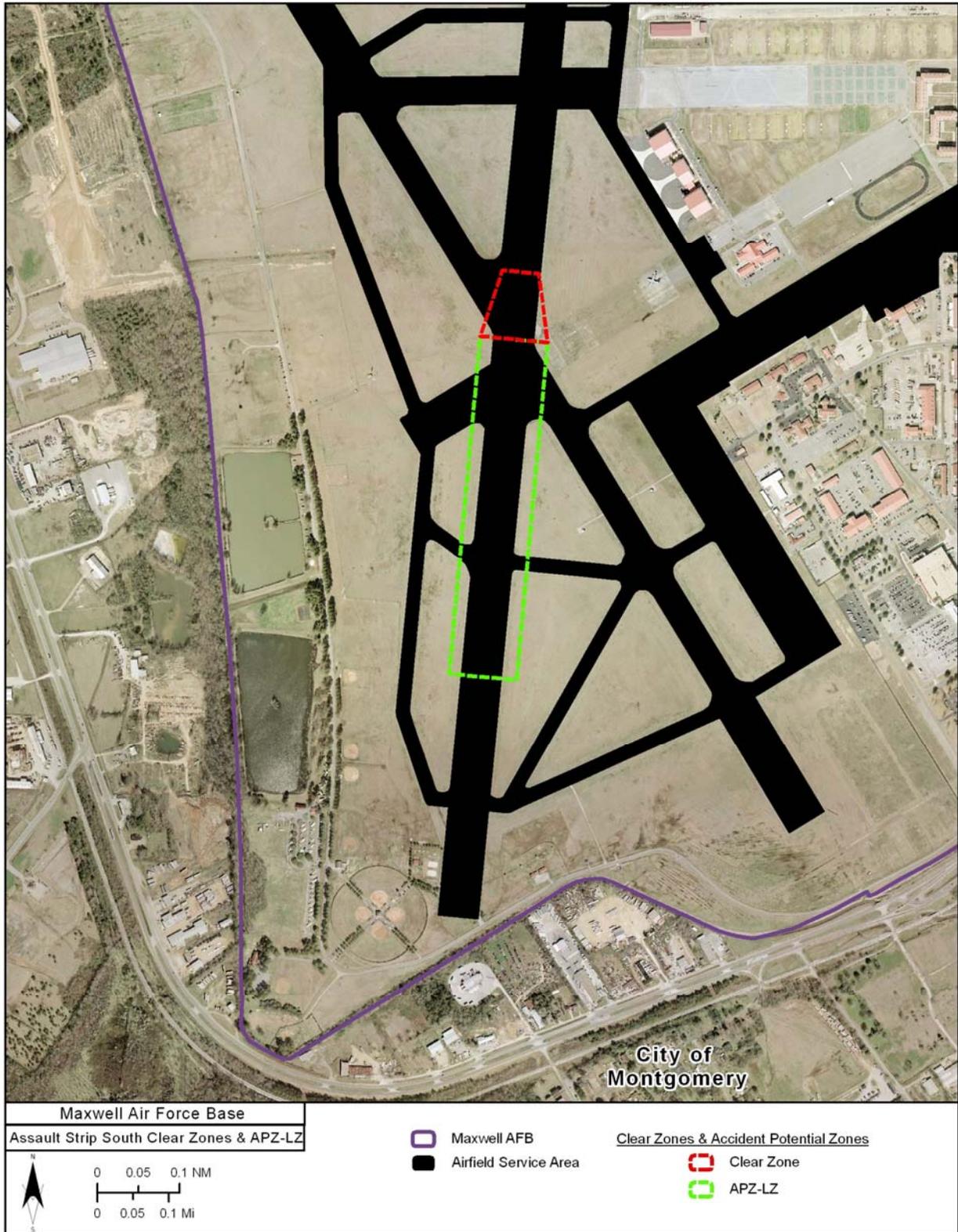


Figure 3-9. South Assault Strip CZ and APZ

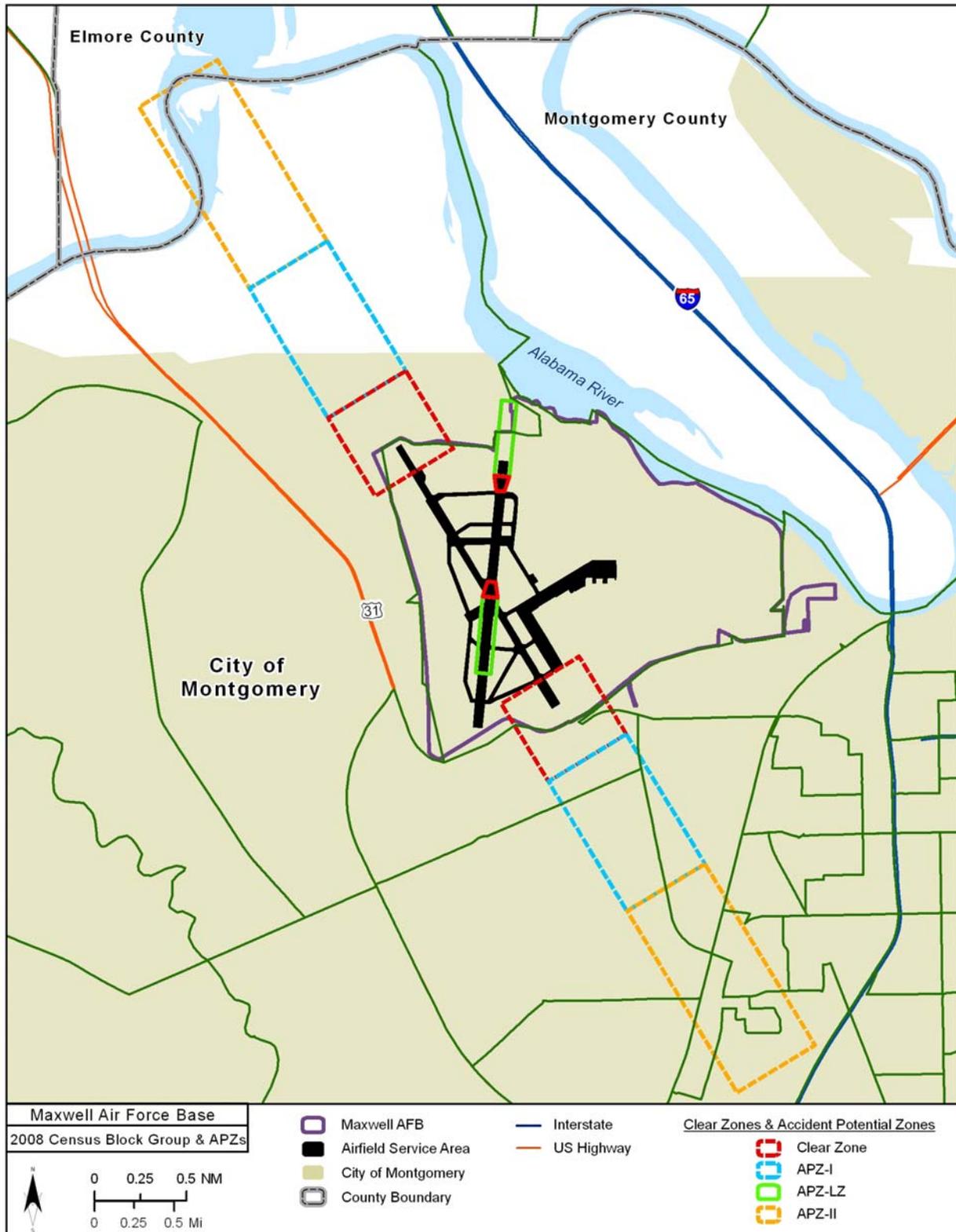


Figure 3-10. Census Blocks and APZ

3.5 Land Use Compatibility

Each AICUZ report contains land use guidelines. Combinations of noise exposure and accident potential at Maxwell AFB have been considered in relation to land uses, with an ultimate determination of their compatibility (Table 3-4). Noise guidelines are essentially the same as those published by the Federal Interagency Committee on Urban Noise in the June 1980 publication, *Guidelines for Considering Noise in Land Use Planning and Control*. The DoT publication, *Standard Land Use Coding Manual (SLUCM)*, has been used for identifying and coding land use activities.

For the assault strip, the land use guidelines applicable to a runway CZ would apply to the assault strip CZ. Land use recommendations for a runway APZ I are applicable to the APZ-LZ for the assault strip.

3.6 Participation in the Planning Process

As local communities prepare their land use plans, the Air Force must be ready to provide data and information. The Base Civil Engineer has been designated as the official liaison with the local community on all planning matters. This officer is prepared to participate in the continuing discussion of zoning and other land use matters as they may affect, or may be affected by, Maxwell AFB.

Table 3-4. Land Use Compatibility, Noise Exposure, and Accident Potential

SLUCM NO.	LAND USE NAME	ACCIDENT POTENTIAL ZONES			NOISE ZONES			
		CLEAR ZONE	APZ I	APZ II	65-69 dB	70-74 dB	75-79 dB	80+ dB
10	Residential							
11	Household units							
11.11	Single units; detached	N	N	Y ¹	A ¹¹	B ¹¹	N	N
11.12	Single units; semidetached	N	N	N	A ¹¹	B ¹¹	N	N
11.13	Single units; attached row	N	N	N	A ¹¹	B ¹¹	N	N
11.21	Two units; side-by-side	N	N	N	A ¹¹	B ¹¹	N	N
11.22	Two units; one above the other	N	N	N	A ¹¹	B ¹¹	N	N
11.31	Apartments; walk up	N	N	N	A ¹¹	B ¹¹	N	N
11.32	Apartments; elevator	N	N	N	A ¹¹	B ¹¹	N	N
12	Group quarters	N	N	N	A ¹¹	B ¹¹	N	N
13	Residential hotels	N	N	N	A ¹¹	B ¹¹		N
14	Mobile home parks or courts	N	N	N	N	N	N	N
15	Transient lodgings	N	N	N	A ¹¹	B ¹¹	C ¹¹	N
16	Other residential	N	N	N ¹	A ¹¹	B ¹¹	N	N
20	Manufacturing							
21	Food & kindred products; manufacturing	N	N ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
22	Textile mill products; manufacturing	N	N ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
23	Apparel and other finished products made from fabrics, leather, and similar materials; manufacturing	N	N	N ²	Y	Y ¹²	Y ¹³	Y ¹⁴
24	Lumber and wood products (except furniture); manufacturing	N	Y ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
25	Furniture and fixtures; manufacturing	N	Y ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
26	Paper & allied products; manufacturing	N	Y ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
27	Printing, publishing, and allied industries	N	Y ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
28	Chemicals and allied products; manufacturing	N	N	N ²	Y	Y ¹²	Y ¹³	Y ¹⁴
29	Petroleum refining and related industries	N	N	N	Y	Y ¹²	Y ¹³	Y ¹⁴
30	Manufacturing							
31	Rubber and misc. plastic products, manufacturing	N	N ²	N ²	Y	Y ¹²	Y ¹³	Y ¹⁴
32	Stone, clay and glass products manufacturing	N	N ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
33	Primary metal industries	N	N2	Y	Y	Y12	Y13	Y14

Table 3-4. Land Use Compatibility, Noise Exposure, and Accident Potential (cont'd)

LAND USE		ACCIDENT POTENTIAL ZONES			NOISE ZONES			
SLUCM NO.	NAME	CLEAR ZONE	APZ I	APZ II	65-69 dB	70-74 dB	75-79 dB	80+ dB
34	Fabricated metal products; manufacturing	N	N ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
35	Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks manufacturing	N	N	N ²	Y	A	B	N
39	Miscellaneous manufacturing	N	Y ²	Y ²	Y	Y ¹²	Y ¹³	Y ¹⁴
40	Transportation, communications and utilities							
41	Railroad, rapid rail transit and street railroad transportation	N ³	Y ⁴	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
42	Motor vehicle transportation	N ³	Y	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
43	Aircraft transportation	N ³	Y ⁴	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
44	Marine craft transportation	N ³	Y ⁴	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
45	Highway & street right-of-way	N ³	Y	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
46	Automobile parking	N ³	Y ⁴	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
47	Communications	N ³	Y ⁴	Y	Y	A ¹⁵	B ¹⁵	N
48	Utilities	N ³	Y ⁴	Y	Y	Y	Y ¹²	Y ¹³
49	Other transportation communications and utilities	N ³	Y ⁴	Y	Y	A ¹⁵	B ¹⁵	N
50	Trade							
51	Wholesale trade	N	Y ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
52	Retail trade-building materials, hardware and farm equipment	N	Y ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
53	Retail trade-general merchandise	N ²	N ²	Y ²	Y	A	B	N
54	Retail trade-food	N ²	N ²	Y ²	Y	A	B	N
55	Retail trade-automotive, marine craft, aircraft and accessories	N ²	N ²	Y ²	Y	A	B	N
56	Retail trade-apparel and accessories	N ²	N ²	Y ²	Y	A	B	N
57	Retail trade-furniture, home furnishings and equipment	N ²	N ²	Y ²	Y	A	B	N
58	Retail trade-eating and drinking establishments	N	N	N ²	Y	A	B	N
59	Other retail trade	N	N ²	Y ²	Y	A	B	N
60	Services							
61	Finance, insurance and real estate services	N	N	Y ⁶	Y	A	B	N
62	Personal services	N	N	Y ⁶	Y	A	B	N

Table 3-4. Land Use Compatibility, Noise Exposure, and Accident Potential (cont'd)

LAND USE		ACCIDENT POTENTIAL ZONES			NOISE ZONES			
SLUCM NO.	NAME	CLEAR ZONE	APZ I	APZ II	65-69 dB	70-74 dB	75-79 dB	80+ dB
62.4	Cemeteries	N	Y ⁷	Y ⁷	Y	Y ¹²	Y ¹³	Y ^{14, 2, 1}
63	Business services	N	Y ⁸	Y ⁸	Y	A	B	N
64	Repair services	N	Y ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
65	Professional services	N	N	Y ⁶	Y	A	B	N
65.1	Hospitals, nursing homes	N	N	N	A*	B*	N	N
65.1	Other medical facilities	N	N	N	Y	A	B	N
66	Contract construction services	N	Y ⁶	Y	Y	A	B	N
67	Governmental services	N ⁶	N	Y ⁶	Y*	A*	B*	N
68	Educational services	N	N	N	A*	B*	N	N
69	Miscellaneous services	N	N ²	Y ²	Y	A	B	N
70	Cultural, entertainment and recreational							
71	Cultural activities (including churches)	N	N	N ²	A*	B*	N	N
71.2	Nature exhibits	N	Y ²	Y	Y*	N	N	N
72	Public assembly	N	N	N	Y	N	N	N
72.1	Auditoriums, concert halls	N	N	N	A	B	N	N
72.11	Outdoor music shell, amphitheaters	N	N	N	N	N	N	N
72.2	Outdoor sports arenas, spectator sports	N	N	N	Y ¹⁷	Y ¹⁷	N	N
73	Amusements	N	N	Y ⁸	Y	Y	N	N
74	Recreational activities (including golf courses, riding stables, water recreation)	N Y	Y ^{8, 9, 10}	Y	Y*	A*	B*	N
75	Resorts and group camps	N	N	N	Y*	Y*	N	N
76	Parks	N	Y ⁸	Y ⁸	Y*	Y*	N	N
79	Other cultural, entertainment and recreation	N ⁹	Y ⁹	Y ⁹	Y*	Y*	N	N
80	Resources production and extraction							
81	Agriculture (except livestock)	Y ¹⁶	Y	Y	Y ¹⁸	Y ¹⁹	Y ²⁰	Y ^{20, 21}
81.5 to 81.7	Livestock farming and animal breeding	N	Y	Y	Y ¹⁸	Y ¹⁹	Y ²⁰	Y ^{20, 21}
82	Agricultural related activities	N	Y ⁵	Y	Y ¹⁸	Y ¹⁹	N	N
83	Forestry activities and related services	N ⁵	Y	Y	Y ¹⁸	Y ¹⁹	Y ²⁰	Y ^{20, 21}
84	Fishing activities and related services	N ⁵	Y ⁵	Y	Y	Y	Y	Y

Table 3-4. Land Use Compatibility, Noise Exposure, and Accident Potential (cont'd)

LAND USE		ACCIDENT POTENTIAL ZONES			NOISE ZONES			
SLUCM NO.	NAME	CLEAR ZONE	APZ I	APZ II	65-69 dB	70-74 dB	75-79 dB	80+ dB
85	Mining activities and related services	N	Y ⁵	Y	Y	Y	Y	Y
89	Other resources production and extraction	N	Y ⁵	Y	Y	Y	Y	Y

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

Y = (Yes); Land use and related structures are compatible without restriction.

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

Y^x = (Yes with restrictions); Land use and related structures are generally compatible; see note indicated by the superscript.

N^x = (No with exceptions); See note indicated by the superscript.

NLR = (Noise Level Reduction; NLR) (outdoor to indoor); To be achieved through incorporation of noise attenuation measures into the design and construction of the structures.

A, B, or C = Land use and related structures generally compatible; measures to achieve NLR of A (25 dB), B (30 dB), or C (35 dB) should be incorporated into the design and construction of structures.

A*, B*, and C* = Land use generally compatible with NLR. However, measures to achieve an overall noise level reduction do not necessarily solve noise difficulties and additional evaluation is warranted. See appropriate footnotes.

* = The designation of these uses as "compatible" in this zone reflects individual federal agency and program consideration of general cost and feasibility factors, as well as past community experiences and program objectives. Localities, when evaluating the application of these guidelines to specific situations, may have different concerns or goals to consider.

NOTES

¹Suggested maximum density of 1-2 dwelling units per acre possibly increased under a Planned Unit Development (PUD) where maximum lot coverage is less than 20 percent.

²Within each land use category, uses exist where further definition may be needed due to the variation of densities in people and structures. Shopping malls and shopping centers are considered incompatible in any APZ.

³The placing of structures, buildings, or above ground utility lines in the clear zone is subject to severe restrictions. In a majority of the clear zones, these items are prohibited. See AFI 32-7063 and AFI 32-1026 for specific guidance.

⁴No passenger terminals and no major above ground transmission lines in APZ I.

⁵Factors to be considered: labor intensity, structural coverage, explosive characteristics, and air pollution.

⁶Low-intensity office uses only. Meeting places, auditoriums, etc., are not recommended.

⁷Excludes chapels.

⁸Facilities must be low intensity.

⁹Clubhouse not recommended.

¹⁰Areas for gatherings of people are not recommended.

^{11a}Although local conditions may require residential use, it is discouraged in DNL 65-69 dB and strongly discouraged in DNL 70-74 dB. An evaluation should be conducted prior to approvals, indicating that a demonstrated community need for residential use would not be met if development were prohibited in these zones, and that there are no viable alternative locations.

