

DAVIS-MONTHAN AIR FORCE BASE

FEBRUARY 1992

A I R

I N S T A L L A T I O N

C O M P A T I B L E

U S E

Z O N E

REPORT

VOLUME I

TO THE GOVERNMENTS AND CITIZENS OF THE TUCSON REGION



DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 836TH AIR DIVISION (TAC)
DAVIS-MONTHAN AIR FORCE BASE AZ 85707-5000

REPLY TO CC
ATTN OF:

10 Jan 92

SUBJECT: Air Installation Compatible Use Zone (AICUZ) Report

TO: The Governments and Citizens of the Davis-Monthan AFB Environs

1. This Air Installation Compatible Use Zone (AICUZ) Report for Davis-Monthan Air Force Base is an update of the original AICUZ study dated August 1975. The update was initiated because of the changes in the number and type of aircraft at Davis-Monthan AFB since the last study. It is a reevaluation of aircraft noise and accident potential related to Air Force flying operations. It is designed to aid in the development of local planning mechanisms which will protect the public safety and health as well as preserve the operational capabilities of Davis-Monthan Air Force Base.

2. The report outlines the location of runway clear zones, aircraft accident potential zones and noise contours, and recommends compatible land uses for areas in the vicinity of the base. It is our hope that this information will be incorporated into your community plans, zoning ordinances, subdivision regulations, building codes, and other related documents.

3. The basic objective of the AICUZ program is to achieve compatible uses of public and private lands in the vicinity of military airfields by controlling incompatible development through local actions. This update provides noise contours based upon the day-night average noise level (Ldn) methodology. This report provides the information necessary to maximize beneficial use of the land surrounding Davis-Monthan Air Force Base while minimizing the potential for degradation of the health and safety of the affected public.

4. We greatly value the positive relationship Davis-Monthan Air Force Base has experienced with its neighbors over the years. As a partner in the process, we have attempted to mitigate noise disturbances through such actions as quiet hours, minimizing night flying and reduced flights over heavily populated areas. We solicit your cooperation in implementing the recommendations and guidelines presented in this AICUZ Report.

A handwritten signature in cursive script that reads "Eugene D. Santarelli".

EUGENE D. SANTARELLI
Brigadier General, USAF
Commander

Readiness is our Profession

DAVIS-MONTHAN AFB AICUZ REPORT

VOLUME 1

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INTRODUCTION

This study is an update to the 1975 Davis-Monthan AFB Air Installation Compatible Use Zone (AICUZ) Study. It reaffirms the Air Force policy of promoting public health, safety and general welfare in areas surrounding Davis-Monthan AFB, Arizona. It reflects the changes in flight operations since the last study and provides current noise contours and compatible land use guidelines. (See complete listing of policy in AICUZ Volume 2). This information is made available to assist the local communities with future planning and zoning.

PURPOSE AND NEED

The purpose of the AICUZ program is to promote compatible land development in areas that are subject to aircraft noise and potential accidents. Local governments have been responsive to considerations of aircraft noise and accident potential in their planning processes. Continued support for existing land use controls is strongly encouraged to ensure compatible development and population density in areas of accident and noise exposure.

Air Force AICUZ Land Use Guidelines reflect land use recommendations for clear zones, accident potential zones I and II and four noise zones. These guidelines have been established from studies prepared and sponsored by several federal agencies, including the Department of Housing and Urban Development, the Environmental Protection Agency, Federal Aviation Administration, and the Air Force, plus state and local agencies. The guidelines recommend land uses which are compatible with airfield operations while allowing maximum beneficial use of neighboring properties. The Air Force has no desire to recommend land use regulations which render property economically useless. It does, however, have an obligation to local citizens and the citizens of the United States to point out ways to protect the people in adjacent areas and to protect the public investment in the installation itself.

PROCESS AND PROCEDURES

The preparation and presentation of the Davis-Monthan AFB AICUZ study is part of the continuing Air Force participation in the local planning process. We recognize that, as local communities prepare land use plans and zoning ordinances, the Air Force must provide information on base activities as they relate to the community. This study is presented in the spirit of mutual cooperation and assistance to aid in the local land use planning process. It has been prepared to update information on base operations.

The data collection phase of this study was conducted during August and September of 1991. Aircraft operational and maintenance data were obtained to determine average daily operations, by runway and type of aircraft. This data is supplemented by flight track information (where they fly), flight profile information (how they fly), and engine maintenance procedures. After verification for accuracy the data was input into the NOISEMAP software program at the Air Force Civil Engineering Services Agency to produce average day-night (L_{dn}) noise contours. These contours were plotted on an area map and overlaid with clear zones and accident potential zone areas. Volume 2 contains more detailed information on the development of the AICUZ program.

INSTALLATION DESCRIPTION

HISTORY OF DAVIS-MONTHAN AFB

Davis-Monthan has been a military installation for over 50 years, but its origins can be traced to the earliest days of civil aviation. In 1919, Tucson established the first municipal airport in the United States. Hoping to attract the military, the city moved the airport to a larger site in 1925. In September 1927, Charles Lindbergh, who had flown solo across the Atlantic Ocean four months prior, dedicated the airport.

From 1925 until 1940, the Army Air Corps maintained a small detachment of personnel at the field to service transient aircraft. Among the base's visitors were the fathers of the modern-day Air Force and several aviation pioneers--names like Spaatz, Doolittle, Eaker, Foulois, and Earhart.

In September 1940 the War Department announced plans to occupy the airport and establish an airbase. Construction began that December and continued through May 1941. At that time, the base was known as Air Base, Tucson, Arizona. Prompted by the local community, base officials renamed it Davis-Monthan Field.

Shortly after V-J day, Davis-Monthan became one of three separation centers in the Second Air Force. After serving as the last stop for nearly 10,000 personnel, the base was selected as a storage site for hundreds of aircraft. Tucson's dry climate and alkali soil made it an ideal location for aircraft storage and preservation. That mission continues today and is performed by the Aerospace Maintenance and Regeneration Center (AMARC).

Strategic Air Command's (SAC) 43d Bombardment Group ushered in the cold war era at Davis-Monthan in May 1946. SAC remained the host command for the next thirty years. Davis-Monthan entered the jet age in 1953 when the 43d and 303d Bombardment Wings made the transition to B-47 Stratojets.

The early sixties brought the second leg of the nuclear triad to Davis-Monthan in the form of Titan II missiles. Control of the eighteen sites surrounding Tucson rested with the 390th Strategic Missile Wing, which became operational in December 1963 and maintained alert status for more than two decades.

After spending five years in Southeast Asia compiling an impressive war record, the 355th Tactical Fighter Wing (TFW) was reactivated at Davis-Monthan in July 1971 and equipped with the Vought A-7D Corsair II.

In 1976, the Tactical Air Command (TAC) became the host command at Davis-Monthan, with the 355 TFW assuming host unit status. The 355 TFW also accepted the first A-10A Thunderbolt II aircraft in the Air Force inventory. In 1979, A-10 pilot training became the sole mission of the wing then renamed the 355th Tactical Training Wing (now known as the 355th Fighter Wing).