^{11b}Where the community determines the residential uses must be allowed, measures to achieve outdoor to indoor NLR for DNL 65-69 dB and DNL 70-74 dB should be incorporated into building codes and considered in individual approvals.

^{11c}NLR criteria will not eliminate outdoor noise problems. However, building location and site planning, and design and use of berms and barriers can help mitigate outdoor exposure, particularly from near ground level sources. Measures that reduce outdoor noise should be used whenever practical in preference to measures which only protect interior spaces.

¹²Measures to achieve the same NLR as required for facilities in the DNL 65-69 dB range 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.

¹³Measures to achieve the same NLR as required for facilities in the DNL 70-74 dB range 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.

¹⁴Measures to achieve the same NLR as required for facilities in the DNL 75-79 dB range 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.

¹⁵If noise sensitive, use indicated NLR; if not, the use is compatible.

¹⁶No buildings.

¹⁷Land use is compatible provided special sound reinforcement systems are installed.

¹⁸Residential buildings require the same NLR required for facilities in the DNL 65-69 dB range.

¹⁹Residential buildings require the same NLR required for facilities in the DNL 70-74 dB range.

²⁰Residential buildings are not permitted.

²¹Land use is not recommended. If the community decides the use is necessary, hearing protection devices should be worn by personnel.

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4.0 LAND USE AND ANALYSIS

4.1 Introduction

Land use planning and control is a dynamic rather than a static process. The specific characteristics of land use determinants will always reflect, to some degree, the changing conditions of the economic, social, and physical environment of a community, as well as changing public concerns. The planning process accommodates this fluidity in that decisions are normally not based on boundary lines but rather on more generalized area designations. Computer technology has enabled Maxwell AFB to more precisely display its flight tracks, airspace control surfaces, noise contours, and accident potential areas for land use planning purposes.

For the purposes of this study, existing land uses have been classified into one of the following six general categories:

- (1) Residential—includes all types of residential activity, such as single and multi-family residences and mobile homes, at a density of greater than one dwelling unit per acre.
- (2) Commercial—encompasses offices, retail, restaurants, and other types of commercial establishments.
- (3) Industrial—includes manufacturing, warehousing, and other similar uses.
- (4) Public/Quasi-Public—is comprised of publicly owned lands and/or lands to which the public has access, including military reservations and training grounds, public buildings, schools, churches, cemeteries, and hospitals.
- (5) Recreation—embodies land areas designated for recreational activity, including parks, wilderness areas and reservations, conservation areas, and areas designated for trails, hiking, and camping.
- (6) Open/Agriculture/Low Density—includes undeveloped land areas, agricultural areas, grazing lands, and areas with residential activity at densities less than or equal to one dwelling unit per acre.

4.2 Current Land Use

This section presents information about the municipalities having tax or land-use jurisdiction in the vicinity of Maxwell AFB, including descriptions of existing land uses, development controls (primarily zoning), and future land use plans.

In Alabama, land use planning and zoning is exercised by cities and incorporated towns. Additionally, counties exercise control of land development through subdivision regulation and provision of public utilities such as public water and sewerage utilities as well as through the issuance of driveway permits that allow access to public roads. Land use planning is undertaken to facilitate and accommodate development in a more orderly and cost efficient fashion than would occur otherwise. Because development at significant densities does not occur without substantial public services (utilities, schools, public safety, libraries, parks and recreational facilities), states and municipalities undertake planning studies and develop a regulatory

framework to guide future growth. The primary methods for implementing those plans are public investment (construction of roads, utilities), land use control (subdivision and zoning regulations), and design standards (landscaping and historic preservation ordinances). Over time, land use changes are the result of changing demographic and population trends that are channeled and focused into specific areas as a result of land use planning efforts and regulations.

Population growth, therefore, is a primary influence on land use planning efforts. The population of the state of Alabama has been growing at a steady rate and the central region of the state has correspondingly experienced growth. The growth rates are not uniform, however. The outlying counties (Autauga, Elmore) are growing at a considerably faster rate than Montgomery County or the city itself (Table 4-1). This is often the case where development pressures are relieved by conversion of raw land (meaning no water/sewerage utilities) rather than by increasing density of existing developed areas. Compared to the city of Montgomery, the counties of Elmore, Autauga and Montgomery have considerably more vacant land and development absent a topographical or other constraint; this is where the development pressures manifest themselves in the form of a land use change.

Table 4-1. US Census Population

AREA	2000 Census	2007 Estimated	2000-2007 Rate of Change %	2015 Projection
State of Alabama	4,447,100	4,627,851	4.06	4,663,111
Montgomery City	201,568	204,086	1.25	N/A
Montgomery County	223,510	225,791	1.02	237,378
Autauga County	43,671	49,960	14.40	58,273
Elmore County	65,874	77,525	17.69	81,959

Table T1: Population Estimates. Data Set: 2007 Population Estimates. 2015 Estimates prepared by University of Alabama in Huntsville, Center for Management and Economic Research.
Source: U.S. Census Bureau (USCB) 2000, 2007

The development patterns around the base illustrate this as well. Maxwell AFB was originally established in an outlying, undeveloped agricultural area located to the northwest of the city of Montgomery, just south of the Alabama River. Today, the base is situated entirely within the Montgomery city limits, having been annexed from Montgomery County. Over time development in the northwest portion of the city has occurred such that Maxwell AFB is being encroached upon by suburban residential, commercial, and industrial development from the south, west, and northwest. The area of the city located west of Interstate 65 and south/southwest of Maxwell AFB includes a mixture of land uses. The areas north and east of the base are primarily low lying agricultural land and wetlands adjacent to the Alabama River.

4.2.1 City of Montgomery

As noted above, Maxwell AFB lies within the city of Montgomery, Alabama. As a mid-sized city located southeast of the center of the state, in the Gulf Coastal Plain, it has a variety of land uses. Most of the city's real estate, population, and historic structures lie east of Interstate 65 with the regional airport and the base lying west of this major north-south thoroughfare.

While Maxwell AFB once was in the outskirts of the city, over time development has occurred in the vicinity of the base except in those areas constrained by natural barriers (e.g., the Alabama River). Accordingly, the majority of the development around the base lies west and south of the base. The existing land immediately west and south of the base is primarily industrial, commercial, and agricultural. However, south of the base significant residential areas are intermixed with commercial and industrial uses (Figure 4-1).

4.2.1.1 Noise Zones

In general terms, the noise contours extend along the axis of the runway and are largely confined to the installation (Figure 4-2). The 65 DNL contour does, however, extend northwest of the base. However, the area the contour overlies is occupied by industrial and agricultural uses. The remaining contours remain within the base boundary.

The limited flying mission of Maxwell AFB that leads to a relatively small noise footprint results in excellent land use compatibility with respect to noise (Table 4-2). Since only the 65 DNL contour leaves the base and then only on the north side, the contour overlays land uses that are generally considered compatible. There are no residential land uses underlying the noise contour and census data do not indicate that any persons reside in this area of predicted noise exposure.

4.2.1.2 Clear Zone/Accident Potential Zones I & II

Similar to land use compatibility with respect to noise, the north side of the installation is relatively undeveloped due to the presence of flood plains and wetlands associated with the Alabama River. This has resulted in excellent land use compatibility with respect to aircraft accident potential. The areas south of the base present a more complex situation as the real estate there is more intensely developed.

Clear Zones

Virtually all the real estate underlying the CZ and APZs associated with Runway 15/33 falls either on the base itself or within the city of Montgomery or Montgomery County. A small portion of the Runway 15/33 APZ II to the north extends into Elmore County. For the assault strip (18A/36A), the CZ and APZ-LZ are almost entirely on the installation, with a very small portion extending off-base to the north to the south bank of the Alabama River. This portion of the APZ-LZ is within the city limits (Figure 4-3)

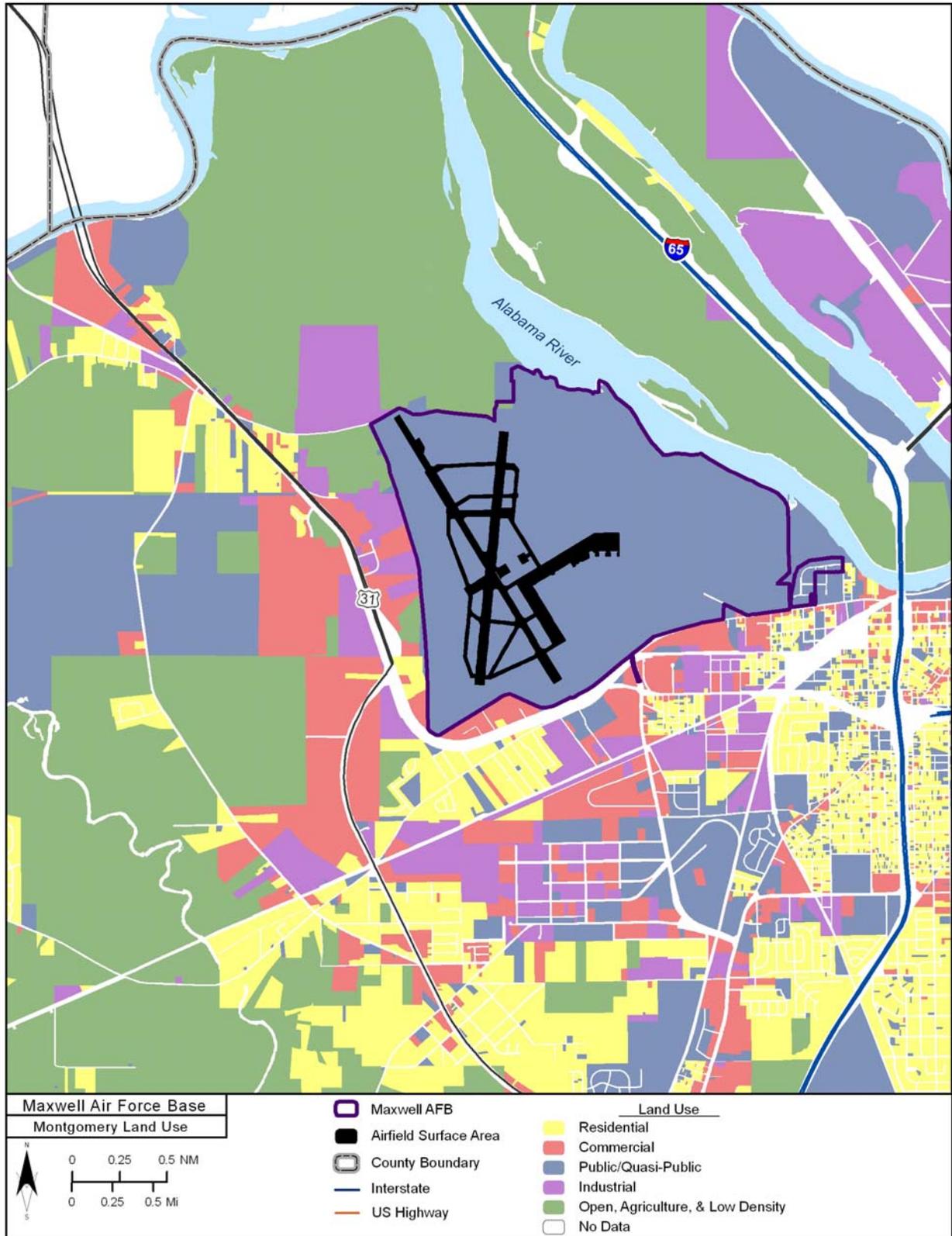


Figure 4-1. Existing Land Uses in the Region

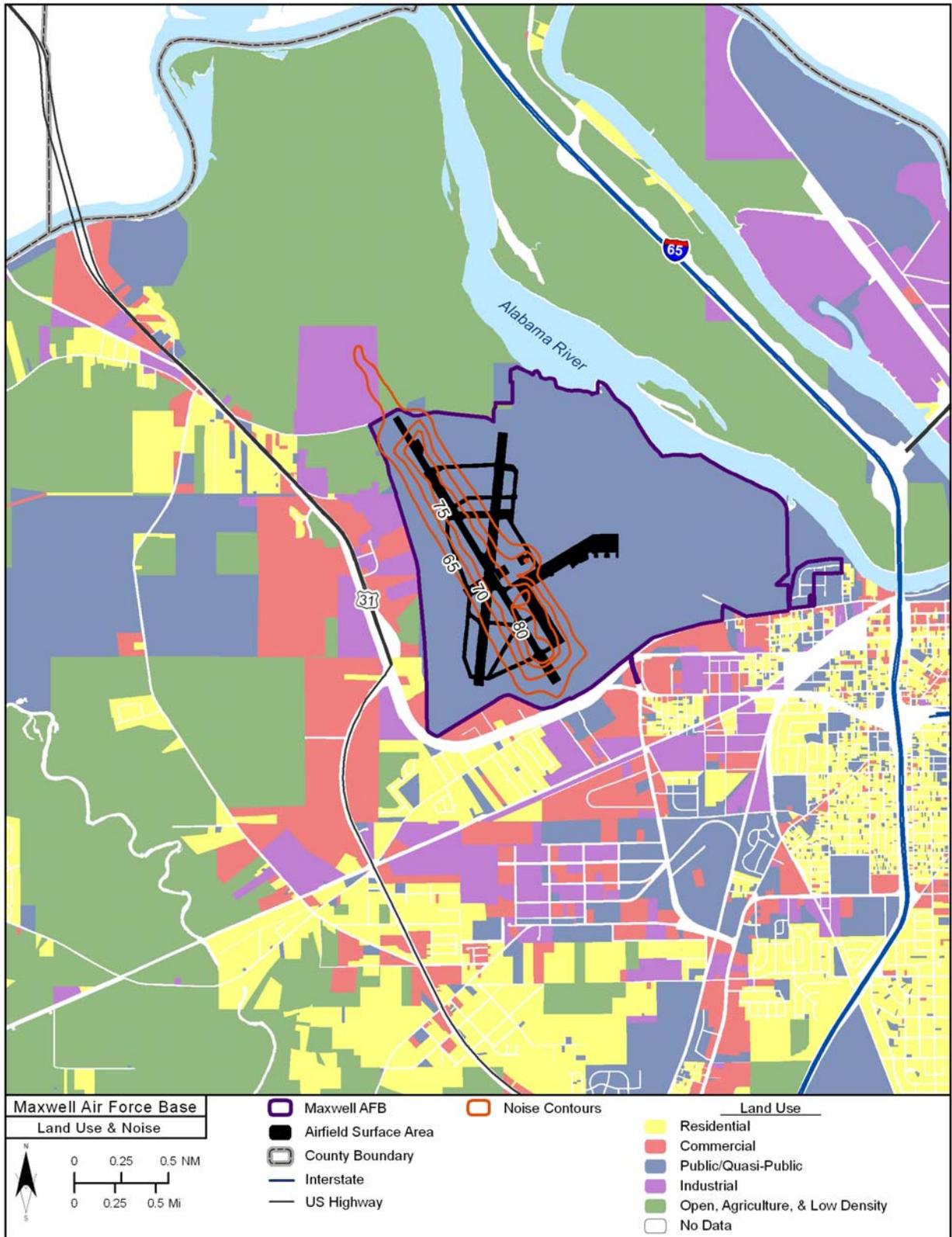


Figure 4-2. Existing Land Uses and 2009 Noise Contours

Table 4-2. Off-Base Compatibility within Noise Contours

Category	65-69	70-74	75-79	80+	Total
Residential					
Compatible	N/A	N/A	N/A	N/A	N/A
Incompatible	N/A	N/A	N/A	N/A	N/A
Commercial					
Compatible	N/A	N/A	N/A	N/A	N/A
Incompatible	N/A	N/A	N/A	N/A	N/A
Industrial					
Compatible	14	N/A	N/A	N/A	14
Incompatible	N/A	N/A	N/A	N/A	N/A
Public/Quasi-Public					
Compatible	2	N/A	N/A	N/A	N/A
Incompatible	N/A	N/A	N/A	N/A	N/A
Open/Agriculture					
Compatible	10	N/A	N/A	N/A	N/A
Incompatible	N/A	N/A	N/A	N/A	N/A
Unclassified (includes water)					
Compatible	N/A	N/A	N/A	N/A	N/A
Incompatible	N/A	N/A	N/A	N/A	N/A

Source: City of Montgomery Alabama, Department of Planning

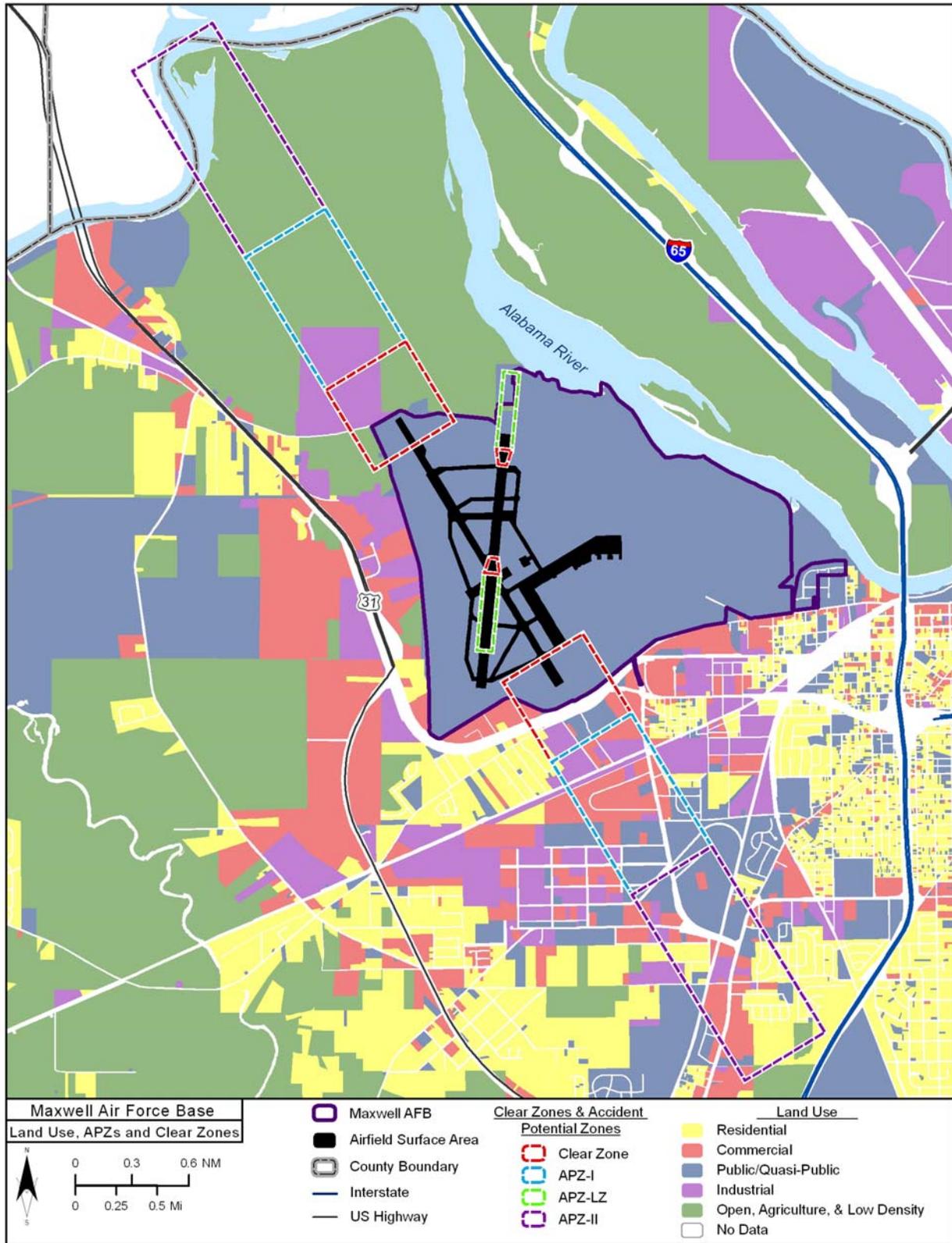


Figure 4-3. Existing Land Uses and CZs and APZs

To the south of the base, at the south end of Runway 15/33, approximately 50 percent of the clear zone lies within the base boundary. The balance lies within the city of Montgomery. Off-base within this CZ, a mix of mobile home dwellings and commercial/industrial facilities are located in the southeast corner of the CZ. These residential uses are incompatible. It is estimated that 138 persons reside within the CZ. Additionally, since any use other than open space or agricultural uses are incompatible with a CZ, the commercial uses that front along Birmingham Highway South that lie within the CZ area also incompatible. It is estimated that 95 acres of the CZ are incompatible (Table 4-3).