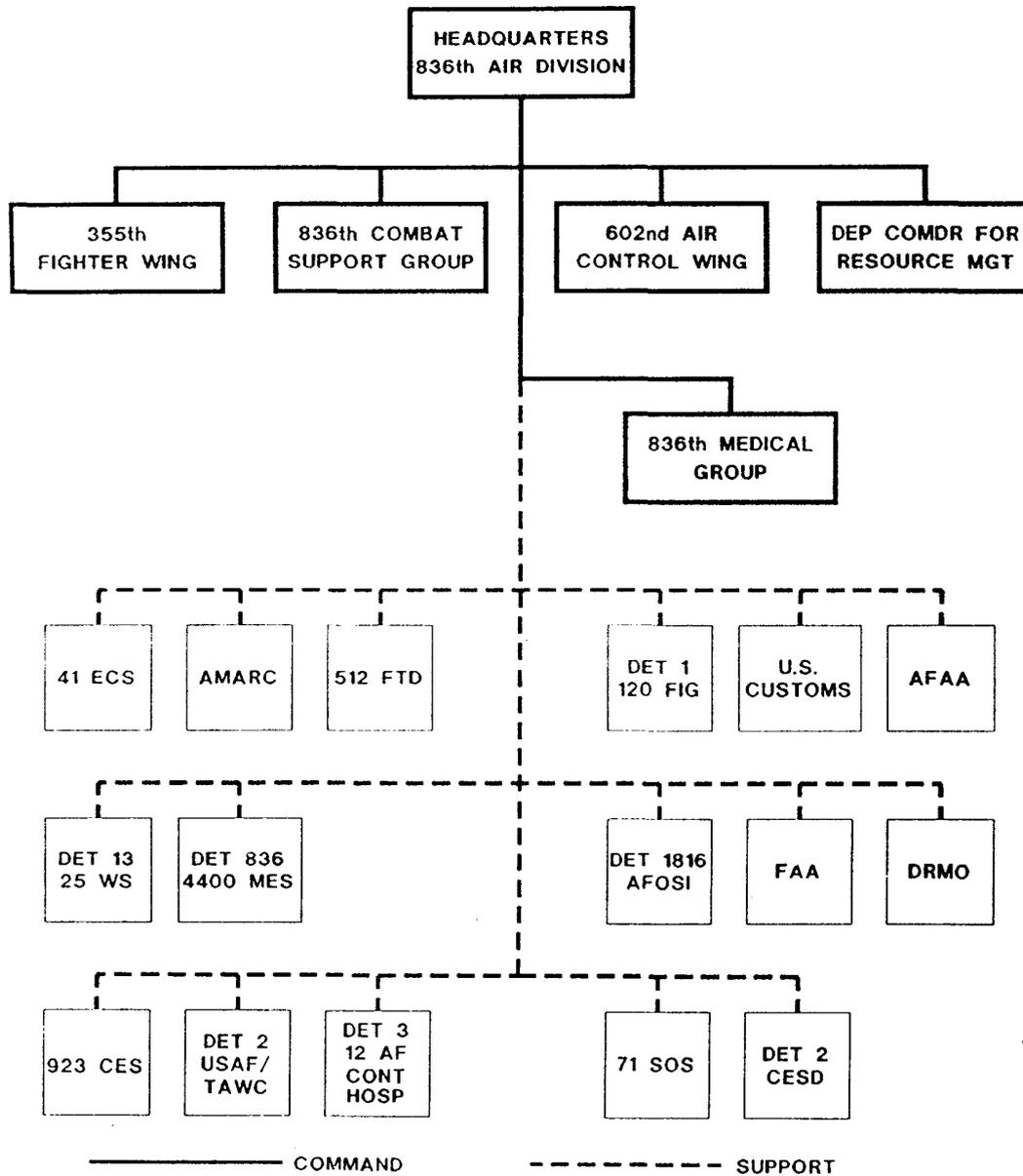
The 1980's brought several diverse missions to Davis-Monthan, and the 836th Air Division was activated in January 1981 to oversee them. Shortly thereafter, the base welcomed the 868th Tactical Missile Training Squadron (later Group) to train crews to operate and defend the Ground-Launched Cruise Missiles. The 868th was deactivated in 1990 after successfully completing its mission. The 41st Electronic Combat Squadron, equipped with EC-130H aircraft was the next to arrive, followed by the 602d Tactical Air Control Wing (now the 602d Air

Control Wing), a unit responsible for the air control system west of the Mississippi River.

The 1990's promise even more changes for Davis-Monthan as the Air Force restructures to meet the changing world scene. These changes include the move of 12th Air Force Headquarters and related missions to Davis-Monthan.

MISSION OF DAVIS-MONTHAN AFB

Davis-Monthan AFB with over 10,600 acres of land and 7,000 employees is one of the most diversified military installations within the Tactical Air Command. The diagram below shows the assigned and tenant units under the command of the 836th Air Division.



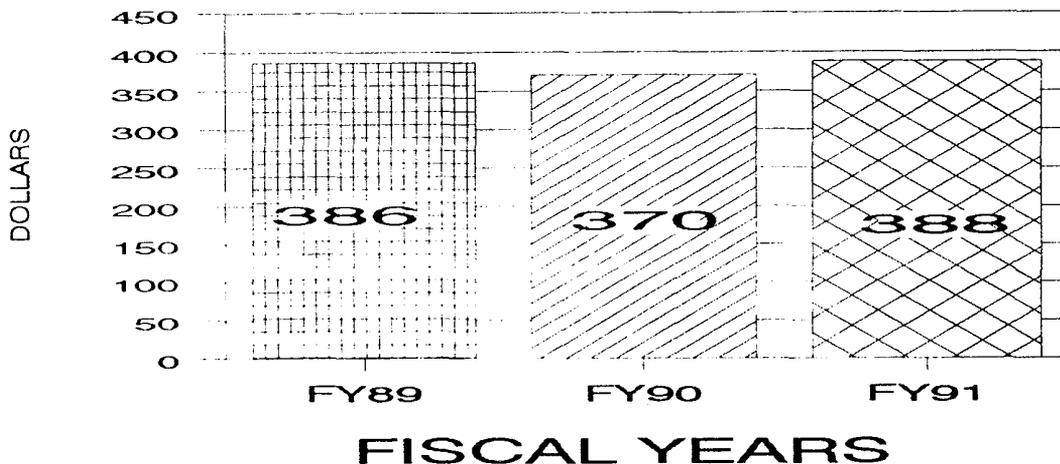
ECONOMIC IMPACT

Davis-Monthan AFB is the second largest employer in the Tucson urban area and contributes significantly to the economy of Tucson and Pima County. In Fiscal Year (FY) 1991, Davis-Monthan employed over 7,300 people with a payroll in excess of \$181,000,000. In addition, there are over 12,600 military retirees in the Tucson urban area with a payroll of \$208,276,920 in FY91. Through procurement, service contracts, construction, equipment and supplies, Davis-Monthan provided over \$45,000,000 to the local economy in FY91.

The presence and operation of Davis-Monthan creates over 3,027 secondary jobs within the Tucson urban area. For FY91 the total employment supported by annual expenditures to operate Davis-Monthan was 10,351. The economic activity generated by base operations and expenditures within a 50-mile Economic Impact Region (EIR) was \$388,359,956 in FY91. The EIR figure is considered very conservative as it does not take into account the impact of military retirees on the Tucson Urban Area. The chart below shows Davis-Monthan's impact on Tucson's economy over the past three years (Source: FY91 Economic Resource Impact Statement for Davis-Monthan AFB).

ECONOMIC IMPACT

(IN MILLIONS of \$)



The presence of Davis-Monthan has a positive financial effect on the City of Tucson and Pima County. With the annexation of the base in 1986, Tucson is able to include the 6,191 people living on base (1990 U.S. Census) in their population figures. The additional population allows Tucson to receive about \$1,000,000 annually from state revenue sharing funds and also increases Tucson's spending authority by over \$4,750,000. Pima County receives over \$900,000 annually from state revenue sharing funds due to Davis-Monthan's employment.

FLYING ACTIVITIES

A complete description of the relationship of aircraft operations with land use requires a full evaluation of the exact nature of flying activities at Davis-Monthan AFB. An inventory and analysis of flying operations has been performed and includes aircraft types, where the aircraft fly, how high they fly, how many times they fly over a given area, and what time of day they operate.

The average number of flying days per year for each unit is used in determining the number of average daily operations. All units at Davis-Monthan typically fly a Monday thru Friday work week schedule except US Customs and transient aircraft. These two activities normally fly year round, 7 days a week. Average daily operations (landings, takeoffs and patterns) for aircraft at Davis-Monthan are summarized below:

AVERAGE DAILY OPERATIONS

<u>AIRCRAFT</u>	<u>DAY (0600-2230)</u>	<u>NIGHT (2230-0600)</u>
A-10A	238	0
EC-130H	26	0
HH-3	22	0
F-16	8	0
UH-60	2	2
Cessna 550	6	2
162 ANG (Snowbirds)	34	0
Transients	<u>63</u>	<u>0</u>
TOTAL	399	4

As shown above, on an average flying day less than 1% of the operations are at night in an effort to minimize noise levels and reduce community disturbances. However, training requirements or high priority mission situations, require night flights on an infrequent basis by the above listed aircraft. Operations are coordinated with the FAA and flight paths are integrated to minimize conflict with civilian aircraft operations at Tucson International Airport and other private flying activities. Efforts are continually made to control and schedule missions to keep noise levels to a minimum, especially during the night. Flight paths have been selected with community disturbances and public reactions taken as one of the principal considerations. Pilot exposure to public needs is provided through flying safety training, unit pilot standardization meetings and feedback during the base's quarterly Air Traffic Control Board meetings.

LAND USE COMPATIBILITY GUIDELINES

The three major operational factors that influence AICUZ land use recommendations are aircraft accident potential zones, noise contours and height restrictions.

The AICUZ program designates clear and accident potential zones (Figure 2) along with noise contours (Figure 3) and land use compatibility guidelines for these zones. The land use compatibility guidelines are found on pages 8-13 in this report.

As a part of the AICUZ program, the only real property interest for which the United States Air Force has received authorization and appropriations to acquire is the area designated as the Clear Zone. A Clear Zone is the area closest to the runway end (3000' x 3000') and is the most hazardous. Compatible land use controls for the remaining airfield environs are recommended to the local governments through their land use planning and control process. The Clear Zone areas at Davis-Monthan Air Force Base are owned by the Department of Defense (DoD).

Height obstruction criteria have been developed by the Federal Aviation Administration (FAA) and the DoD and are consistent with those contained in Federal Air Regulation Part 77, Subpart C. Additional information is contained in Volume II of this report.

LAND USE COMPATIBILITY

SLUCM NO.	LAND USE NAME	ACCIDENT POTENTIAL ZONES			NOISE ZONES			
		CLEAR ZONE	APZ I	APZ II	65-70	70-75	75-80	80+
10	Residential							
11	Household units							
11.11	Single units; detached	N	N	Y ¹	25 ¹¹	30 ¹¹	N	N
11.12	Single units; semidetached	N	N	N	25 ¹¹	30 ¹¹	N	N
11.13	Single units; attached row	N	N	N	25 ¹¹	30 ¹¹	N	N
11.21	Two units; side-by-side	N	N	N	25 ¹¹	30 ¹¹	N	N
11.22	Two units; one above the other	N	N	N	25 ¹¹	30 ¹¹	N	N
11.31	Apartments; walk up	N	N	N	25 ¹¹	30 ¹¹	N	N
11.32	Apartments; elevator	N	N	N	25 ¹¹	30 ¹¹	N	N
12	Group quarters	N	N	N	25 ¹¹	30 ¹¹	N	N
13	Residential hotels	N	N	N	25 ¹¹	30 ¹¹	N	N
14	Mobile home parks or courts	N	N	N	N	N	N	N
15	Transient lodgings	N	N	N ¹	25 ¹¹	30 ¹¹	35 ¹¹	N
16	Other residential	N	N	N ¹	25 ¹¹	30 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

LEGEND

SLUCM - Standard Land Use Coding Manual, US Dept 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.
 NLR - (Noise Level Reduction) - NLR (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure. See Appendix E, Vol II.
 Yx - (yes with restrictions) - Land use and related structures generally compatible; see notes 2, 3, 4.
 25, 30 or 35 - Land use and related structures generally compatible; measures to achieve NLR of 25, 30 or 35 need to be incorporated into the design and construction of structures. See Appendix E, Vol II.
 25*, 30* and 35* - 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.

SLUCM NO.	LAND USE NAME	ACCIDENT POTENTIAL ZONES			NOISE ZONES			
		CLEAR ZONE	APZ I	APZ II	65-70	70-75	75-80	80+
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	Y	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	N ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
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	25	30	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 ⁴	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 ⁴	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
46	Automobile parking	N ³	Y ⁴	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
47	Communication	N ³	Y ⁴	Y	Y	25 ¹⁵	30 ¹⁵	N
48	Utilities	N ³	Y ⁴	Y	Y	Y	Y ¹²	Y ¹³
49	Other transportation communication and utilities	N ³	Y ⁴	Y	Y	25 ¹⁵	30 ¹⁵	N

SLUCM NO.	LAND USE NAME	ACCIDENT POTENTIAL ZONES			NOISE ZONES			
		CLEAR ZONE	APZ I	APZ II	65-70	70-75	75-80	80+
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	N ²	Y ²	Y	25	30	N
54	Retail trade-food	N	N ²	Y ²	Y	25	30	N
55	Retail trade-automotive, marine craft, aircraft and accessories	N	Y ²	Y ²	Y	25	30	N
56	Retails trade-apparel and accessories	N	N ²	Y ²	Y	25	30	N
57	Retail trade-furniture, home furnishings and equipment	N	N ²	Y ²	Y	25	30	N
57	Retail trade-eating and drinking establishments	N	N	N ²	Y	25	30	N
59	Other retail trade	N	N ²	Y ²	Y	25	30	N
60	Services							
61	Finance, insurance and real estate services	N	N	Y ⁶	Y	25	30	N
62	Personal services	N	N ⁷	Y ⁶	Y	25	30	N
62.4	Cemeteries	N	Y ⁷	Y ⁷	Y	Y ¹²	Y ¹³	Y ^{14,21}
63	Business services	N	Y ⁸	Y ⁸	Y	25	30	N
64	Repair services	N	Y ²	Y	Y	Y ¹²	Y ¹³	Y ¹⁴
65	Professional services	N	N	Y ⁶	Y	25	30	N
65.1	Hospitals, nursing homes	N	N	N	25*	30*	N	N
65.1	Other medical facilities	N	N	N	Y	25	30	N
66	Contract construction services	N	Y ⁶	Y	Y	25	30	N
67	Governmental services	N	N	Y ⁶	Y*	25*	30*	N
68	Educational services	N	N	N	25*	30*	N	N
69	Miscellaneous services	N	N ²	Y ²	Y	25	30	N

SLUCM NO.	LAND USE NAME	ACCIDENT POTENTIAL ZONES			NOISE ZONES			
		CLEAR ZONE	APZ I	APZ II	65-70	70-75	75-80	80+
70	Cultural, entertainment and recreational							
71	Cultural activities (including churches)	N	N	N ²	25*	30*	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	25	30	N	N
72.11	Outdoor music shells, 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 (incl golf courses, riding stables, water recreation)	N	Y ^{8,9,10}	Y	Y*	25*	30*	N
75	Resorts and group camps	N	N ⁸	N ⁸	Y*	Y*	N	N
76	Parks	N	Y ⁸	Y ⁸	Y*	Y*	N	N
79	Other cultural, entertainment and recreation	N	Y ⁹	Y ⁹	Y*	Y*	N	N
80	Resource production and extraction							
81	Agriculture (except livestock)	Y	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 ⁵	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
85	Mining activities and related services	N	Y ⁵	Y	Y	Y	Y	Y
89	Other resource production and extraction	N	Y ⁵	Y	Y	Y	Y	Y

*The designation of these uses as "compatible" in this zone reflects individual Federal Agencies, 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 of goals to consider.

NOTES

1. Suggested maximum density 1-2 dwelling units per acre, possibly increased under a Planned Unit Development (PUD) where maximum lot coverage is less than 20 percent.
2. Within each land use category, uses exist where further definition may be needed due to the variation of densities in people and structures. (See Appendix B)
3. The 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 AFR 19-9 for specific guidance)
4. No passenger terminals and no major above-ground transmission lines in APZ I.
5. Factors to be considered: labor intensity, structural coverage, explosive characteristics, air pollution.
6. Low-intensity office uses only. Meeting places, auditoriums, etc., not recommended.
7. Excludes chapels.
8. Facilities must be low intensity.
9. Clubhouse not recommended.
10. Small areas for people gathering places are not recommended.
11. a. Although local conditions may require residential use, it is discouraged in Ldn 65-70 and strongly discouraged in Ldn 70-75. The absence of viable alternative development options should be determined and an evaluation indicating that a demonstrated community need for the residential use would not be met if development were prohibited in these zones should be conducted prior to approvals.
 - b. Where the community determines the residential uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB (Ldn 65-70) and 30 dB (Ldn 70-75) should be incorporated into building codes and be considered in individual approvals. Normal construction can be expected to provide a NLR of 20 dB, thus the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. Additional consideration should be given to modifying NLR levels based on peak noise levels.
 - c. NLR criteria will not eliminate outdoor noise problems. However, building location and site planning, design and land use berms and barriers can help mitigate outdoor exposure particularly from level sources. Measures that reduce noise at a site should be used whenever practical in preference to measures which only protect interior spaces.

NOTES - continued

12. Measures to achieve NLR of 25 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
13. Measures to achieve NLR of 30 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
14. Measures to achieve NLR of 35 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
15. If noise sensitive, use indicated NLR; if not use is compatible.
16. No buildings.
17. Land use compatible, provided special sound reinforcement systems are installed.
18. Residential buildings require a NLR of 25.
19. Residential buildings require a NLR of 30.
20. Residential buildings not permitted.
21. Land use not recommended, built if community decides use is necessary, hearing protective devices should be worn by personnel.