Accident Potential Zones

As presented in Chapter 3, over 1,000 persons reside within the APZs. Approximately one-third of the acres of APZ I and one-quarter of APZ II contain incompatible uses. Virtually all of these incompatibilities exist at the APZs at the south end of Runway 15/33.

The Runway 15/33 south end APZ I contains a mix of commercial, quasi/public and residential areas. APZ II contains a mix of commercial, public/quasi-public, and residential areas. A high percentage (74 percent land use) of residential dwellings is within APZ II south of Mobile Highway.

To the north of the runway, approximately 25 percent of the clear zone lies within the base boundary. The balance lies within the city of Montgomery. The off base land use is agricultural and industrial. Further north, within APZ I, are a mix of agricultural and industrial land uses. Approximately 66 percent of APZ I lies within the city of Montgomery; the remaining 34 lies in Montgomery County. Further, APZ I lies over a flood hazard area. APZ II, also within a flood hazard area, is primarily for agricultural use. Approximately 88 percent of APZ II lies within Montgomery County, with approximately 12 percent in Elmore County.

For the assault strip, only 9 acres of the APZ-LZ leaves the installation. This area, on the north side of the base, contains a public/quasi-public use (water treatment facility) which is compatible.

4.2.2 Montgomery County

The majority of the real estate that is north of the base lies in Montgomery County. Large areas of open space and agricultural uses are present in this portion of the county. The Montgomery County northern boundary coincides with the Alabama River.

4.2.2.1 Noise Zones

Much of the Montgomery County lands in the study area are rural and located in a flood hazard zone north of the base. The noise contours north of the base do not extend into Montgomery County. All noise contours east, west, and south along the axis of the runway are contained within base boundaries.

4.2.2.2 Clear Zone/Accident Potential Zones I and II

Only a portion of the APZ I and all of APZ II associated with the north end of Runway 15/33 lies within Montgomery County. The uses underlying these areas, agricultural, open space and industrial are compatible.

Table 4-3. Off Base Land Use Acreage for CZs and APZs

Category	CZ	APZ I	APZ II	TOTAL
Residential	5	3	124	132
Compatible	0	0	0	0
Incompatible	5	3	124	132
Commercial	17	126	103	246
Compatible	0	0	103	103
Incompatible	17	126	0	143
Industrial	78	145	27	250
Compatible	0	145	27	27
Incompatible	78	0	0	223
Public/Quasi-Public	37	104	141	282
Compatible	0	0	0	
Incompatible	37	104	141	
Open/Agriculture	84	261	345	690
Compatible	84	261	345	690
Incompatible	0	0	0	0
Unclassified (includes water, rights-of-way)	37	50	225	312
Compatible	37	50	225	312
Incompatible	0	0	0	0
TOTAL	146	686	964	1,796

4.2.3 Elmore County

Elmore County is located north of Montgomery County, across the Alabama River. The county itself has a very low population outside its five established municipalities. These municipalities are outside of the Maxwell AFB region of influence. However, Elmore County has the third highest growth rate for the state of Alabama.

4.2.3.1 Noise Zones

No noise contours from the base extend into Elmore County.

4.2.3.2 Clear Zone/Accident Potential Zones I and II

The CZ and APZ I from the base do not extend into Elmore County. On the other hand, approximately nine acres of the northwest corner of APZ II, north of the Alabama River, lies within Elmore County. The land within APZ II is open space with isolated residential use.

4.3 Current Zoning

This section examines the existing generalized zoning classifications as adopted by the jurisdictions in the region. To match the generalized groupings that the Air Force uses for assessing land use compatibility, the zoning classifications employed by the jurisdictions have been grouped (Figures 4-4, 4-5, 4-6). Additionally, the zoning data as it is recognized by the city and county is presented (Figure 4-7). Like any real estate owned by the Federal government, Maxwell AFB itself is not subject to the jurisdiction of either the city or county and land use control or regulation by the city or county does not apply to the real estate within the base boundary.

4.3.1 City of Montgomery

The city of Montgomery has enacted zoning ordinances since the 1960s. Today, the city of Montgomery zoning ordinance is based on its Master Plan, called the *Strategic Development Concept*, a general guide for future land use planning. The city of Montgomery Zoning Ordinance is based on its Strategic Development Concept which is a carefully designed policy that has been prepared to guide the city's growth and development in an orderly and efficient manner. Montgomery's Strategic Development Concept was updated in 2008, plans outward in time for about 20 years, and periodically is updated as conditions warrant.

Noise Contours

Since the noise contours generally fall on the base, incompatible zoning classifications with respect to noise are not a significant issue in Montgomery (Figure 4-4). Two points should be kept in mind when looking at examining and the noise environment at Maxwell: first, the contours vary over time as missions change and various airframes are stationed at the base; and second, aircraft noise does not stop at the contour boundary.

Under current conditions, only a small portion of the 65 DNL contour overlies land with incompatible residential zoning. This area, northwest of the base and on the north side of Washington Ferry Road is zoned for residential use. Otherwise, the zoning classifications surrounding the installation are compatible with respect to noise. Should missions change or operational intensities of the current mission increase, it is likely that some residential zoning classifications in areas south of the base would then become incompatible as they are very close to, but outside of, the 65 DNL noise contour.

Accident Potential

Assessing compatible zoning for accident potential is best done by examining the north side of the base separately from the south side. The zoning classifications underlying the CZ and APZs associated with the north end of Runway 15/33 are largely compatible. The predominant zoning classification is Flood Hazard, a form of Open Space or Agricultural zoning. There does exist incompatible residentially zoned real estate in the CZ as well as in both APZs (Figure 4-5).

With respect to the south end of Runway 15/33, the predominant zoning classifications is industrial, with residential, public/quasi public use, and commercial zoning classifications making up the balance. Within the CZ, the residential and industrial zoning is incompatible. Within APZ I, the commercial zoning classification may would permit both compatible and incompatible uses depending upon the particular use proposed. For both APZ I and II, residential zoning is incompatible and public/quasi-public zoning typically permits uses that also would be incompatible.