NORTH



SCALE: 1"=APPROX 12,000'

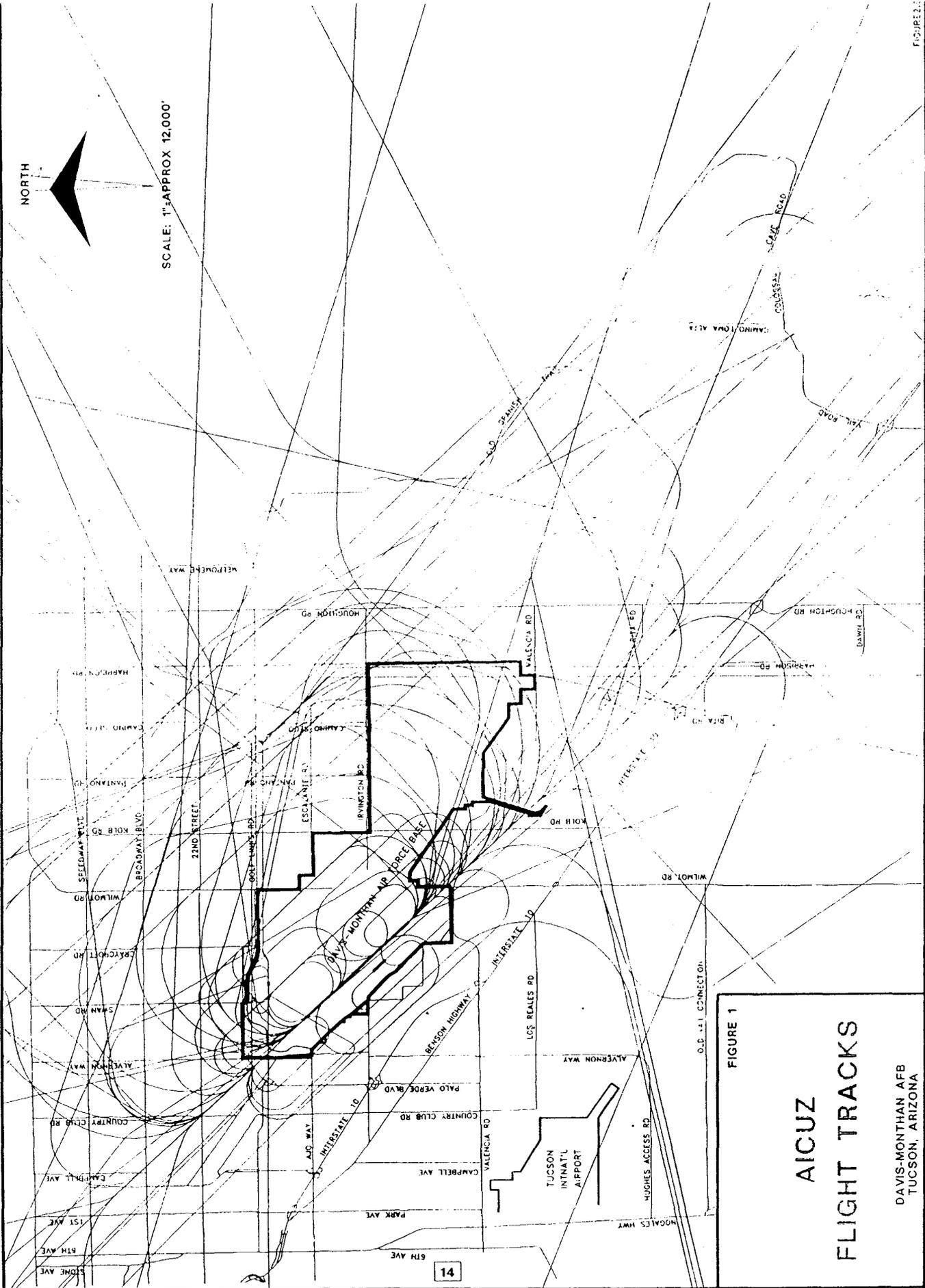
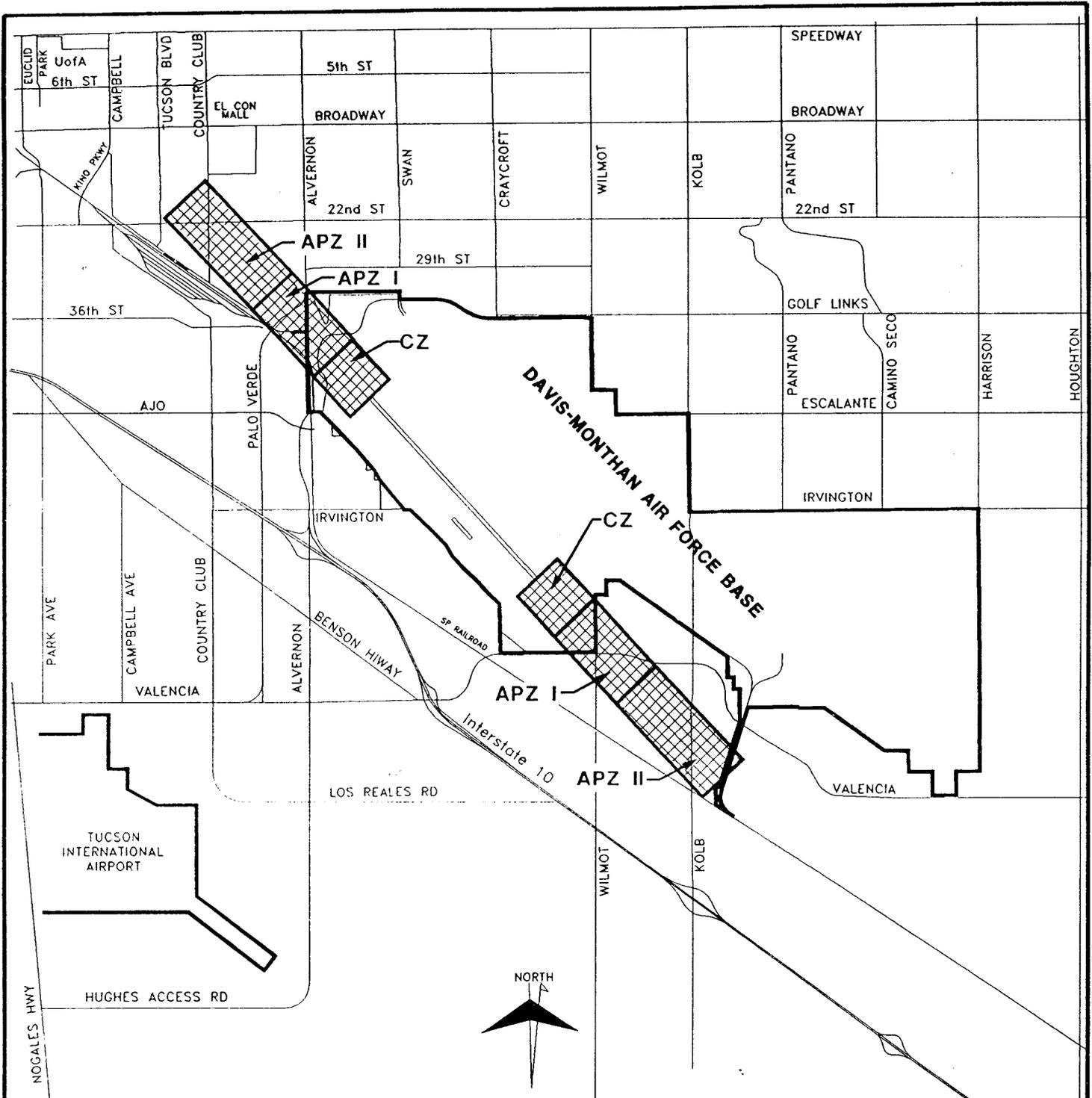