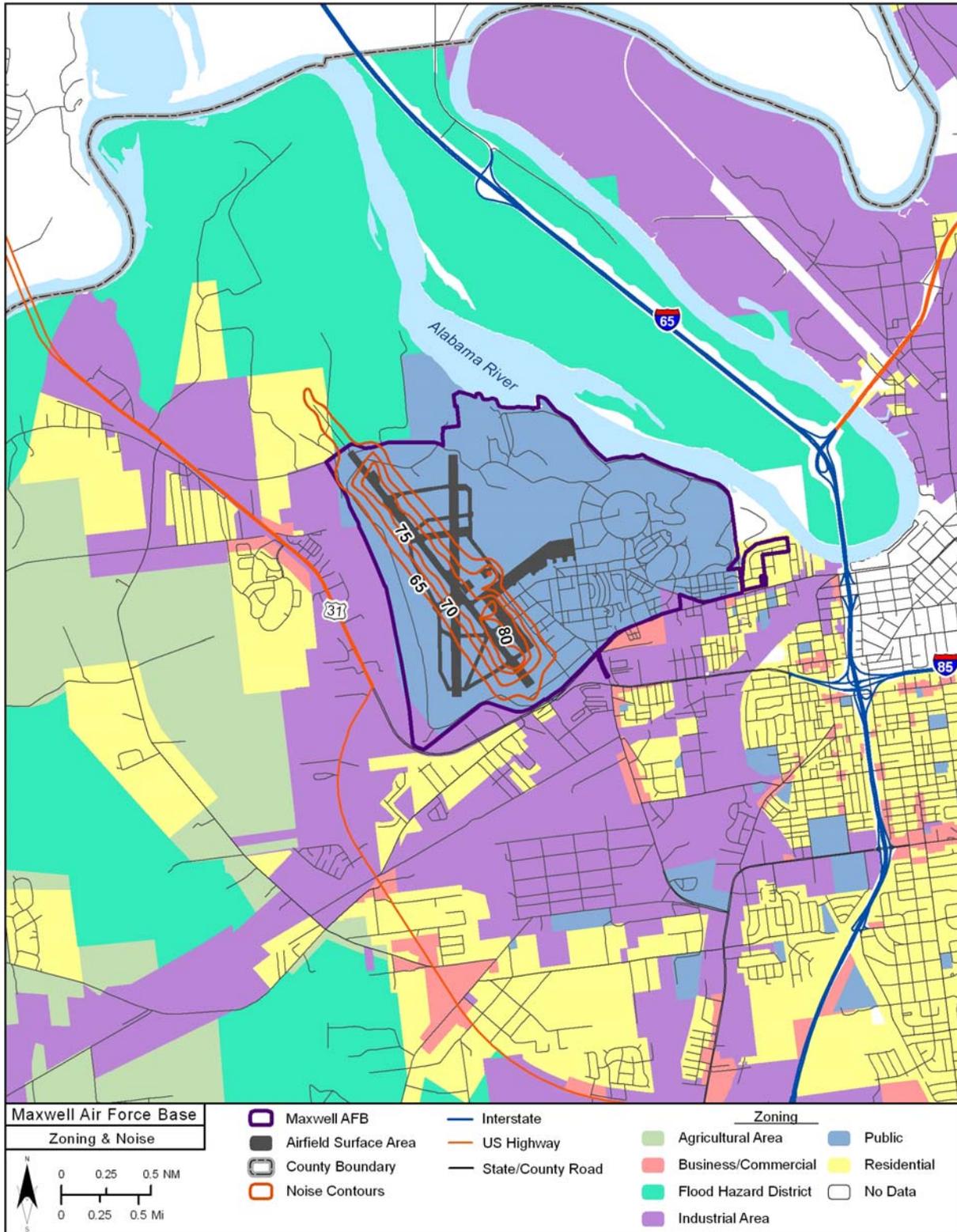


Figure 4-4. Generalized Zoning and Noise Contours

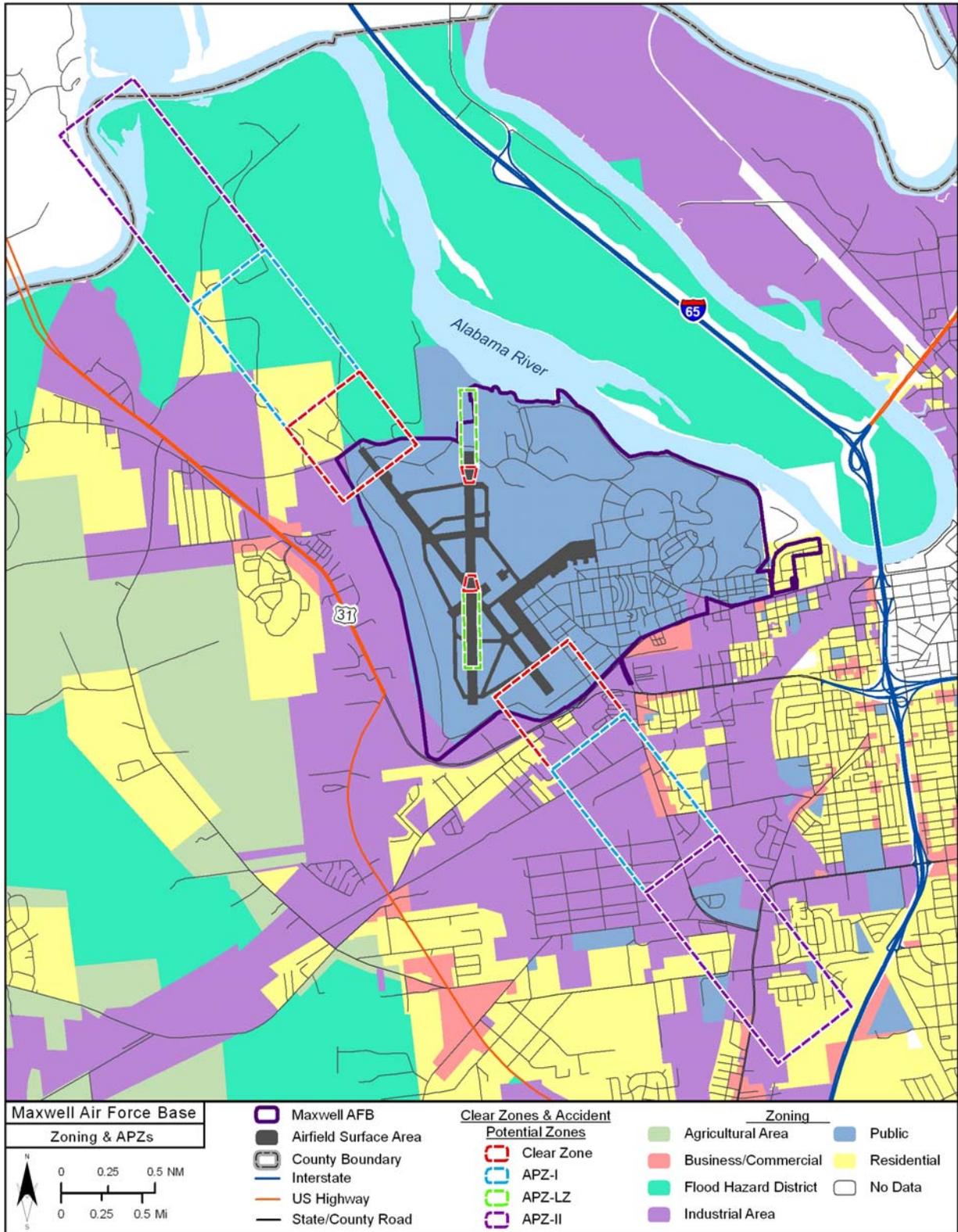


Figure 4-5. Generalized Zoning and APZs

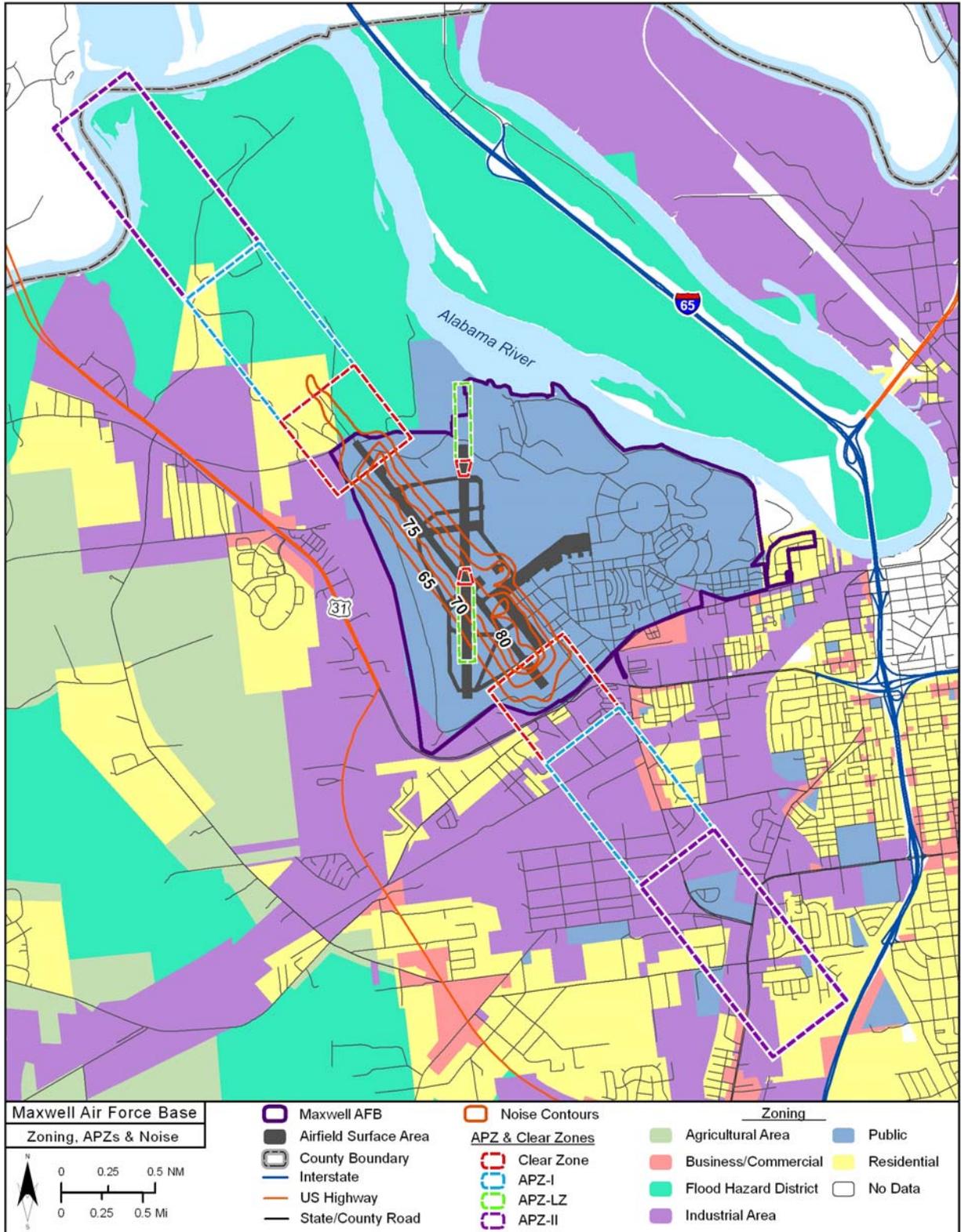


Figure 4-6. Generalized Zoning, APZs, and Noise Contours

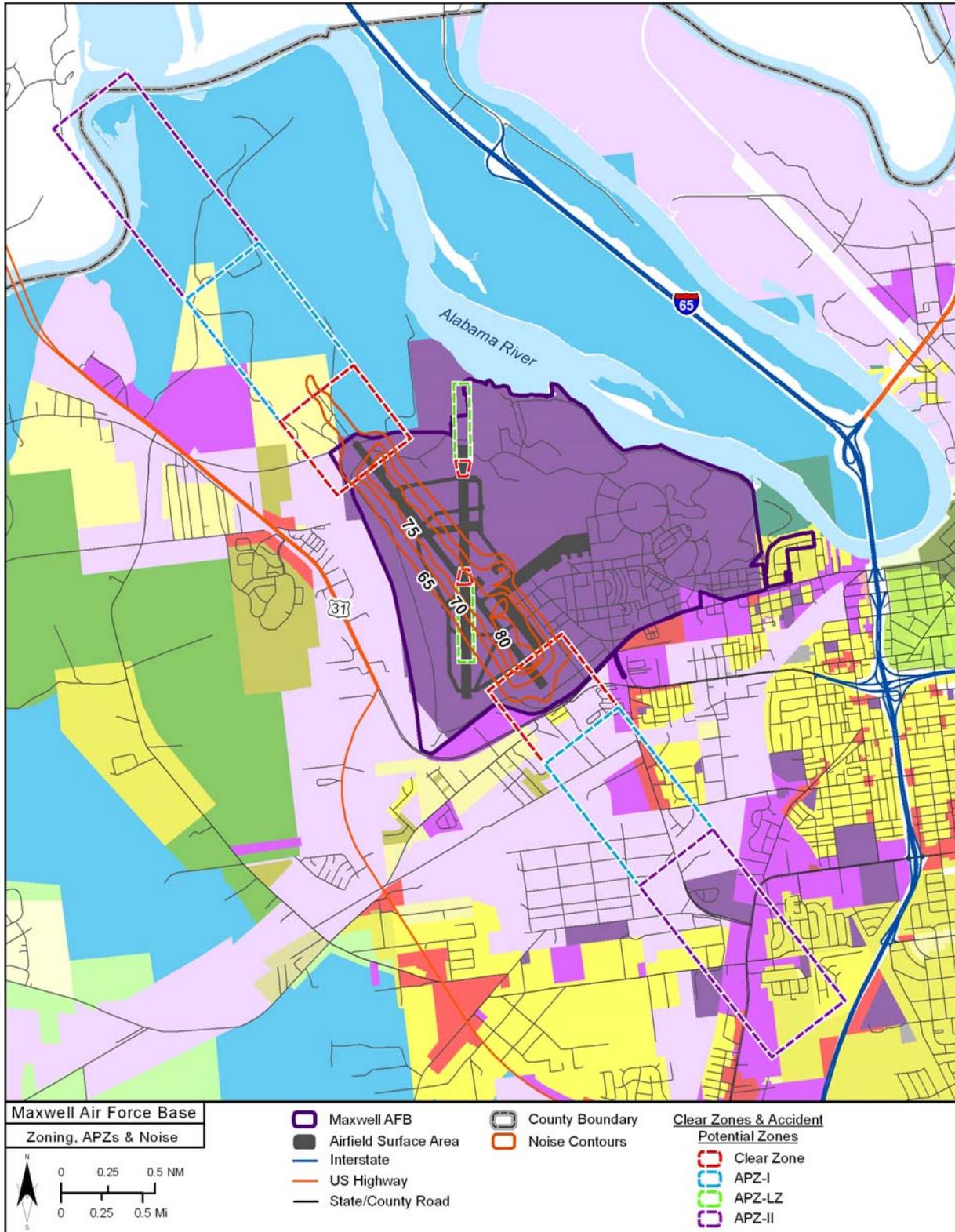


Figure 4-7. Detailed Zoning Classifications, APZs, and Noise Contours



Figure 4-7. Detailed Zoning Classifications, APZs, and Noise Contours (cont'd)

The assault strip CZs both fall entirely on Maxwell AFB, as does the southern APZ-LZ. A little over one-third of the northern APZ-LZ extends across the northern base boundary. The zoning classification underlying this area is public/quasi-public (Institutional), which depending upon the specific use proposed could have the potential for allowing an incompatible use.

Zoning Classifications

The city of Montgomery's zoning ordinance is more detailed and comprehensive than the generalized grouping of classifications presented in Section 4.1 that the Air Force uses for land use analysis (see Figure 4-6). Community leaders and planning professionals should examine the particular circumstances of real estate, the particularly the current zoning (see Figure 4-7), to ascertain more fully whether the existing zoning ordinance and mapping encourages compatible land use and discourages or prohibits incompatible land uses outlined in Section 3.5 and Table 3-4.

4.3.2 Montgomery County

The zoning classifications applicable to real estate within Montgomery County are discussed in the Section 4.3.1, Montgomery City. The noise contours and the CZs do not extend into Montgomery County. The area of Montgomery County that underlies APZ I and APZ II is a mix of Residential and Flood Hazard. Residential zoning would allow incompatible uses in APZ I and APZ II.

4.3.3 Elmore County

Elmore County does not exercise zoning as a form of land use control. Like other Alabama counties, however, it does regulate land use through subdivision control and issuance of permits to connect to public rights-of-way. Only a small portion of the APZ II associated with the north end of Runway 15/33 crosses the Alabama River into Elmore County.

4.4 Future Land Use

Most of the area surrounding Maxwell AFB that is developable has already been developed. It is unlikely that areas in flood plains or wetlands north and east of the base would experience land use changes over time. To the extent land use changes have been occurring over the past several years, it appears that some residential uses have become vacant near the southern base boundary. What development is likely to occur around Maxwell is more likely to be infill development or re-development rather than conversion of agricultural or open space uses to more intensely developed residential, commercial, or industrial uses.

Land use planning and its implementation through public infrastructure investment and zoning ordinances inherently involve a balancing of competing interests. Among the factors community leaders necessarily consider are the need to accommodate population growth, economic opportunity, and provision of public services. This process is a continuous one.

The city of Montgomery employs a multi-tiered comprehensive planning process. A conceptual framework is outlined in the city's *Strategic Development Concept* document, adopted by the Planning Commission in August 2008. This document outlines broad policy themes to guide a forthcoming Land Use Plan that is currently under development. The *Strategic Development Concept* would also inform area-specific subsidiary planning efforts and capital investment in infrastructure for public services and recreation.

Much of the focus of the *Strategic Development Concept* centers on sustainable growth, green infrastructure, and quality of life issues. In more concrete terms, that means preservation of the wetlands and floodplains along the Alabama River near the base, and re-development of the Bell Street / Riverside Heights residential neighborhood to the east of the base. The first focus is compatible with the mission at Maxwell AFB as it tends to keep vacant those lands in the northern end APZs that currently are vacant. The second focus concept would not present a land-use conflict in and of itself. However, to the extent new construction or redevelopment of housing stock occurs, the community should be mindful of the base's flying mission and remain cognizant that the airfield runway is approximately one and one-half miles to the west. Although the neighborhood does not presently lie within an area predicted noise exposure that is high, the area is exposed to aircraft noise periodically. Should the mission of the installation change or should air traffic control procedures change, it is possible that predicted noise exposure could increase. Incorporating noise level reduction measures in the building construction process should be considered as a means of mitigating potential future impacts should the opportunity present itself.

During the development of the Land Use Plan, the city should conduct a detailed land use compatibility study for the areas having increased potential for aircraft accidents. The residential and industrial zoning in the CZ should be examined with a goal toward amortizing the uses and within the APZs, compatible land uses should be encouraged. As area-specific planning documents and corresponding capital improvement public investment decisions are made, the mission of Maxwell AFB should be kept in mind and decisions that would tend to foster development of incompatible land uses should be avoided.

4.5 Obstructions to Air Navigation (FAR Part 77 Analysis)

The Air Force seeks to protect its airfields from encroachment from construction of facilities whose uses are incompatible with its mission. In addition to the compatible land use recommendations presented in Chapter 3 (Table 3-4), the Air Force is also concerned about development that has the potential to compromise the utility of the airfield if its height or other characteristics (e.g., light emissions, smoke, dust, or steam) is not regulated.

To protect aviators and persons on the ground, the FAA evaluates proposals for construction of objects greater than 199 feet AGL or within 20,000 feet of an airport and the object to be constructed would exceed a slope of 100:1 horizontally, (i.e., 100 feet horizontally for each foot vertically) from the nearest point of the nearest runway. Where proposed structures are found to penetrate the Airspace Control Surface Plan (Section 3.2), the FAA and Maxwell AFB would strongly recommend disapproval of the project to protect Maxwell AFB's pilots during times of adverse weather (low ceilings, poor visibility). Such obstructions can lead to raised minimum altitude for an instrument procedure which can mean the difference between a successful instrument approach to the airfield and a diversion to another base. As noted in Chapter 3, a weather/fuel divert increases risk to aviators and those on the ground, incurs additional expense in ferrying the aircraft and aircrew when weather improves and consumes additional fuel. See Volume II, Appendix D for additional details on how these maximum height recommendations are calculated.

The terrain elevation in the vicinity of Maxwell AFB is fairly uniform compared to bases in other regions of the country. As a result, application of the FAR Part 77 standards is reasonably

straightforward. The elevation above sea level of the outer horizontal surface is 641 feet MSL, based on the established airfield elevation of 171 feet MSL. The inner horizontal surface elevation is 321 feet MSL. The other imaginary surface elevations vary with distance from the runway. The assault strip has similar but considerably smaller surfaces (Figures 4-8, 4-9). Currently, six obstructions – cell towers or radio transmission towers—penetrate the imaginary surfaces. One penetrates the inner horizontal surface and the other five penetrate the outer horizontal surface (Figure 4-10). These three-dimensional surfaces should be kept in mind when reviewing development applications involving tall structures such as towers, smokestacks, wind turbines, and similar structures (Figure 4-11). Obstructions erected in this area have the potential to adversely affect the current and future mission capability of Maxwell AFB by impeding the use of instrument approach corridors. These obstacles could cause the aircraft to maintain an altitude that is too high to permit a descent below adverse weather causing a divert to another airfield. An overlay zoning district or other means of requiring a site-specific review is recommended.

It is also important that the local communities be cognizant of temporary construction activities that might require obstructions, such as tall cranes. These can also affect airfield operations and Maxwell AFB would request that the surrounding communities contact the installation to determine whether such would have an effect on airfield operations.

Apart from incompatibilities due to height, the Air Force is concerned that structures not interfere with Air Force communications, navigation, surveillance (CNS), or weather radar facilities. Tall structures, especially when aggregated, may interfere with terrestrial based CNS and weather equipment due to frequency interference, scattering of radar beams, or attenuation of radar returns. In addition, therefore, to the traditional obstruction height analysis performed by the FAA, local communities may wish to require proponents to demonstrate that proposed structures would not compromise the utility of an airfield and the taxpayer's long-standing investment in Maxwell AFB.

4.6 AICUZ Environs

The area of influence for an AICUZ study for which specific land use planning should be undertaken extend beyond the base's immediate neighbors (Figure 4-12).

AICUZ boundaries and noise contours describe the noise exposure of the current operational environment and as such will change over time as operational changes are made. If the local communities that make up the Maxwell AFB environs attempt to use noise contours alone as boundary lines for zoning districts, it is conceivable that problems will result. Should a new mission be established at Maxwell AFB adding a larger number of airplanes, or additional model types, the noise contours would change.

Additionally, the Air Force is recommending that AICUZ data be utilized with all other planning data. Therefore, specific land use control decisions should not be based solely on AICUZ boundaries. With these thoughts in mind, Maxwell AFB has revised the 1997 Study and provides flight track and noise contour maps in this report that reflect the most current and accurate picture of aircraft activities.

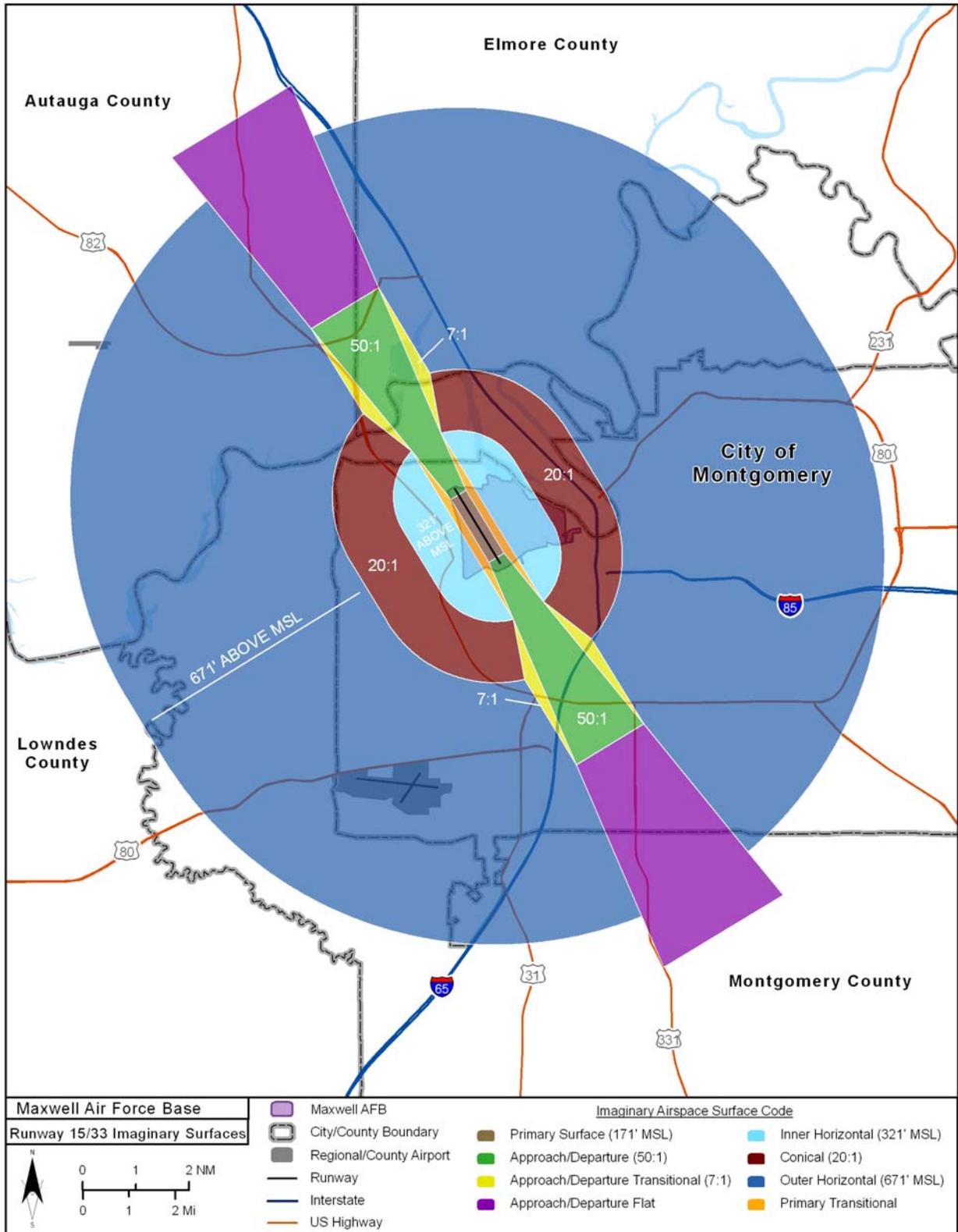


Figure 4-8. Runway 15/33 Imaginary Surfaces

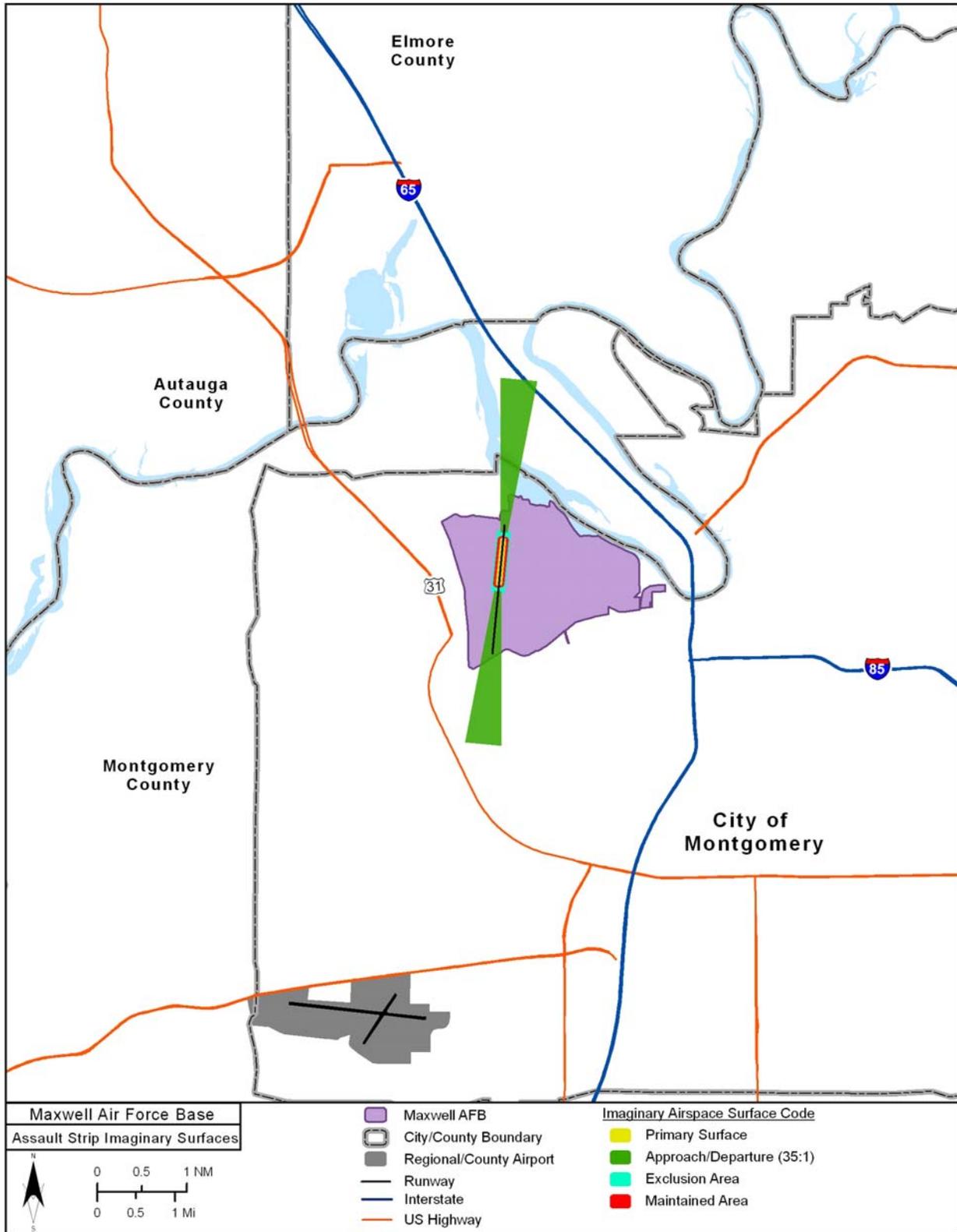


Figure 4-9. Assault Strip (18A/36A) Imaginary Surfaces

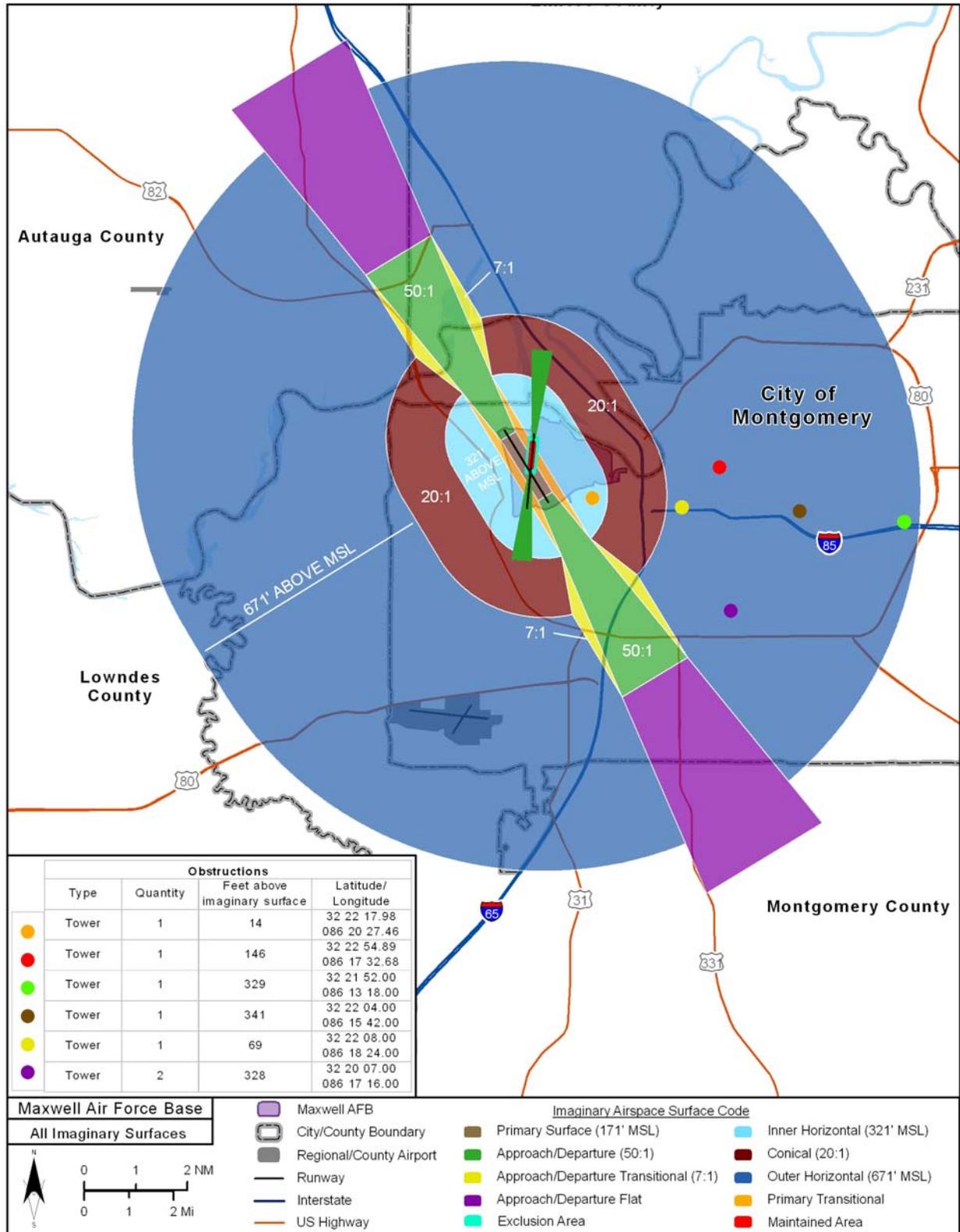


Figure 4-10. Maxwell AFB Imaginary Surfaces (All)

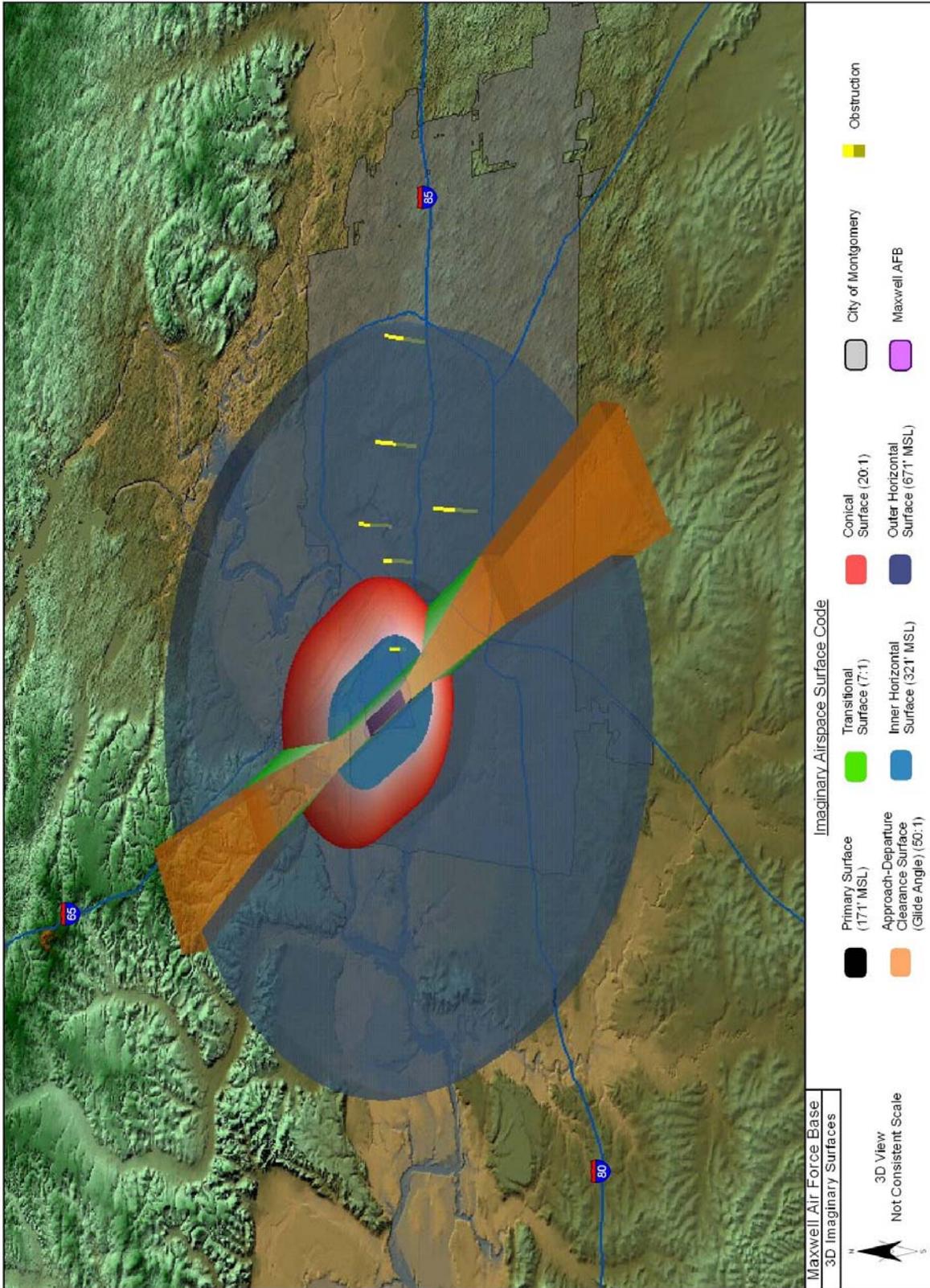


Figure 4-11. Maxwell AFB Imaginary Surfaces (3-Dimensional)

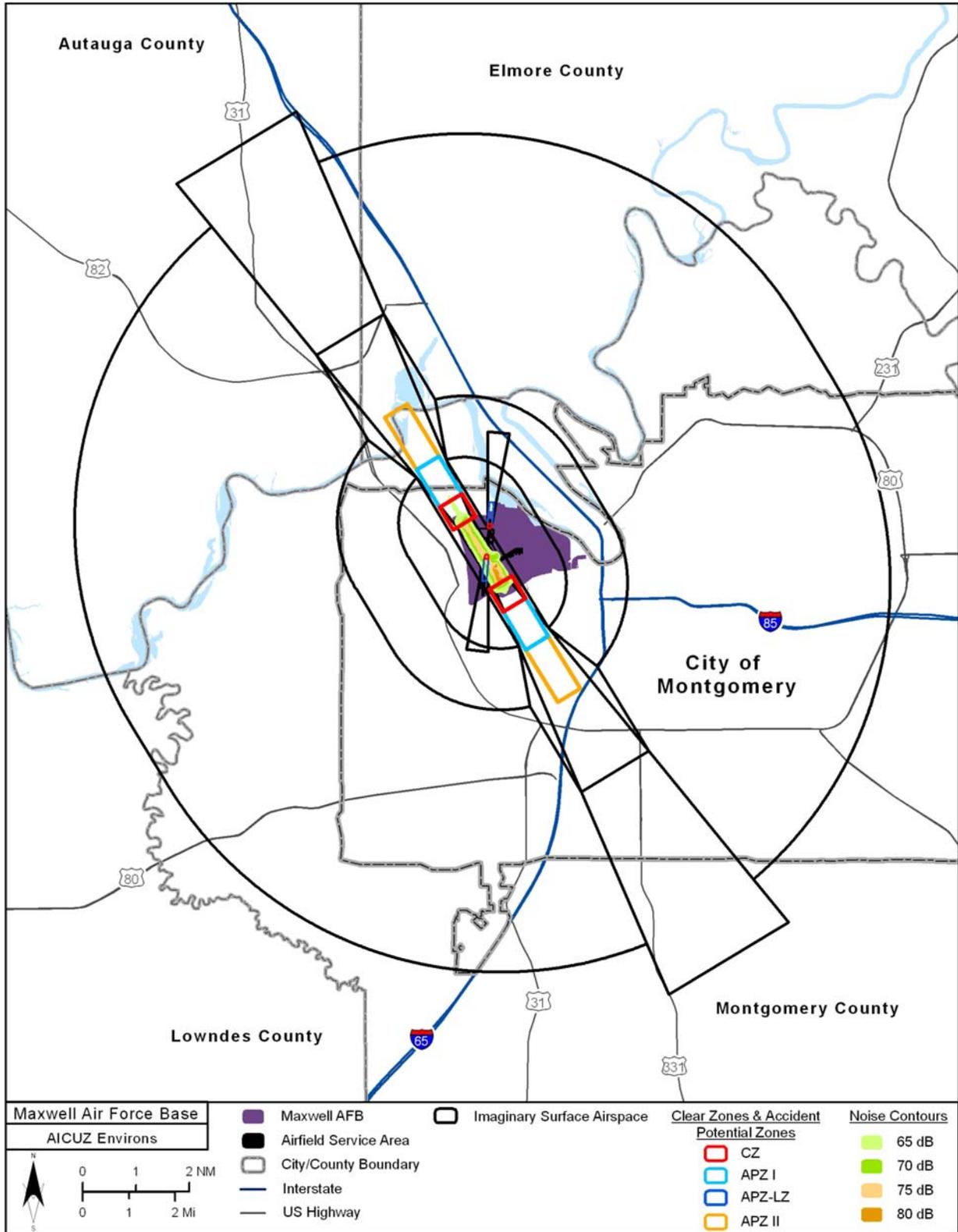


Figure 4-12. AICUZ Environs Map

As the local communities engage in a continuous process of maintaining their comprehensive land use plans, the accompanying implementing ordinances (zoning, subdivision control), and their capital improvement plans for infrastructure and public facility investments, the communities should continue to use sound planning principles. In particular, the Air Force would continue to recommend that planning documents, zoning changes, and similar activities be evaluated against the recommendations contained in Table 3-4 of this document for land use compatibility recommendations.

5.0 IMPLEMENTATION

The implementation of the AICUZ study must be a joint effort between the Air Force, the city of Montgomery, and Montgomery County, Alabama. The Air Force's role is to minimize the impact on the local communities caused by Maxwell AFB operations. The role of the communities is to ensure that development in the base environs is compatible with accepted planning and development principles and practices.

5.1 AICUZ Environs

To better assist the community in identifying whether real estate is potentially affected by, or has the potential to affect Air Force flight operations, it is important that all elements of AICUZ, accident potential, noise exposure, and obstruction evaluation and airfield airspace analysis be considered by local authorities when considering potential development. It is hoped that the base leadership working in concert with local community leaders and municipal planners would use the information contained within this report as a starting point for inquiry and analysis.

5.2 Air Force Responsibilities

In general, the Air Force perceives its AICUZ responsibilities as encompassing the areas of flying safety, noise abatement, and participation in the land use planning process.

Well-maintained aircraft and well-trained aircrews do much to assure that aircraft accidents are avoided. However, despite the best training of aircrews and maintenance of aircraft, history makes it clear that accidents do occur. It is imperative that flights be routed over sparsely populated areas as much as possible to reduce the exposure of lives and property to a potential accident.

According to Air Force regulations, commanders are required to periodically review existing traffic patterns, instrument approaches, weather minimums, as well as operating practices and evaluate these factors in relationship to populated areas and other local situations. This requirement is a direct result and expression of Air Force policy that all AICUZ plans must include an analysis of flying and flying-related activities that are designed to reduce and control the effects of such operations on surrounding land areas.

The preparation and presentation of this Maxwell AFB AICUZ Study is one phase of the continuing Air Force participation in the planning process of local municipalities. As local communities update land use plans, the Air Force must be ready to provide additional inputs.

The AICUZ program represents an ongoing, dynamic process that occurs even after compatible community development plans are adopted and implemented. Base personnel are prepared to participate in the continuing discussion of zoning and other land use matters as they may affect or may be affected by Maxwell AFB. Base personnel will also be available to provide information, criteria, and guidelines to state, county and local planning bodies, civic associations, and similar groups.

In a spirit of mutual respect and in consideration of our neighbors residing in adjacent communities, the Air Force continuously seeks ways to minimize impacts from flying operations. Some examples would include:

- Continue to discourage engine runup maintenance, except in situations of high priority missions, between 1800 and 0800 hours;
- Continue to minimize overflights of populated areas by flying west of the field over very sparsely populated areas.

These and other noise reduction initiatives represent ways that the Air Force seeks to minimize noise impacts on its neighbors.

Another initiative that the Air Force may undertake would be a comprehensive study of existing aviation easements on nearby private property lying in a CZ. Such a study could recommend whether further easements are warranted.

The Air Force should participate in working groups with other federal agencies to proactively prevent encroachment. One technique may include exploring the feasibility of entering into public-private partnerships to conserve land in other high accident potential areas, such as APZs.

5.3 Local Community Responsibilities

The residents of the Maxwell AFB environs and the personnel at the base have a long history of working together for mutual benefit. The adoption of the following recommendations will strengthen this relationship, increase the health and safety of the public, and help protect the integrity of the base's flying mission:

- Incorporate AICUZ policies and guidelines into the comprehensive plans of the city of Montgomery, and Montgomery County. Use overlay maps of the AICUZ noise contours and Air Force Land Use Compatibility Guidelines to evaluate existing and future land use proposals.
- Modify existing zoning ordinances and subdivision regulations to support compatible land uses outlined in this AICUZ study.
 - make specific recommendations against future development in the CZ south of Runway 15/33;
 - recommend against public assembly or high intensity uses in APZ I or II;
 - recommend against residential use in APZ I or II, or in high-noise areas;
 - require a site specific review process for noise-sensitive uses (e.g., schools, hospitals, housing) to assess proposed noise level reduction techniques;
 - discourage noise sensitive development clustered adjacent to but not within a noise zone since contours shift over time and noise does not stop at a noise zone boundary; and
 - provide for specific review recommendation on tall structures in the airfield vicinity.
- Ensure that height and obstruction ordinances reflect current Air Force and FAA FAR Part 77 requirements, and require project proponents demonstrate that their actions will not compromise the utility of the Maxwell AFB airfield.
- Modify building codes to ensure that new construction within the AICUZ area adheres to the recommended noise level reductions incorporated into the design and construction.
- Continue to inform Maxwell AFB of planning and zoning actions that have the potential to affect base operations.

- Implement procedures that require project proponents to notify Maxwell AFB of temporary construction activity which could require the use of cranes within the vicinity of the airfield, in order to allow the installation to analyze impacts on flight operations.