FIGURE 1

AICUZ FLIGHT TRACKS

DAVIS-MONTHAN AFB
TUCSON, ARIZONA



SOURCE:
The Imagine Project

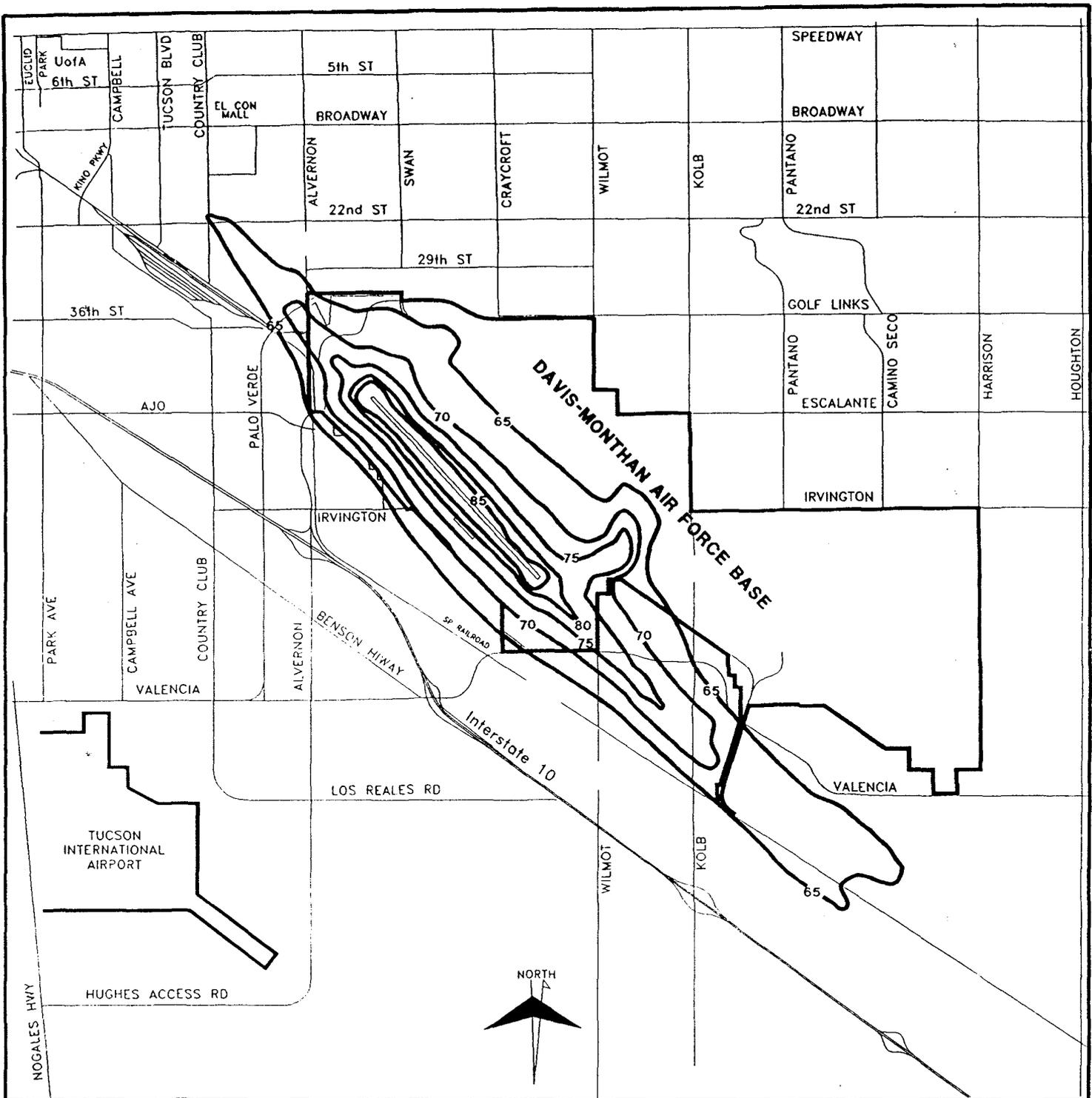
FIGURE 2

AICUZ ACCIDENT POTENTIAL ZONES

LEGEND

CZ - CLEAR ZONE

APZ - ACCIDENT POTENTIAL ZONE



SOURCE:
The Imagine Project

FIGURE 3

AICUZ NOISE CONTOURS

LEGEND

65 NOISE CONTOUR

LAND USE ANALYSIS

DAVIS-MONTHAN AICUZ ENVIRONS

Davis-Monthan AFB is located in eastern Pima County within the corporate limits of Tucson, Arizona, along the city's southern edge. Davis-Monthan is situated in the Tucson Urban Area which has a population of over 675,000 people (Figure 4).

The Davis-Monthan AICUZ Environs (Figure 5), covering approximately 3,139 acres outside the base boundaries, affects the City of Tucson both to the northwest and southeast of the base and Pima County south of the base. The AICUZ Environs, which are made up of Noise Contours and Accident Potential Zones, describe the impact of a specific operational environment and as such will change if a significant operational change is made.

In planning for land use compatibility, the Air Force recommends AICUZ data be utilized with other planning data. Specific land use control decisions should not, therefore, be based solely on AICUZ boundaries. The Air Force can not guarantee that AICUZ boundaries will never change. It is reasonable to assume significant operational change would be subject to the provisions of the National Environmental Policy Act (NEPA) and thus be part of the continuing planning process.

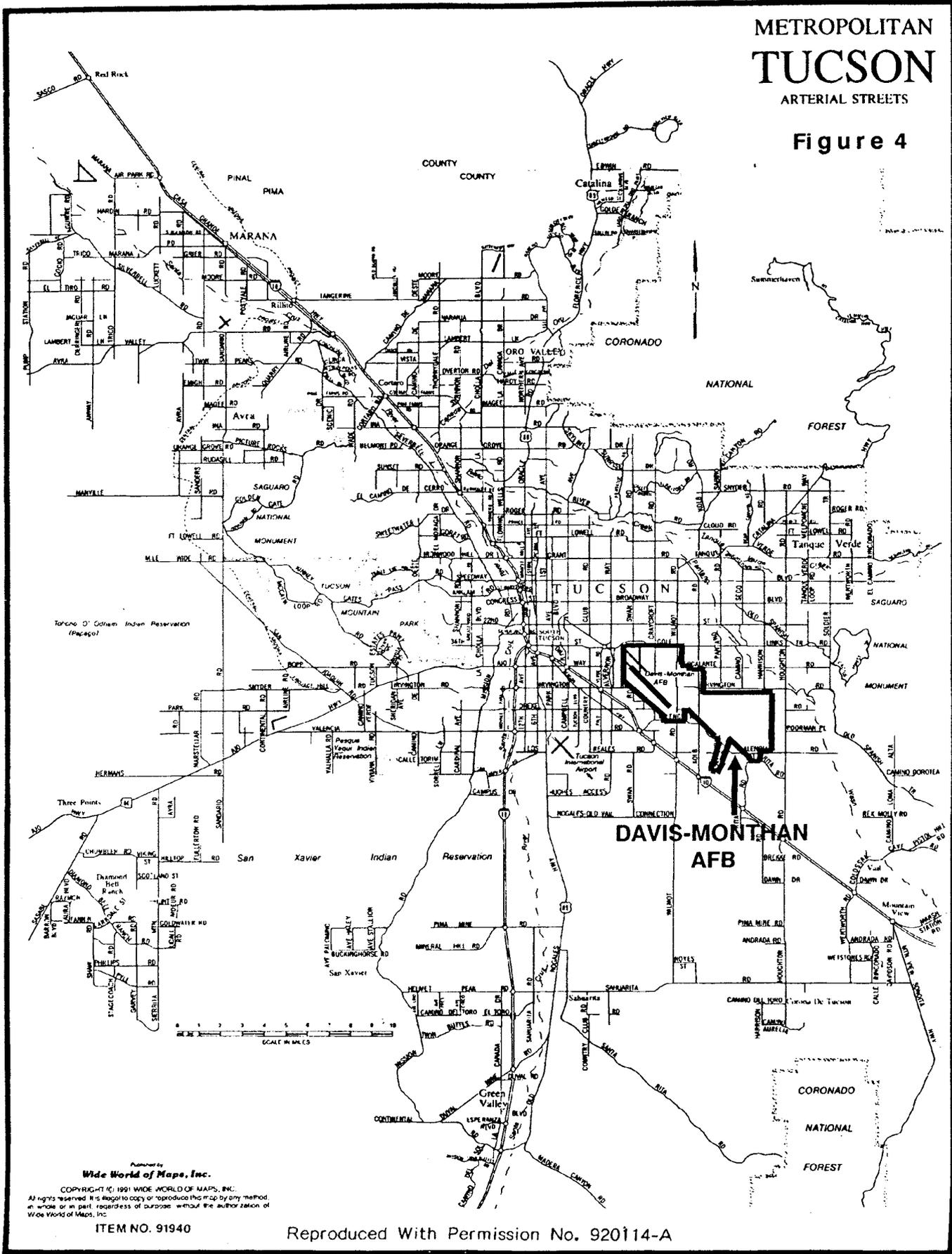
The Davis-Monthan AICUZ Environs has been divided into subareas using the accident potential zones and the noise contours. Within each subarea, an evaluation can be made of the land uses and their compatibility/incompatibility to airfield operations using the guidelines listed on pages 8-13. The chart below summarizes the number of estimated dwelling units and population affected within the AICUZ Environs (Source: 1990 Census).

AICUZ ENVIRONS SUMMARY CHART

AICUZ ENVIRONS SUBAREA	LAND AREA (ACRES) OFF-BASE	# OF DWELLING UNITS	1990 POPULATION
Clear Zones	0	0	0
APZ I	21	0	0
APZ I and LDN 75-80	54	0	0
APZ I and LDN 70-75	162	6	10
APZ I and LDN 65-70	159	187	457
APZ II and LDN 75-80	37	0	0
APZ II and LDN 70-75	268	0	0
APZ II and LDN 65-70	352	979	2096
APZ II	307	967	2436
LDN 65-70	1718	46	119
LDN 70-75	61	0	0
LDN 75-80	0	0	0
LDN 80+	0	0	0
TOTAL	3139	2185	5118

METROPOLITAN TUCSON ARTERIAL STREETS

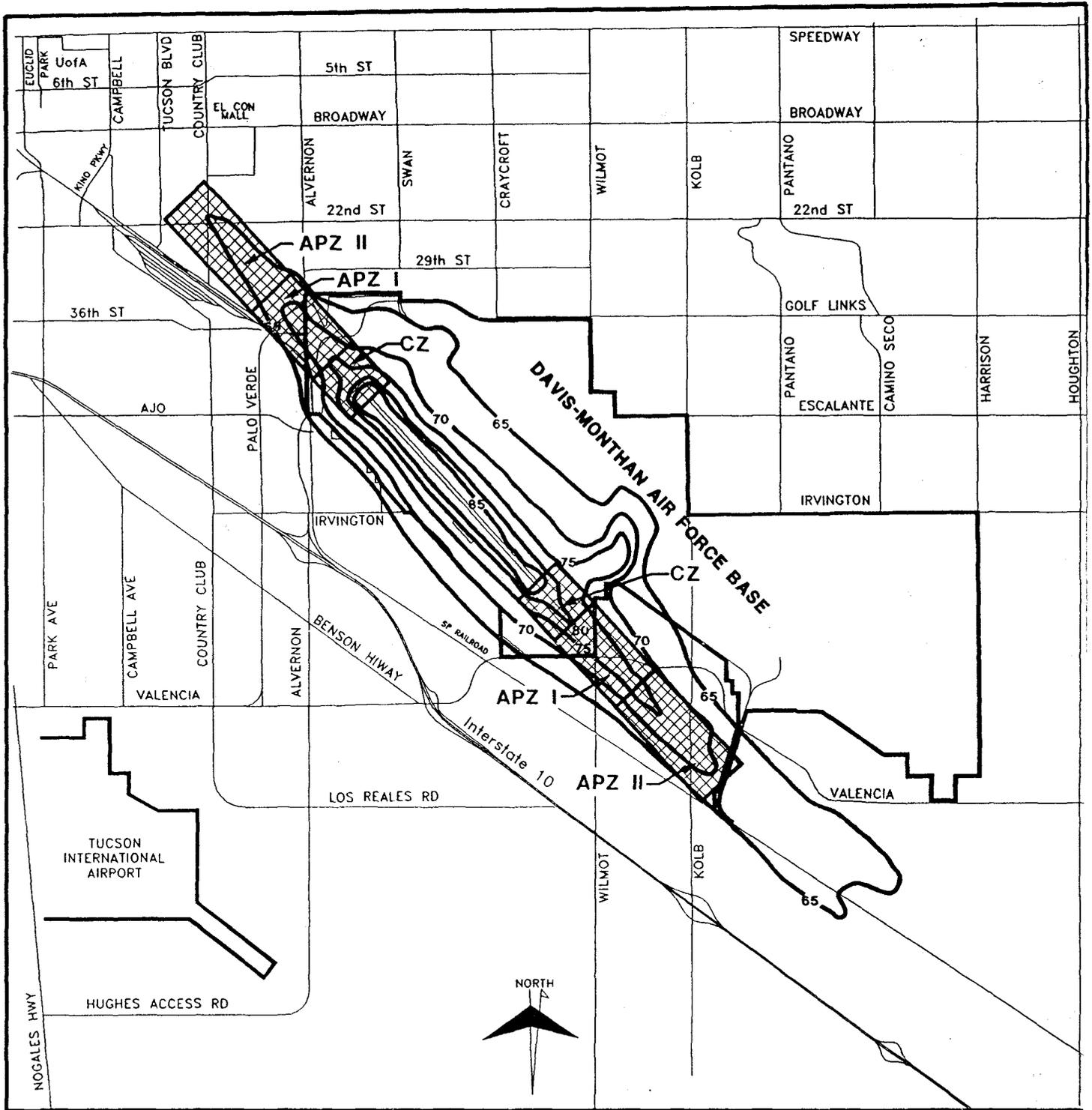
Figure 4



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SOURCE:
The Imagine Project

FIGURE 5

DAVIS-MONTHAN AICUZ ENVIRONS

COMPREHENSIVE PLANNING AREAS

(FIGURE 6)

Pima County and the City of Tucson are divided into comprehensive planning areas. The Davis-Monthan AICUZ encompasses portions of three comprehensive planning areas: the Arroyo Chico and Esmond Station Area Plans (City of Tucson) and the Rincon/Southeast Subregion of Pima County. Davis-Monthan's planning staff plays an active part in developing plans and policies for the areas surrounding the base.

The Arroyo Chico Area Plan adopted in 1986 provides policy direction for a 4.3 square mile urban area southeast of downtown Tucson and northwest of Davis-Monthan. The Arroyo Chico area is further divided into three industrial areas and the residential subareas of Miles/San Antonio, Plumer-Country Club, Colonia Solana and the Julia Keen neighborhoods. The Davis-Monthan AICUZ Environs cover approximately 680 acres within the Arroyo Chico area. Using 1990 Census data, the population of the Arroyo Chico area is 14,045 which is a population density of 3,226 people per square mile. The Arroyo Chico area contains a regional park and is in close proximity to the University of Arizona and the El Con Shopping Mall.

The Esmond Station Area Plan adopted in 1986 provides policy direction for 28 square miles of which 8.7 square miles are in the city of Tucson. The plan area is bounded by Davis-Monthan on the north, Kolb Road on the west, Interstate 10 on the south, and the Pantano Wash/Wentworth Road alignment on the east. Much of the land is undeveloped and the Davis-Monthan AICUZ Environs cover approximately 289 acres in the Esmond Station Area within Tucson's city limits.

The Rincon/Southeast Area Plan, currently under development as part of the Pima County Comprehensive Plan, contains the land area within these existing Area Plans: Southeast, Esmond Station, Rincon Valley, Rincon, and Empirita Ranch as well as the Vail Posta Quemada Zoning Plan. This subregion consists of 410 square miles and is the largest of the six subregions in Pima County. The Davis-Monthan AICUZ Environs cover approximately 2,213 acres in the Rincon/Southeast Subregion. Much of the land is undeveloped and the estimated 1990 population is 22,639 which is a population density of 55 people per square mile.

Both the Arroyo Chico and the Rincon/Southeast planning areas are shown on Figure 6. These two areas greatly contrast in their land use developmental stages. The Arroyo Chico Area is urban in form while the Rincon/Southeast/Esmond Station Area is primarily rural. Both areas are critical to Davis-Monthan's AICUZ program, but require varying approaches in AICUZ land use policies.