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MAXWELL AIR FORCE BASE
ALABAMA

V O L U M E I I

AIR INSTALLATION COMPATIBLE USE ZONE

TABLE OF CONTENTS

		<u>Page</u>
APPENDIX A	THE AICUZ CONCEPT, PROGRAM, METHODOLOGY, AND POLICIES	A-1
A.1	Concept	A-1
A.2	Program.....	A-1
A.3	Methodology	A-2
A.4	AICUZ Land Use Development Policies.....	A-2
A.5	Basic Land Use Compatibility.....	A-5
A.6	Accident Potential.....	A-5
A.7	Noise	A-6
APPENDIX B	CLEAR ZONES AND ACCIDENT POTENTIAL ZONES	B-1
B.1	Guidelines for Accident Potential.....	B-1
B.2	Accident Potential Analysis.....	B-1
B.3	Definable Debris Impact Areas	B-4
B.4	Findings	B-5
APPENDIX C	DESCRIPTION OF THE NOISE ENVIRONMENT	C-1
C.1	Noise Contours	C-1
C.2	Noise Environment Descriptor	C-1
C.3	Noise Event Descriptor.....	C-2
C.4	Noise Contour Production	C-3
APPENDIX D	HEIGHT AND OBSTRUCTIONS CRITERIA	D-1
D.1	Height and Obstructions Criteria.....	D-1
D.1.1	General.....	D-1
D.1.2	Explanation of Terms.....	D-1
D.1.3	Planes and Surfaces.	D-1
D.2	Height Restrictions	D-4
APPENDIX E	NOISE LEVEL REDUCTION GUIDELINES	E-1

LIST OF FIGURES

<u>No</u>		<u>Page</u>
Figure B-1	Distribution of Air Force Aircraft Accidents (369 Accidents - 1968-1972)	B-3
Figure B-2	Air Force Aircraft Accident Data (369 Accidents - 1968-1972)	B-3
Figure B-3	Air Force Aircraft Accident Data (838 Accidents - 1968-1995)	B-4
Figure C-1	Day-Night Average A-Weighted Sound Level (DNL)	C-1
Figure C-2	Sound Exposure Level (SEL)	C-2
Figure D-1	Airspace Control Surface Plan	D-3

LIST OF TABLES

<u>No</u>		<u>Page</u>
Table B-1	Location Analysis	B-2
Table B-2	Additional Accident Data (838 Accidents - 1968-1995)	B-4
Table D-1	Maxwell AFB Coordinates and Elevations	D-2

APPENDIX A THE AICUZ CONCEPT, PROGRAM, METHODOLOGY, AND POLICIES

A.1 Concept

Federal legislation, national sentiment, and other external forces that directly affect the Air Force mission have served to greatly increase the Air Force's role in environmental and planning issues. Problems with airfield encroachment from incompatible land uses surrounding installations, as well as air and water pollution and socioeconomic impacts, require continued and intensified Air Force involvement. The nature of these problems dictates direct Air Force participation in comprehensive community and land use planning. Effective, coordinated planning, that bridges the gap between the Federal Government and the community, requires the establishment of good working relationships with local citizens, local planning officials, and state and federal officials. These relationships depend on an atmosphere of mutual trust and helpfulness. The Air Installation Compatible Use Zone (AICUZ) Program has been developed in an effort to:

- Assist local, regional, state, and federal officials in protecting and promoting public health, safety, and welfare by encouraging compatible development within the AICUZ area of influence.
- Protect Air Force operational capability from the effects of land use that are incompatible with aircraft operations.

The land use guidelines developed herein are a composite of a number of other land use compatibility studies that have been refined to fit the Maxwell AFB aviation environment.

A.2 Program

Geo-Marine, Inc. performed this AICUZ Study for Maxwell AFB and Headquarters, Air Education and Training Command. Primary data collection occurred in June 2007 at Maxwell AFB in conjunction with an operational change, resulting from a decrease in aircraft assigned to Maxwell AFB. In December 2008, a re-validation of the data occurred, with additional noise modeling and land use analysis occurring in subsequent months.

Installation commanders establish and maintain active programs to achieve the maximum feasible land use compatibility between air installations and neighboring communities. The program requires that all appropriate government agencies and citizens be fully informed whenever AICUZ or other planning matters affecting the installation are under consideration. This includes positive and continuous programs designed to:

- Provide information, criteria, and guidelines to federal, state, regional, and local planning bodies, civic associations, and similar groups.
- Inform such groups of the requirements of the flying activity, noise exposure, aircraft accident potential, and AICUZ plans.
- Describe the noise reduction measures being used.
- Ensure reasonable, economical, and practical measures are taken to reduce or control

the impact of noise-producing activities. These measures include such considerations as proper location of engine test facilities, provision of sound suppressors where necessary, and adjustment of flight patterns and/or techniques to minimize the noise impact on populated areas. This must be done without jeopardizing safety or operational effectiveness.

A.3 Methodology

The AICUZ area of influence consists of land areas upon which certain land uses may obstruct the airspace or otherwise be hazardous to aircraft operations, as well as the land areas that are exposed to the health, safety, or welfare hazards of aircraft operations. The AICUZ concept includes:

- Accident potential zones (APZs) and clear zones (CZs) based on past Air Force aircraft accidents and installation operational data (Appendix B).
- Noise zones (NZs) produced by the computerized Day-Night Average A-Weighted Sound Level (DNL) metric (Appendix C).
- The area designated by the Federal Aviation Administration (FAA) and the Air Force for purposes of height limitations in the approach and departure zones of the base (Appendix D).

The APZs, CZs, and NZs are the basic building blocks for land use planning with AICUZ data. Compatible land uses are specified for these zones, and recommendations on building materials and standards to reduce interior noise levels inside structures are provided in Appendix E.

As part of the AICUZ Program, the only real property acquisition for which the Air Force has requested and received congressional authorization, and for which the base and major commands request appropriations, are the areas designated as the CZs. Maxwell AFB has not acquired real property interests for the entire CZ areas. Maxwell AFB owns aviation easements restricting the height of structures within the approach and departure zones, including the CZs. Compatible land use controls for the remaining airfield area of influence have been attained through the Maxwell Air Force Base Compatible Land Use and Hazard Zoning Ordinance, prepared by the City of Montgomery Zoning Board in accordance with the Alabama Airport Zoning Act.

A.4 AICUZ Land Use Development Policies

The basis for any effective land use control system is the development of, and subsequent adherence to, policies that serve as the standard by which all land use planning and control actions are evaluated. Maxwell AFB recommends the following policies be considered for incorporation into the comprehensive plans of agencies in the vicinity of the base:

A.4.1 Policy 1. In order to promote the public health, safety, peace, comfort, convenience, and general welfare of the inhabitants of airfield area of influence, it is necessary to:

- Guide, control, and regulate future growth and development.
- Promote orderly and appropriate land use.

- Protect the character and stability of existing land uses.
- Prevent the destruction or impairment of the airfield and the public investment therein.
- Enhance the quality of living in the affected areas.
- Protect the general economic welfare by restricting incompatible land use.

A.4.2 Policy 2. In furtherance of Policy 1, it is appropriate to:

- Establish land use compatibility guidelines.
- Restrict or prohibit incompatible land use.
- Prevent establishment of any land use that would unreasonably endanger aircraft operations and the continued use of the airfield.
- Incorporate the AICUZ concept into community land use plans, modifying them when necessary.
- Adopt appropriate ordinances to implement airfield area of influence land use plans.

A.4.3 Policy 3. Within the boundaries of the AICUZ, certain land uses are inherently incompatible. The following land uses are not in the public interest and must be restricted or prohibited:

- Uses that release into the air any substance, such as steam, dust, or smoke, which would impair visibility or otherwise interfere with the operation of aircraft.
- Uses that produce light emissions, either direct or indirect (reflective), that would interfere with pilot vision.
- Uses that produce electrical emissions that would interfere with aircraft communication systems or navigation equipment.
- Uses that attract birds or waterfowl, such as operation of sanitary landfills, maintenance or feeding stations, or growth of certain vegetation.
- Uses that involve structures within 10 feet of aircraft approach-departure and/or transitional surfaces.

A.4.4 Policy 4. Certain noise levels of varying duration and frequency create hazards to both physical and mental health. A limited, though definite, danger to life exists in certain areas adjacent to airfields. Where these conditions are sufficiently severe, it is not consistent with public health, safety, and welfare to allow the following land uses:

- Residential
- Retail business
- Office buildings
- Public buildings (schools, churches, etc.)

- Recreation buildings and structures

A.4.5 Policy 5. Land areas below takeoff and final approach flight paths are exposed to significant danger of aircraft accidents. The density of development and intensity of use must be limited in such areas.

A.4.6 Policy 6. Different land uses have different sensitivities to noise. Standards of land use acceptability should be adopted, based on these noise sensitivities. In addition, a system of Noise Level Reduction guidelines (Appendix E) for new construction should be implemented to permit certain uses where they would otherwise be prohibited.

A.4.7 Policy 7. Land use planning and zoning in the airfield area of influence cannot be based solely on aircraft-generated effects. Allocation of land used within the AICUZ should be further refined by consideration of:

- Physiographic factors
- Climate and hydrology
- Vegetation
- Surface geology
- Soil characteristics
- Intrinsic land use capabilities and constraints
- Existing land use
- Land ownership patterns and values
- Economic and social demands
- Cost and availability of public utilities, transportation, and community facilities
- Other noise sources

Each runway end at Maxwell AFB has a 3,000 foot by 3,000 foot CZ and two APZs (Appendix B). Accident potential on or adjacent to the runway or within the CZ is so high that the necessary land use restrictions would prohibit reasonable economic use of land. As stated previously, it is Air Force policy to request that Congress authorize and appropriate funds for the necessary real property interests in this area to prevent incompatible land uses. At Maxwell, the vast majority of the real estate underlying each CZ is under government ownership or otherwise controlled through an aviation easement. Although certain CZ areas extend off-base, land use control over these areas is through the city of Montgomery Zoning Ordinance.

APZ I is less critical than the CZ, but still possesses a significant risk factor. This 3,000 foot by 5,000 foot area has land use compatibility guidelines that are sufficiently flexible to allow reasonable economic use of the land, such as industrial/manufacturing, transportation, communication/utilities, wholesale trade, open space, recreation, and agriculture. However, uses that concentrate people in small areas are not acceptable.

APZ II is less critical than APZ I, but still possesses potential for accidents. APZ II, also 3,000 feet wide, is 7,000 feet long extending to 15,000 feet from the runway threshold. Acceptable uses include those of APZ I, as well as low density single family residential and those personal and business services and commercial/retail trade uses of low intensity or scale of operation. High-density functions such as multistory buildings, places of assembly (theaters, churches, schools, restaurants, etc.), and high-density office uses are not considered appropriate.

High people densities should be limited to the maximum extent possible. The optimum density recommended for residential usage (where it does not conflict with noise criteria) in APZ II is one dwelling per acre. For most nonresidential usage, buildings should be limited to one story and the lot coverage should not exceed 20 percent.

A.5 Basic Land Use Compatibility

Research on aircraft accident potential, noise, and land use compatibility is ongoing at a number of federal and other agencies. One such effort is the Concentrations of Persons per Acre Standard developed by the Sacramento Area Council of Governments for incorporation into the land use planning process. These and all other compatibility guidelines must not be considered inflexible standards. They are the framework within which land use compatibility questions can be addressed and resolved. In each case, full consideration must be given to local conditions such as:

- Previous community experience with aircraft accidents and noise;
- Local building construction and development practices;
- Existing noise environment due to other urban or transportation noise sources;
- Time period of aircraft operations and land use activities;
- Specific site analysis; and
- Noise buffers, including topography.

These basic guidelines cannot resolve all land use compatibility questions. However, they do offer a reasonable framework within which to work.

A.6 Accident Potential

Land use guidelines for the two APZs are based on a hazard index system that compares the relationship of accident occurrence for five areas:

- On or adjacent to the runway
- Within the CZ
- In APZ I
- In APZ II
- In all other areas within a 10 nautical mile radius of the runway

Accident potential on or adjacent to the runway or within the CZ is so high that few uses are acceptable. The risk outside APZ I and APZ II, but within the 10 nautical mile radius area, is significant but acceptable, if sound engineering and planning practices are followed.

Land use guidelines for APZs I and II have been developed. The main objective has been to restrict all people-intensive uses because there is greater risk in these areas. The basic guidelines aim at prevention of uses that:

- Have high residential density characteristics;
- Have high labor intensity;
- Involve above-ground explosive, fire, toxic, corrosive, or other hazardous characteristics;
- Promote population concentrations;
- Involve utilities and services required for area-wide population, where disruption would have an adverse impact (telephone, gas, etc.);
- Concentrate people who are unable to respond to emergency situations, such as children, elderly, handicapped, etc.; and
- Pose hazards to aircraft operations.

There is no question that these guidelines are relative. Ideally, there should be no people-intensive uses in either APZ. The free market and private property systems prevent this where there is land development demand. To go beyond these guidelines, however, substantially increases risk by placing more people in areas where there may ultimately be an aircraft accident.

A.7 Noise

Nearly all studies analyzing aircraft noise and residential compatibility recommend no residential uses in noise zones above DNL 75 dB. Usually, no restrictions are recommended below noise zone DNL 65 dB. Between DNL 65-74 dB there is currently no consensus. These areas may not qualify for federal mortgage insurance in residential categories according to the Department of Housing and Urban Development (HUD) Regulation 24 CFR 51B. In many cases, HUD approval requires noise attenuation measures, the Regional Administrator's concurrence, and an environmental impact statement. The Department of Veterans Affairs also has airfield noise and accident restrictions that apply to their home loan guarantee program. Whenever possible, residential land use should be located below DNL 65 dB according to Air Force land use recommendations. Residential buildings within the DNL 65-70 dB noise contours shall utilize noise level reduction measures in accordance with the Air Force land use compatibility guidelines in the AICUZ Study, Table 4-2.

Most industrial/manufacturing uses are compatible in the airfield area of influence. Exceptions are uses such as research or scientific activities that require lower noise levels. Noise attenuation measures are recommended for portions of buildings devoted to office use, receiving the public, or where the normal background noise level is low.

The transportation, communications, and utilities categories have a high noise level compatibility because they generally are not people-intensive. When people use land for these purposes, the use is generally very short in duration. Where buildings are required for these uses, additional evaluation is warranted.

The commercial/retail trade and personal and business services categories are compatible without restriction up to DNL 70 dB; however, they are generally incompatible above DNL 80 dB. Between DNL 70-80 dB, noise level reduction measures should be included in the design and construction of buildings.

The nature of most uses in the public and quasi-public services category requires a quieter environment, and attempts should be made to locate these uses below DNL 65 dB (an Air Force land use recommendation), or else provide adequate noise level reduction.

Although recreational use has often been recommended as compatible with high noise levels, recent research has resulted in a more conservative view. Above DNL 75 dB, noise becomes a factor that limits the ability to enjoy such uses. Where the requirement to hear is a function of the use (i.e., music shell, etc.), compatibility is limited. Buildings associated with golf courses and similar uses should be noise attenuated.

With the exception of forestry activities and livestock farming, uses in the resources production, extraction, and open space category are compatible almost without restrictions.

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APPENDIX B CLEAR ZONES AND ACCIDENT POTENTIAL ZONES

B.1 Guidelines for Accident Potential

Urban areas around airports are exposed to the possibility of aircraft accidents even with well-maintained aircraft and highly trained aircraft crews. Despite stringent maintenance requirements and countless hours of training, past history shows accidents do happen.

When the AICUZ Program began, there were no current comprehensive studies on accident potential. To support the program, the Air Force completed a study of Air Force aircraft accidents that occurred between 1968 and 1972 within 10 nautical miles (NMs) of airfields. The study of 369 accidents revealed that 75 percent of aircraft accidents occurred on or adjacent to the runway (1,000 feet to each side of the runway centerline) and in a corridor 3,000 feet (1,500 feet either side of the runway centerline) wide, extending from the runway threshold along the extended runway centerline for a distance of 15,000 feet.

Three zones were established based on crash patterns: the CZ, APZ I, and APZ II. The CZ starts at the end of the runway and extends outward 3,000 feet. It has the highest accident potential of the three zones. The Air Force has adopted a policy of acquiring property rights to areas designated as CZs because of the high accident potential. APZ I extends from the CZ an additional 5,000 feet. It includes an area of reduced accident potential. APZ II extends from APZ I an additional 7,000 feet in an area of further reduced accident potential.

The Air Force's research work in accident potential was the first significant effort in this subject area since 1952 when the President's Airport Commission published "The Airport and Its Neighbors," better known as the "Doolittle Report." The recommendations of this earlier report were influential in the formulation of the APZ concept.

The risk to people on the ground of being killed or injured by aircraft accidents is small. However, an aircraft accident is a high consequence event and when a crash does occur, the result is often catastrophic. Because of this, the Air Force does not attempt to base its safety standards on accident probabilities. Instead, the Air Force approaches this safety issue from a land use planning perspective.

B.2 Accident Potential Analysis

Military aircraft accidents differ from commercial air carrier and general aviation accidents because of the variety of aircraft used, the type of missions, and the number of training flights. The 1973 study reviewed 369 major Air Force accidents during 1968-1972, and found that 61 percent of the accidents were related to landing operations and 39 percent were takeoff related. It also found that 70 percent occurred in daylight, and that fighter and training aircraft accounted for 80 percent of the accidents.

Because the purpose of the study was to identify accident hazards, the study plotted each of the 369 accidents in relation to the airfield. This plotting found that the accidents clustered along the runway and its extended centerline. To further refine this clustering, a tabulation was prepared that described the cumulative frequency of accidents as a function of distance from the runway

centerline along the extended centerline. This analysis was done for widths of 2,000, 3,000, and 4,000 total feet. Table B-1 reflects the location analysis.

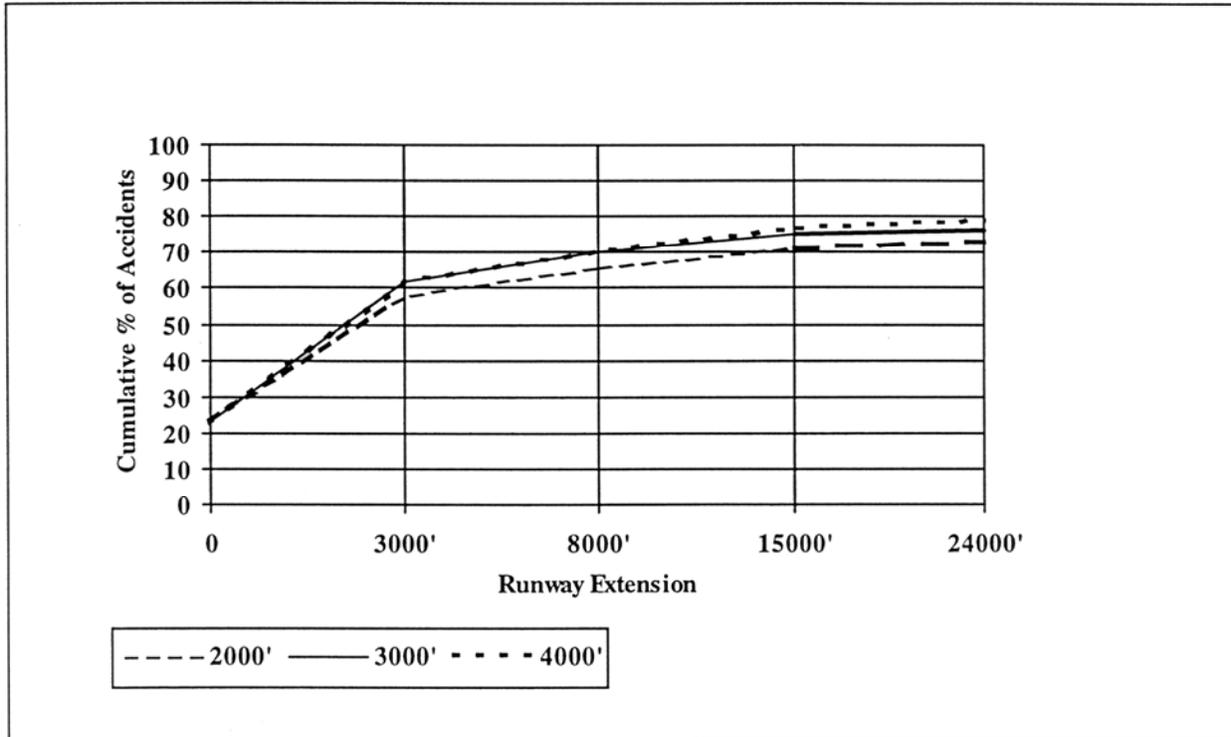
Table B-1. Location Analysis

Length From Both Ends of Runway (feet)	Width of Runway Extension (Feet)		
	2,000	3,000	4,000
Percent of Accidents			
On or Adjacent to Runway (1,000 feet to each side of runway centerline)	23	23	23
0 to 3,000	35	39	39
3,000 to 8,000	8	8	8
8,000 to 15,000	5	5	7
Cumulative Percent of Accidents			
On or Adjacent to Runway (1,000 feet to each side of runway centerline)	23	23	23
0 to 3,000	58	62	62
3,000 to 8,000	66	70	70
8,000 to 15,000	71	75	77

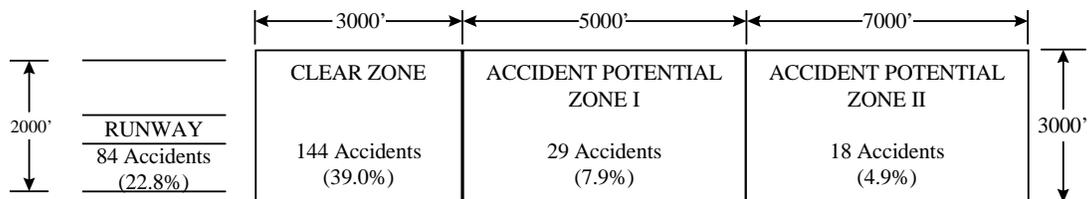
Figure B-1 indicates the cumulative number of accidents rises rapidly from the end of the runway to 3,000 feet, rises more gradually to 8,000 feet, then continues at about the same rate of increase to 15,000 feet, where it levels off rapidly. The location analysis also indicates 3,000 feet as the optimum runway extension width and the width that would include the maximum percentage of accidents in the smallest area.

Using the optimum runway extension width, 3,000 feet, and the cumulative distribution of accidents from the end of the runway, zones were established that minimized the land area included and maximized the percentage of accidents included. The zone dimensions and accident statistics for the 1968-1972 study are shown in Figure B-2.

**Figure B-1.
Distribution of Air Force Aircraft Accidents
(369 Accidents - 1968-1972)**



**Figure B-2.
Air Force Aircraft Accident Data
(369 Accidents - 1968-1972)**



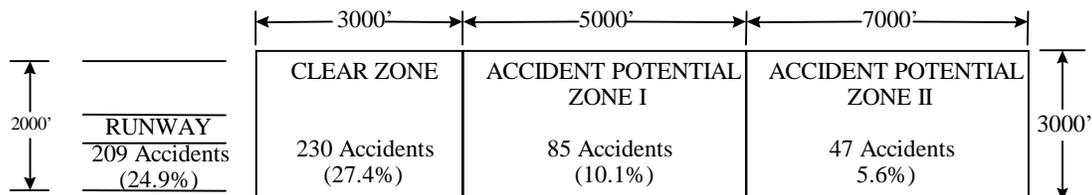
Other Accidents Within 10 NMs:
94 Accidents, 25.4%

Additional accident data for 1986 through 1995 has been analyzed. Table B-2 compares the accident distribution data for 1968-1985 with that for 1968-1995, and Figure B-3 depicts the results for a total of 838 accidents. Analysis shows the cumulative changes evident in accident location through 1995 reconfirm the dimensions of the CZ and APZs.

Table B-2.
Additional Accident Data
(838 Accidents - 1968-1995)

ZONE	1968-1985	1968-1995
On-Runway	197-27.1%	209-25.1%
CZ	210-28.8%	226-27.1%
APZ I	57-7.8%	85-10.2%
APZ II	36-5.0%	47-5.6%
Other (Within 10 NMs)	228-31.3%	267-32.0%

Figure B-3.
Air Force Aircraft Accident Data
(838 Accidents - 1968-1995)



Other Accidents Within 10 NMs:
267 Accidents, 32.0%

B.3 Definable Debris Impact Areas

The Air Force also determined which accidents had definable debris impact areas, and in what phase of flight the accident occurred. Overall, 75 percent of the accidents had definable debris impact areas, although they varied in size by type of accident.

The Air Force used weighted averages of impact areas, for accidents occurring only in the approach and departure phase, to determine the following average impact areas:

- Overall Average Impact Area 5.06 acres
- Fighter, Trainer, and Misc. Aircraft 2.73 acres
- Heavy Bomber and Tanker Aircraft 8.73 acres

B.4 Findings

Designation of safety zones around the airfield and restriction of incompatible land uses can reduce the public's exposure to safety hazards.

Air Force accident studies have found that aircraft accidents near Air Force installations occurred in the following patterns:

- 61 percent were related to landing operations;
- 39 percent were related to takeoff operations;
- 70 percent occurred in daylight;
- 80 percent were related to fighter and training aircraft operations;
- 25 percent occurred on the runway or within an area extending 1,000 feet out from each side of the runway;
- 27 percent occurred in an area extending from the end of the runway to 3,000 feet along the extended centerline and 3,000 feet wide, centered on the extended centerline; and
- 16 percent occurred in an area between 3,000 and 15,000 feet along the extended runway centerline and 3,000 feet wide, centered on the extended centerline.

US Air Force aircraft accident statistics found that 75 percent of aircraft accidents resulted in definable impact areas. The average size of the impact areas were:

- 5.1 acres overall
- 2.7 acres for fighters and trainers
- 8.7 acres for heavy bombers and tankers

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APPENDIX C DESCRIPTION OF THE NOISE ENVIRONMENT

C.1 Noise Contours

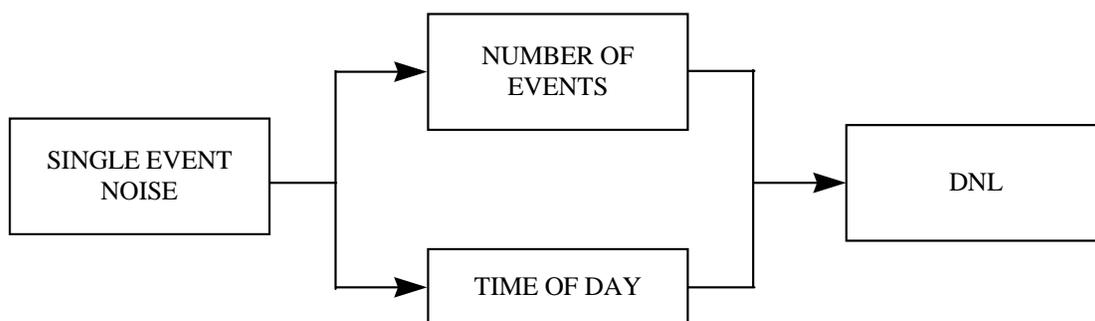
The following paragraphs describe the methodologies used to produce the noise contours contained in this AICUZ Study.

C.2 Noise Environment Descriptor

The noise contour methodology used is the Day-Night Average A-Weighted Sound Level (DNL) metric for describing the noise environment. Efforts to provide a national uniform standard for noise assessment have resulted in adoption by the Environmental Protection Agency of DNL as the standard noise prediction metric for this procedure. The Air Force uses the DNL descriptor as the method to assess the amount of exposure to aircraft noise and predict community response to the various levels of exposure. The DNL values used for planning purposes are 65, 70, 75, and 80+ dB. Land use guidelines are based on the compatibility of various land uses with these noise exposure levels. DNL is a measurable quantity that can be measured directly.

It is generally recognized that a noise environment descriptor should consider, in addition to the annoyance of a single event, the effect of repetition of such events and the time of day in which these events occur. DNL begins with a single event descriptor and adds corrections for the number of events and the time of day. Since the primary development concern is residential, nighttime events are considered more annoying than daytime events and are weighted accordingly. DNL values are computed from the single event noise descriptor, plus corrections for number of flights and time of day (see Figure C-1).

Figure C-1. Day-Night Average A-Weighted Sound Level (DNL)

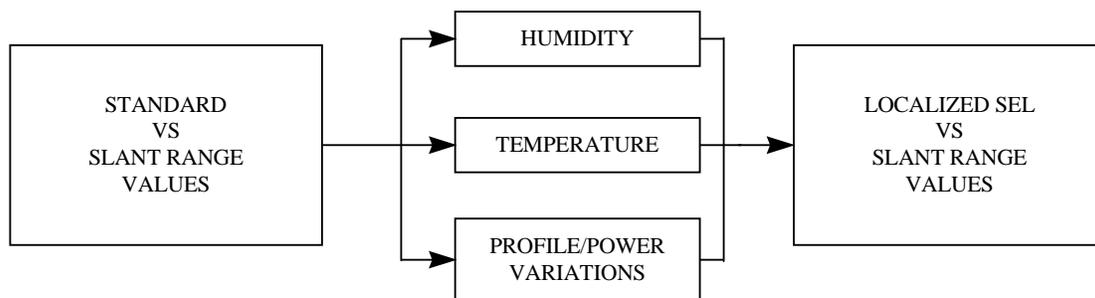


As part of the extensive data collection process, detailed information is gathered on the type of aircraft and number and time of day of flying operations for each aircraft flight track during a typical day. This information is used in conjunction with the single event noise descriptor to produce DNL values. These values are combined on an energy summation basis to provide single DNL values for the mix of aircraft operations at the base. Equal value points are connected to form the contour lines.

C.3 Noise Event Descriptor

The single event noise descriptor used in the DNL system is the sound exposure level (SEL). The SEL measure is an integration of an “A” weighted noise level over the period of a single event, such as an aircraft overflight, in dB. Frequency, magnitude, and duration vary according to aircraft type, engine type, and power setting. Therefore, individual aircraft noise data are collected for various types of aircraft/engines at different power settings and phases of flight. Figure C-2 shows the relationship of the single event noise descriptor (SEL) to the source sound energy.

Figure C-2. Sound Exposure Level (SEL)



SEL vs. slant range values are derived from noise measurements made according to a source noise data acquisition plan developed by Bolt, Beranek, and Newman, Inc., in conjunction with the Air Force's Armstrong Laboratory (AL), and carried out by AL. These standard day, sea level values form the basis for the individual event noise descriptors at any location and are adjusted to the location by applying appropriate corrections for temperature, humidity, and variations from standard profiles and power settings.

Ground-to-ground sound propagation characteristics are used for altitudes up to 500 feet absolute with linear transition between 500 and 700 feet and air-to-ground propagation characteristics above 700 feet.

In addition to the assessment of aircraft flight operations, the DNL system also incorporates noise resulting from engine/aircraft maintenance checks on the ground. Data concerning the orientation of the noise source, type of aircraft or engine, number of test runs on a typical day, power settings used and their duration, and use of suppression devices are collected for each ground run up or test position. This information is processed and the noise contribution added (on an energy summation

basis) to the noise generated by flying operations to produce noise contours reflecting the overall noise environment with respect to aircraft air and ground operations.

C.4 Noise Contour Production

Data describing flight track distances and turns, altitudes, airspeeds, power settings, flight track operational utilization, maintenance locations, ground runup engine power settings, and number and duration of runs by type of aircraft/engine was assembled by Maxwell AFB. HQ AETC/A7C screened the data and trained personnel processed the data for input into a central computer. Flight track maps were generated for verification and approval by Maxwell AFB and HQ AETC/A7C. After any required changes were incorporated, DNL contours were generated by the computer using the supplied data and standard source noise data corrected to local weather conditions. A set of these contours is provided in the body of the AICUZ Study.

Additional technical information on the DNL procedures is available in the following publications:

- *Community Noise Exposure Resulting from Aircraft Operations: Applications Guide for Predictive Procedure*, AMRL-TR-73-105, November 1974, from National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22151.
- *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with Adequate Margin of Safety*, EPA Report 550/9-74-004, March 1974, from Superintendent of Documents, US Government Printing Office, Washington, D.C. 20402.

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APPENDIX D HEIGHT AND OBSTRUCTIONS CRITERIA

D.1 Height and Obstructions Criteria

D.1.1 General

This appendix establishes criteria for determining whether an object or structure is an obstruction to air navigation. Obstructions to air navigation are considered to be:

- Natural objects or man-made structures that protrude above the planes or surfaces as defined in the following paragraphs and/or
- Man-made objects that extend more than 500 feet above the ground at the site of the structure.

D.1.2 Explanation of Terms

The following will apply:

- Controlling Elevation. Whenever surfaces or planes within the obstructions criteria overlap, the controlling (or governing) elevation becomes that of the lowest surface or plane.
- Runway Length. Maxwell AFB has one runway and one assault strip; Table D-1 details Maxwell AFB runway coordinates and elevations. Runway 15/33 has 8,006 feet of pavement designed and built for sustained aircraft landings and take offs. Assault Strip 18A/36A has 3,000 feet of pavement designed and built for this purpose.
- Established Airfield Elevation. The established Maxwell AFB elevation in feet above mean sea level (MSL) is 172 feet.
- Dimensions. All dimensions are measured horizontally unless otherwise noted.

D.1.3 Planes and Surfaces.

Definitions are as follows (Figure D-1):

- Primary Surface. This surface defines the limits of the obstruction clearance requirements in the immediate vicinity of the landing area. The primary surface comprises surfaces of the runway, runway shoulders, and lateral safety zones and extends 200 feet beyond the runway end. The width of the primary surface for a class "B" runway, the class for the Maxwell runways, is 2,000 feet, or 1,000 feet on each side of the runway centerline. Ideally, there should be no obstructions, fixed or mobile, within the primary surface area.
- Clear Zone Surface. This surface defines the limits of the obstruction clearance requirements in the vicinity contiguous to the end of the primary surface. The CZ surface length and width (for a single runway) is 3,000 feet by 3,000 feet.

Table D-1. Maxwell AFB Coordinates and Elevations

Airport Elevation	172 feet (MSL)
Coordinates	
Runway 15/33	Lat: 32° 23' 28.89" N Long: 086° 22' 23.18" W
	Lat: 32° 22' 21.31" N Long: 086° 21' 34.32" W
Assault Strip 18A/36A	Lat: 32° 23' 22.77" N Long: 086° 21' 49.97" W
	Lat: 32° 22' 53.07" N Long: 086° 21' 53.24" W

- Approach-Departure Clearance Surface. This surface is symmetrical about the extended runway centerline, begins as an inclined plane (glide angle) at each end of the primary surface of the centerline elevation of the runway end, and extends for 50,000 feet. The slope of the approach-departure clearance surface is 50:1 along the extended runway (glide angle) centerline until it reaches an elevation of 500 feet above the established airfield elevation. It then continues horizontally at this elevation to a point 50,000 feet from the start of the glide angle. The width of this surface at the runway end is 2,000 feet; it flares uniformly, and the width at 50,000 feet is 16,000 feet.
- Inner Horizontal Surface. This surface is a plane, oval in shape at a height of 150 feet above the established airfield elevation. It is constructed by scribing an arc with a radius of 7,500 feet above the centerline at the end of the runway and interconnecting these arcs with tangents.
- Conical Surface. This is an inclined surface extending outward and upward from the outer periphery of the inner horizontal surface for a horizontal distance of 7,000 feet to a height of 500 feet above the established airfield elevation. The slope of the conical surface is 20:1.
- Outer Horizontal Surface. This surface is a plane located 500 feet above the established airfield elevation. It extends for a horizontal distance of 30,000 feet from the outer periphery of the conical surface.

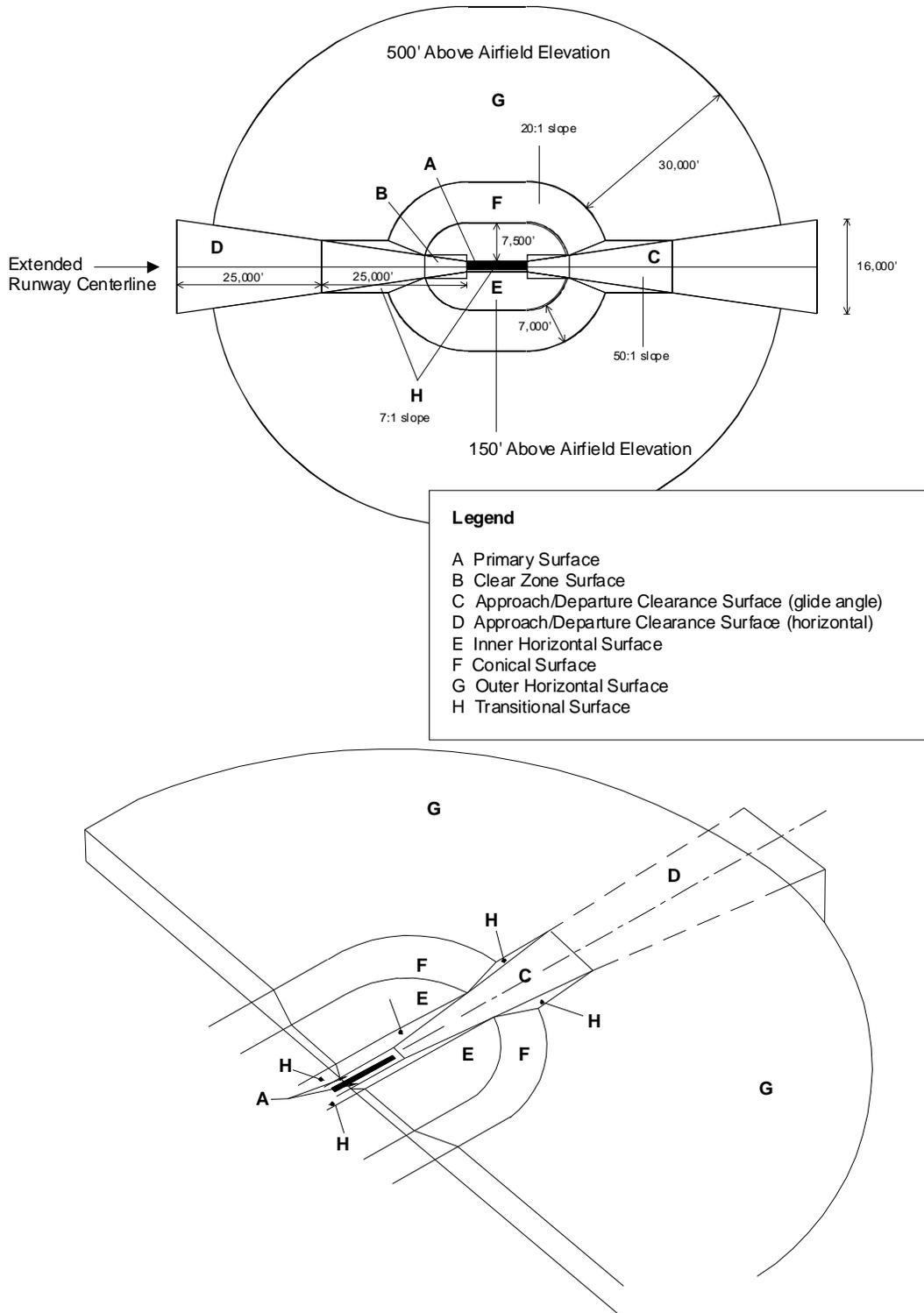


Figure D-1 Airspace Control Surface Plan

(For a more complete description of airspace control surfaces, refer to FAR Part 77, Subpart C, or Air Force Manual 32-1123, Airfield and Heliport Planning and Design.)