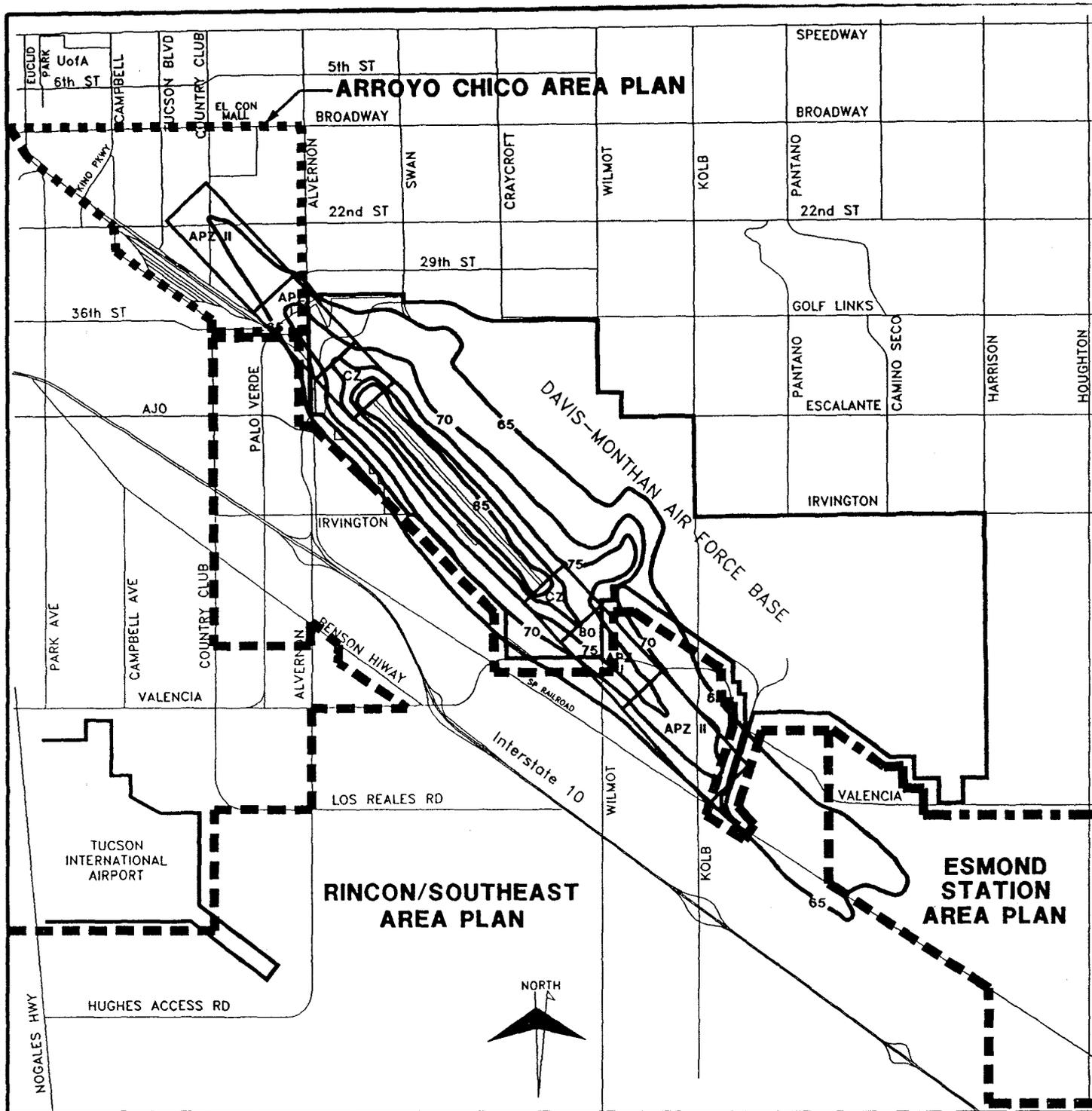


FIGURE 6

EXISTING AREA PLAN BOUNDARIES

EXISTING LAND USE

(FIGURE 7)

The Arroyo Chico Area Plan is one of two City of Tucson's comprehensive planning areas affected by the AICUZ. It is an established urban area with a mixture of land uses. The area's central location and high degree of access are key features which have attracted both residential and industrial uses.

Almost all the land in the Arroyo Chico Area Plan is developed. Residential uses comprise about 30% of the land uses within Arroyo Chico. Most of this residential development is single family dwelling units with some multifamily units found along major transportation corridors in the area.

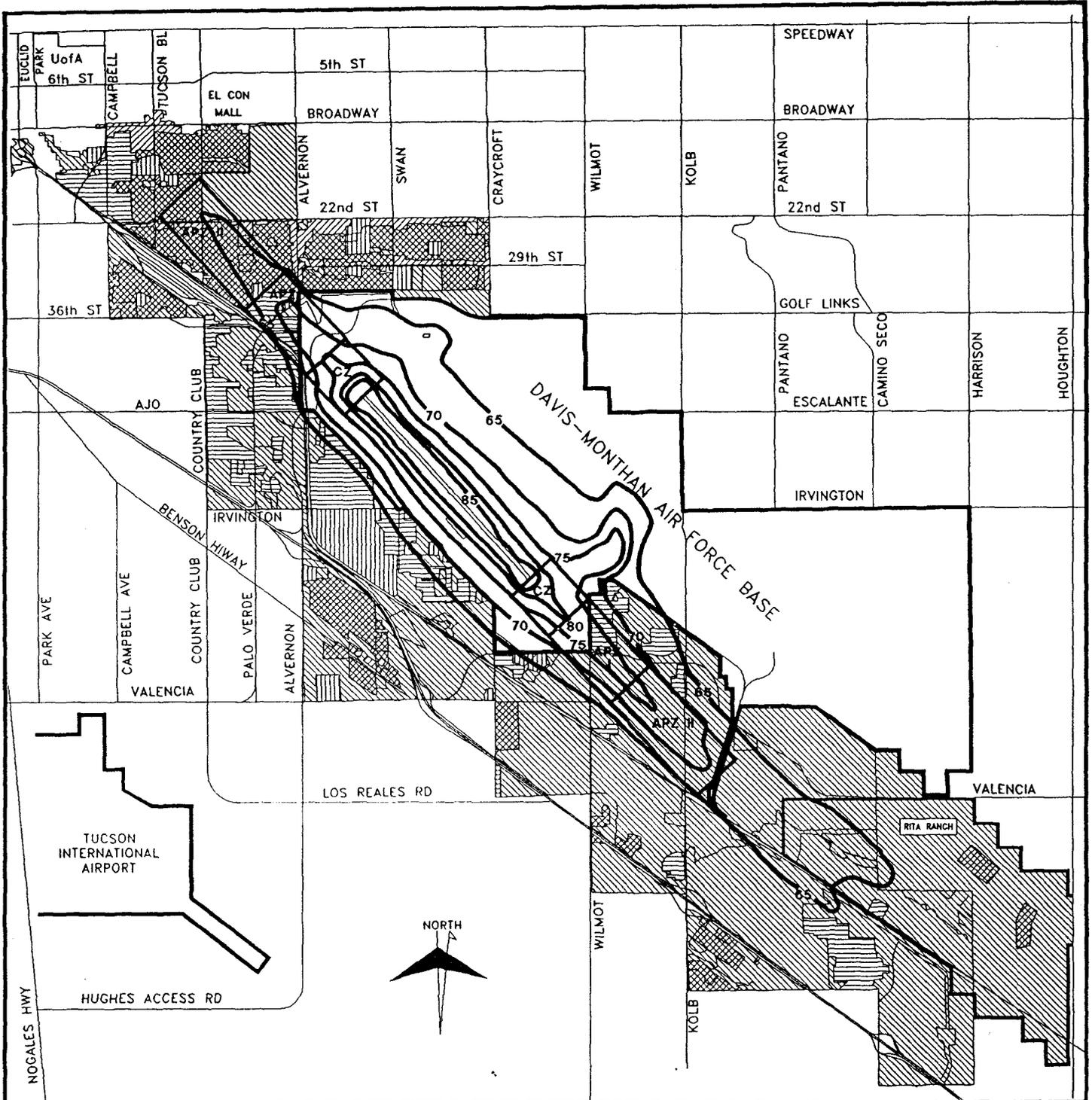
Both commercial and industrial uses are located within the Arroyo Chico Area Plan. Commercial uses are strip type developments found along the major streets. There is also considerable commercial development located in the area from Broadway to 15th Street and Campbell Avenue to Tucson Boulevard. The Southern Pacific Railroad is a major industrial user with additional industrial uses found in close proximity to the railroad and adjacent to the Palo Verde Overpass linking Alvernon Way with Palo Verde Road.

Recreation is a major land use within the Arroyo Chico Area Plan. Reid Park (the Zoo, Randolph Golf Course and the Recreation Center) comprises one of the largest and most complete regional parks in the Tucson urban area. In addition, there are three small neighborhood parks serving the residential areas in Arroyo Chico: Eastmoor, Parkview, and Country Club.

The Esmond Station Area Plan is the second City of Tucson planning area affected by the AICUZ. The majority of land within this area is undeveloped and owned by the State of Arizona. Rita Ranch is a 2800 acre mixed land use development (industrial, commercial, and residential) located within the area plan, west of Houghton Road and adjacent to Davis-Monthan's southern boundary.

A majority of the land contained in the Rincon/Southeast Subregion is undeveloped. Nearly 3000 acres in the eastern part of the subregion are protected as part of the Cienega Creek Natural Preserve. Except for some rural, low density housing in the Rincon Valley, the only significant existing development occurs within the 218 square miles of land adjacent to Davis-Monthan's southern boundaries that make up the existing Pima County Southeast Area Plan. 10 miles south of Davis-Monthan is Corona De Tucson which is a small satellite community of 1,000 people. Most of the 218 square miles is largely undeveloped, however, there is significant industrial and commercial development located between Interstate 10 and the western and southwestern boundaries of the base.