- **Transitional Surfaces.** These surfaces connect the primary surfaces, CZ surfaces, and approach-departure clearance surfaces to the outer horizontal surface, conical surface, other horizontal surface, or other transitional surfaces. The slope of the transitional surface is 7:1 outward and upward at right angles to the runway centerline. To determine the elevation for the beginning of the transitional surface slope at any point along the lateral boundary of the primary surface, including the clear zone, draw a line from this point to the runway centerline. This line will be at right angles to the runway axis. The elevation at the runway centerline is the elevation for the beginning of the 7:1 slope.

The land areas outlined by these criteria should be regulated to prevent uses that might otherwise be hazardous to aircraft operations. The following uses should be restricted and/or prohibited.

- Uses that release into the air any substance that would impair visibility or otherwise interfere with the operation of aircraft (i.e., steam, dust, or smoke).
- Uses that produce light emissions, either direct or indirect (reflective), that would interfere with pilot vision.
- Uses that produce electrical emissions that would interfere with aircraft communications systems or navigational equipment.
- Uses that would attract birds or waterfowl, including but not limited to, operation of sanitary landfills, maintenance of feeding stations, or the growing of certain vegetation.
- Uses that include structures within ten feet of aircraft approach-departure and/or transitional surfaces.

D.2 Height Restrictions

City/County/Township agencies involved with approvals of permits for construction should require developers to submit calculations that show projects meet the height restriction criteria of FAR Part 77, *Objects Affecting Navigable Airspace*, Subpart C (Obstruction Standards), as described in part by the information contained in this Appendix.

APPENDIX E NOISE LEVEL REDUCTION GUIDELINES

A study providing in-depth, state-of-the-art noise level reduction guidelines was completed for the Naval Facilities Engineering Command and the Federal Aviation Administration by Wyle Laboratories in April 2005. The study title is *Guidelines for the Sound Insulation of Residences Exposed to Aircraft Operations*. Copies of this study are available for review, upon request, from the Civil Engineer office at Maxwell AFB.

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MAXWELL AIR FORCE BASE
ALABAMA

V O L U M E I I I

AIR INSTALLATION COMPATIBLE USE ZONE

TABLE OF CONTENTS

	<u>Page</u>
SECTION 1 INTRODUCTION	1
SECTION 2 CONCEPTS/ACTIONS.....	2
SECTION 3 ORGANIZATION	4
SECTION 4 INDIVIDUALS/ORGANIZATIONS TO BE GIVEN AICUZ PRESENTATIONS.....	5
4.1 Local Government	5
4.2 County Government.....	5
4.3 State Government.....	5
4.4 Federal Government.....	5
4.5 Regional Public and Private Organizations	5
4.6 Landowners and Developers.....	6
4.7 Media	6
SECTION 5 SCHEDULE OF EVENTS	7
SECTION 6 FORMAT FOR AICUZ PUBLIC RELEASE MEETING	9
SECTION 7 AICUZ PUBLIC RELEASE INVITATION	10
SECTION 8 IMPLEMENTATION STRATEGIES.....	11
SECTION 9 AICUZ REVIEW STRATEGIES (ONGOING)	12
SECTION 10 CURRENT MAXWELL AFB AICUZ CONCERNS	13

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SECTION 1 INTRODUCTION

Considerable effort has been expended by Headquarters (HQ) Air Force, HQ Air Education and Training Command (AETC), and Maxwell AFB to develop compatible land use guidelines for the land surrounding the base. An effective procedure for public release of the information contained within the Air Installation Compatible Use Zone (AICUZ) Study is essential for encouraging local governments to use that information in their planning efforts.

Maxwell AFB is responsible for informing local citizens of the need to take positive action to prevent incompatible land uses around the base. It is important to involve local officials and private citizens from all adjacent communities in the AICUZ Program. Participants in this effort should be aware that the AICUZ Program is designed to protect the health and safety of community residents, as well as to protect the airfield from encroachment.

Within the past few years, some local government jurisdictions have restricted construction along flood plains, on steep slopes, in potential earthquake hazard areas, and in areas with high water tables. In terms of safety and health, airfield operations should be of equal concern to local planning agencies and should be included as a factor in land use planning. The regulation of land use has traditionally been exercised by the state through delegation to local governments. Action needs to be taken to advise local governments that corrective measures are essential to protect the health, safety, and welfare of the public from aircraft noise and accident hazards, and, in turn, to protect the military installation from the adverse impacts of random urbanization of nearby lands.

SECTION 2 CONCEPTS/ACTIONS

This AICUZ Implementation and Maintenance Plan is designed to assist the base in its efforts to acquaint local communities and their officials with the Maxwell AFB AICUZ Program. In addition, a well-executed public release process will give the base community planner a strong foundation for follow-on efforts.

The first step in providing AICUZ information to the local community is to initiate informal discussions with key officials and planning staffs of the affected government units. These meetings are used to set forth the basic principles of the AICUZ Program, i.e., that it is a planning tool, that the program is based upon a cooperative effort between the Air Force and local communities, and that the role of the Air Force is to provide information for land use planning within the vicinity of Maxwell AFB. It is important to stress that it is not the intent of the AICUZ Program to preempt the land use control prerogative of local governments. This initial step is accomplished through an AICUZ concept briefing that will be prepared by representatives from the Civil Engineer and Public Affairs staffs. Representatives from the Civil Engineer, Public Affairs, or the 42nd Air Base Wing Command Section should conduct the informal briefing. The briefing should contain examples of AICUZ Programs at other bases and an update on the existing AICUZ Study at Maxwell AFB. The date, setting, attendees, and procedures for the public release of the AICUZ Study should also be discussed and established at this time.

Specific AICUZ data, including noise contour maps for Maxwell AFB, should NOT be made available to anyone outside the Air Force prior to full public release. It is imperative that there is no possibility for any group to be given a special advantage by receiving prior knowledge. Prior to public release, the AICUZ Study is considered an internal working paper and, under the provisions of Air Force Instruction (AFI) 37-131, Freedom of Information Act Program, is exempt from the Act.

Prior to the actual public release, base personnel designated to attend the public release should conduct a thorough review of the impacts the AICUZ Program could have on local communities and landowners. These individuals, in their review, should answer the following questions:

What is the existing land use?

What is the future planned land use?

What factors determine future land use?

What are alternatives for future land use?

Who decides what future land uses are?

Which property owners are involved?

This review should also include possible affects upon municipalities, counties, regional councils, water districts, utility companies, highway/transportation planning agencies, etc. A determination should also be made concerning the extent to which the recommended AICUZ criteria agrees with

current local land use planning and zoning ordinances. This "brainstorming" will assist in answering questions that may be asked during the public release process.

The basic forum for full release of the AICUZ Study is a public presentation meeting. Attendees should include appropriate government officials, the general public, and the media. This meeting also will be the occasion for the first distribution of the actual AICUZ Study. Having the official release occur at this time would ensure that no one is excluded from the process and that no one single interested or impacted group is provided with information prior to others. A follow-on meeting to respond to questions also should be arranged, if necessary.

Headquarters AETC will arrange for appropriate federal agency representation at the initial public meeting. This is accomplished in accordance with AFI 32-7063, Air Installation Compatible Use Zone Program.

Following the initial public meeting, the AICUZ Study is forwarded to local and state clearinghouses as part of the Executive Order 12372 (Intergovernmental Review of Federal Programs) process.

SECTION 3 ORGANIZATION

The installation commander releases the AICUZ Study during the public meeting. The Operations Group, Public Affairs, Civil Engineer, and Judge Advocate assist the commander by developing and implementing the public release and by participating at the public meeting. The briefer selected to explain the AICUZ process should be thoroughly familiar with the base-specific data gathering, current base area compatible and incompatible land uses, and the information contained within the documents. Complete awareness of the recommended AICUZ criteria is essential because public misinformation or lack of information can be detrimental to objectives desired. The Public Affairs Office (PAO) is responsible for all public news releases and responses to public inquiries. The PAO should work with the media to ensure timely notice to the public of the date, location, and purpose of the AICUZ public release meeting.

Remember that presentations regarding the AICUZ Program are given to inform and enlist the cooperation and support of local political officials, special interest groups, and others. Groups and organizations that are formally briefed on the AICUZ Study are reflected in Section 4. A general schedule for presentations of the AICUZ Study is included in Section 5. Those presenting the AICUZ Study must be well acquainted with the information contained within the document. They should be able to deal knowledgeably with the questions of laymen and professionals alike.

The Air Force should state its views and recommendations with respect to what should be done to establish compatible land use within the vicinity of the airfield. However, this should be expressed in a low-key manner and without any pressure on local governmental officials. Use of information contained within the AICUZ Study is the responsibility of local officials.

SECTION 4 INDIVIDUALS/ORGANIZATIONS TO BE GIVEN AICUZ PRESENTATIONS

The following organizations and groups play key roles in the land development process for areas surrounding Maxwell AFB. Specific names and addresses of individuals and organizations are not included because of personnel turnover and address changes. However, the list contains representative names and types of organizations and groups that should be considered for a formal AICUZ briefing. Many of the organizations will be consulted during informal briefings and presentations, and all will be invited to the AICUZ Public Release. At the appropriate time, the Civil Engineer and Public Affairs, in conjunction with other Wing organizations, will coordinate the AICUZ public release and availability lists.

4.1 Local Government

City of Montgomery Elected Officials (Mayor, City Council Members)
City of Montgomery Appointed Officials (City Clerk, Director of Planning)

4.2 County Government

Montgomery County Elected Officials (County Commission/Administrator, Commissioners)
Montgomery County Appointed Officials (District Attorney, Health Inspector)

4.3 State Government

Elected Alabama State Officials (*Governor Bob Riley, Senator Larry Dixon-District 25, Senator Quinton T. Ross, Jr.-District 26, Representative David Grimes-District 73, Representative Jay Love-District 74, Representative Dick Brewbaker-District 75, Representative Thad McClammy-District 76, Representative John F. Knight, Jr.-District 77, Representative Alvin Holmes-District 78*)

Appointed State Officials (*Director-Alabama Department of Environmental Management, President - Alabama Public Service Commission, Adjutant General-Alabama National Guard, Executive Director-Alabama Real Estate Commission, Conservation Commissioner-Alabama Department of Conservation and Natural Resources, Director-Alabama Department of Economic and Community Affairs, Director-Alabama Department of Transportation, Director-Alabama Department of Aeronautics*)

4.4 Federal Government

Elected Federal Officials (*Senator Richard Shelby, Senator Jeff Sessions, US Congressman Bobby Bright-2nd District*)
Federal Agencies (US Environmental Protection Agency, US Department of Veterans Affairs, Federal Aviation Administration, US Postal Service, Social Security Administration)

4.5 Regional Public and Private Organizations

Montgomery Area Chamber of Commerce
Montgomery Chamber of Commerce Military and Government Affairs Department
Montgomery Area Association of Realtors® Inc.
Local and Regional Planning Agencies
Civic Groups

4.6 Landowners and Developers

Businesses

Churches

School Districts

Home Owners Associations

Home Builders Associations

Land Development Companies

4.7 Media

Area Television and Radio Stations

Newspapers

SECTION 5 SCHEDULE OF EVENTS

The following is a suggested schedule for the presentation of the AICUZ Study to the community:

DATE	EVENT
X	After all AICUZ Study changes are made and once approval of the final AICUZ documents has been given by HQ AETC/A7C, print final documents. Citizens' Brochure (#) copies; AICUZ Study (#) copies; Appendices (Vol. II, A-E) (#)copies.
X+30 DAYS	Set up and inform HQ AETC/A7C of the date, time, and location of the public release meeting.
X+60 DAYS	Internal distribution of final documents. Ensure that sufficient final copies are sent to HQ AETC/A7C, HQ AFCEE/ECC, AFCEE/CCR-D, and HQ USAF/ILEVP.
X+65 DAYS	Pre-brief local officials. Send out invitations for public meeting and make public announcement (news release).
X+75 DAYS	Hold initial public release meeting, distribute AICUZ Study, respond to news/media queries. Distribute additional copies of the AICUZ Study per AFI 32-7060, <i>Interagency and Intergovernmental Coordination for Environmental Planning</i> (IICEP).
X+80 DAYS	Provide copies of the AICUZ Study to the state point of contact or other pertinent state and local agencies designated under the IICEP.

The PAO will ensure appropriate news releases are made. The AICUZ Study may affect many people, and it is important that local government leaders and planning bodies be the center of focus rather than the Air Force. It is also imperative that this information be communicated in a low-key manner to enhance the future development of the city of Montgomery.

All AICUZ Program briefings are coordinated with the PAO. Only speakers who are knowledgeable of the AICUZ Program and its intent and are adept at public presentations should be asked to speak.

Following is a draft newspaper advertisement announcing the public release meeting.

DRAFT
Notice of Public Meeting
Air Installation Compatible Use Zone Study
Maxwell Air Force Base

The 42nd Air Base Wing, Maxwell Air Force Base (AFB), Alabama, has updated the Air Installation Compatible Use Zone (AICUZ) Study for Maxwell AFB to reflect the ongoing aircraft operations at Maxwell AFB. The AICUZ Study addresses aircraft noise and accident potential zones created by the projected aircraft operations at the installation. The results of the AICUZ Study will be presented at a **public meeting at (time) on (date), at (address)**. The AICUZ Study contains information on building and structure height restrictions and provides data for establishing land uses that are compatible with the base's flying mission. AICUZ data is intended for use by local citizens and government officials involved in land use planning and facility development. The purpose of the AICUZ Study is to help ensure the health, safety, and welfare of the citizens in the surrounding communities while preserving the operational capabilities of Maxwell AFB. For additional information, please contact AU/PA, (334) 953-2014.

SECTION 6 FORMAT FOR AICUZ PUBLIC RELEASE MEETING

- DATE/TIME
- LOCATION
- FORMAT
- BRIEFING OFFICER
- KEY PERSONNEL & SUPPORT PANEL
 - ◆ Provide support to speaker during question and answer period - Panel members should include:
/CC /SE /CV /JA /OG /A7 /PA /EM
- MEETING ATTENDEES

See Section 4.

SECTION 7 AICUZ PUBLIC RELEASE INVITATION

MEMORANDUM FOR AREA GOVERNMENTS

FROM: 42 ABW/CC

Maxwell AFB, AL 36112

SUBJECT: Air Installation Compatible Use Zone (AICUZ) Study - Information Memorandum

Maxwell AFB's Air Installation Compatible Use Zone (AICUZ) Study has been updated for the installation and will be released in a public meeting at (time) on (date) 200(), at (address). The AICUZ Study addresses aircraft noise and accident potential zones created by aircraft operations associated with flight operations at Maxwell AFB. The study contains information on building height restrictions and provides data for use in establishing land uses that are compatible with the current flying mission.

AICUZ data is intended for use by local citizens and government officials involved in land use planning and facility development. The purpose of the AICUZ Program is to help ensure the health, safety, and welfare of the citizens in the surrounding communities while preserving the operational capabilities of Maxwell AFB.

The presentation will outline the overall AICUZ Program, its methodology, potential uses of the Study, and Air Force and community responsibilities for compatible land use. A question and answer period will follow the formal presentation.

As the city of Montgomery continues to grow and prosper, we believe it is important that we join with government and business leaders in a cooperative effort to implement mutually beneficial planning for the future. I hope you will be able to attend this very important and informative meeting. In the event you are not able to attend, copies of the AICUZ Study are available upon request by calling the Maxwell AFB Public Affairs Office, (334) 953-2014.

Sincerely,

John Doucette
WING COMMANDER, Colonel, USAF
Commander

SECTION 8 IMPLEMENTATION STRATEGIES

- Write transmittal letter to local government officials advising that the 2000 AICUZ Study has been revised for Maxwell Air Force Base.
- Brief the current AICUZ Study to city and county planners, county commissioners, and city council members prior to adoption or revision of any local comprehensive plan.
- Work closely with the city of Montgomery, counties of Montgomery, Elmore, Lowndes, and Autauga land planners. Follow development of comprehensive planning efforts within the area and encourage use of the information provided in the AICUZ Study in decision-making wherever possible.
- Add Maxwell AFB to the list of local, regional, state, and federal intergovernmental coordination participants and continue to keep Maxwell AFB "in the loop." (Use AFCEE/CCR-D to assist in your IICEP efforts.)
- Keep AFCEE/CCR-D advised by providing informational copies of correspondence concerning ongoing AICUZ activities at Maxwell AFB. Under the IICEP program, AFCEE/CCR-D will coordinate with and distribute AICUZ information to federal agency regional offices (HUD, VA, etc.), per their responsibilities to the AICUZ Program as specified by FMC 75-2.

SECTION 9 AICUZ REVIEW STRATEGIES (ONGOING)

- AICUZ aircraft operational and maintenance data should be reviewed at least every two years or as part of an environmental impact analysis process (EIAP) action.
- Every two years, conduct an analysis of land use compatibility within the vicinity of Maxwell AFB. Maintain a working relationship with surrounding communities to re-establish compatible land use designations as incompatible designations are identified.
- The base should conduct and submit to HQ AETC a brief AICUZ survey on a biennial basis. This survey should summarize the status of the AICUZ Program emphasizing foreseeable changes in the program including any issues involving civilian development which could impact on the mission. This survey is required by HQ USAF/ILEVP.
- The base liaison (Mission Support Group Commander or designated representative) should attend all zoning hearings that potentially can affect Maxwell AFB.
- The base should provide information to communities on modification of flight procedures that may affect noise in the area.
- The base should maintain constant, positive contact with key public officials.
- Keep senior base leaders fully informed on the AICUZ Program.
- Closely monitor county and city comprehensive planning processes to ensure Maxwell AFB's interests continue to be represented.

SECTION 10 CURRENT MAXWELL AFB AICUZ CONCERNS

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