Other land uses within the sparsely developed Rincon/Southeast Area Plan include: a Medium-Security Prison, the Pima County Fairgrounds and Colossal Cave Park.



- SOURCES:
1. The Imagine Project
 2. Pima County Planning and Development Services
 3. City of Tucson Planning Dept.

EXISTING LAND USE (GENERALIZED) LEGEND

FIGURE 7

- | | |
|---|---|
| <ul style="list-style-type: none"> RESIDENTIAL COMMERCIAL INSTITUTIONAL | <ul style="list-style-type: none"> INDUSTRIAL PARK/OPEN SPACE OR VACANT |
|---|---|

EXISTING ZONING

(FIGURE 8)

Two types of zoning apply in the areas affected by the Davis-Monthan AICUZ. One is conventional or regular zoning established by a jurisdiction. The other zoning type is applied on top of existing zoning to form an overlay zone and is used by both Tucson and Pima County in their Airport Zoning Ordinances.

The existing zoning within the Arroyo Chico Area follows the same pattern as the existing land use. More land is zoned R-1 (single family residential and recreation) than any other zoning classification. Some R-2 and R-3 zoning (multifamily housing) is located in several concentrated developments. I-1 and I-2 (industrial) and B-1 and B-2A (commercial) zoning are located in the vicinity of the Southern Pacific Railroad corridor and along major streets.

Rezoning requests are producing few changes to the existing zoning structure. East of Tucson Boulevard the area has remained very stable with single family residences and recreation being the predominant land uses. West of Tucson Boulevard, there have only been a few industrial and commercial rezoning requests in the past ten years.

Most of the land covered by the Esmond Station Area Plan inside the City of Tucson is either zoned Urban Ranch (low density residential) or is part of Rita Ranch which is zoned for a mixture of land uses including residential, commercial and industrial. An agreement was reached between the developers of Rita Ranch and Davis-Monthan that divided the development into AICUZ compatible uses. All residential use was prohibited within the Davis-Monthan Approach-Departure zone. Only industrial uses are allowed within this area. This unique agreement allows for compatible growth, while maintaining the operational flexibility of the base.

In April of 1990, the City of Tucson adopted an overlay zone, the Airport Environs Zone. This ordinance incorporates many of the AICUZ recommendations and allows the City to prevent incompatible land uses from developing near Davis-Monthan while also protecting the public safety of Tucson residents. The Airport Environs Zone regulates areas of high noise exposure, limits intensity of land use, prohibits airport hazards and limits heights within landing and take-off approaches. Zones are established which prohibit public assembly, limit the intensity of land use, and prohibit such uses as child day care, adult education, and medical service. This zoning ordinance allows the City to control and regulate development around the base and assures that areas south of the base currently covered by the Pima County Airport Zoning Ordinance will still be so covered when incorporated into the city.

Existing zoning within the Rincon/Southeast Subregion, which includes the unincorporated land within the Esmond Station Area Plan, is predominantly RH (rural homestead) with a minimum lot size of four acres. On the east side of the subregion near the Saguaro National Monument is the 5,000 acre Rocking K Specific Plan. This proposed mixed-use development consists of residential, recreational, campus park industrial, and commercial zoning. The residential zoning varies from low density estate lots to limited areas of high density residential with over 11,500 homes proposed to be built.

Closer to Davis-Monthan's boundaries, most of the land north of the Southern Pacific Railroad is zoned either industrial or agricultural/rural residential. On the south side is the 348 acre South Kolb Road Specific Plan which was rezoned in 1988 from rural homestead and suburban ranch to SP (specific plan) for mainly industrial uses.

A comprehensive Airport Environs and Facilities Zoning Ordinance was adopted by Pima County in 1985 and amended in 1987. Pima County planners working with Davis-Monthan and Tucson Airport Authority Planning staffs used the 1975 Davis-Monthan AICUZ and the 1982 Tucson International Airport Environs Plan as a basis for the development of the county ordinance. It regulates areas of high noise exposure, prohibits airport hazards, limits heights within landing and take-off approaches and land uses within compatible use zones. Some of the restrictions include no public assembly within Davis-Monthan's Accident Potential Zones I and II (APZ), and a 50 employee limit per building within APZ I. This zoning ordinance, which is one of the strictest in the nation, affects the predominantly undeveloped land south of the base.

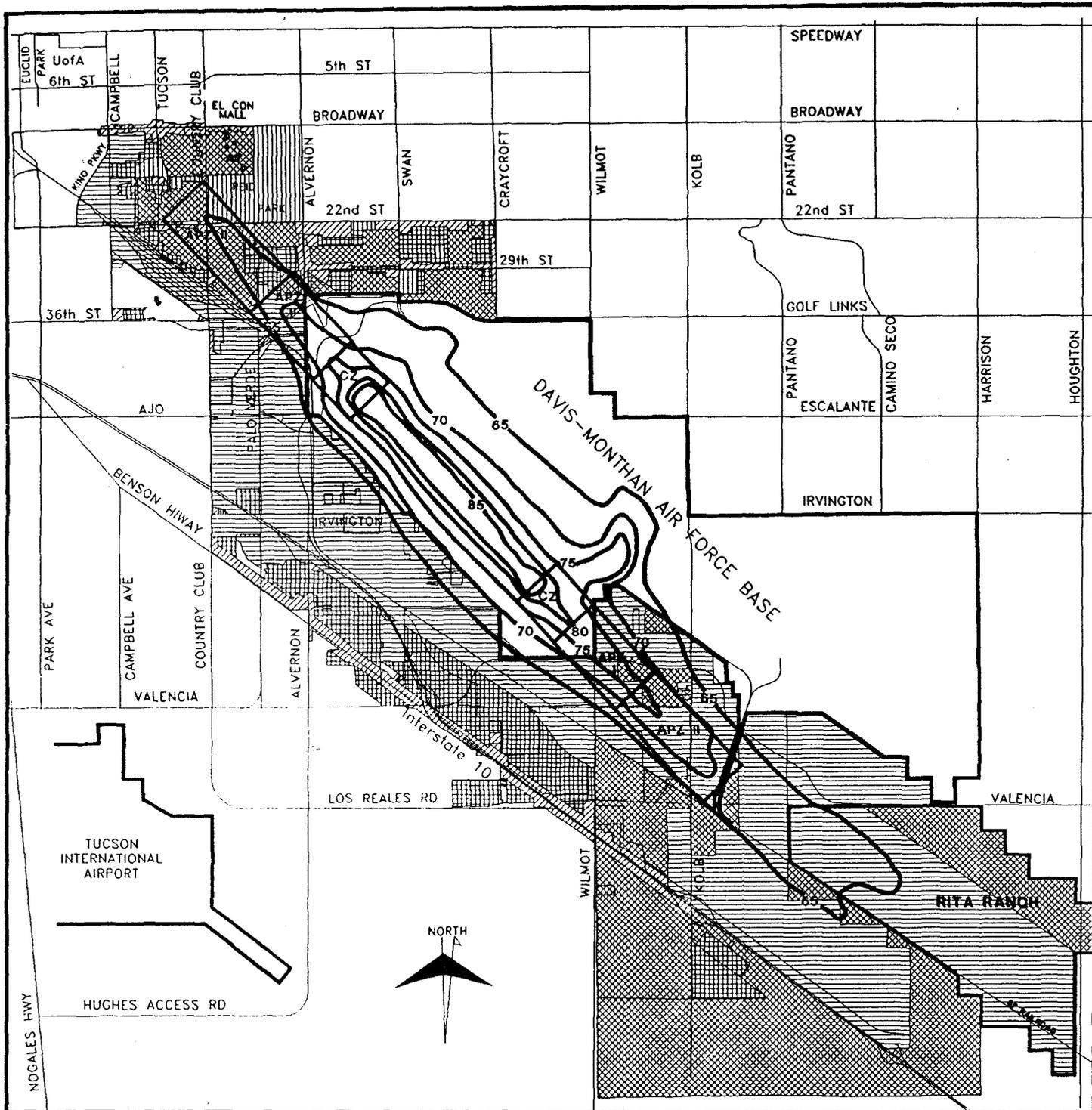
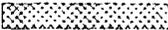
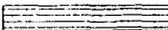
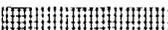


FIGURE 8

EXISTING ZONING

- SOURCES:
1. The Imagine Project
 2. Pima County Planning and Development Services
 3. City of Tucson Planning Dept.

LEGEND

	SINGLE-FAMILY RESIDENTIAL		INDUSTRIAL
	MULTI-FAMILY RESIDENTIAL		INSTITUTIONAL
	COMMERCIAL		MULTI-USE

FUTURE LAND USE

(FIGURE 9)

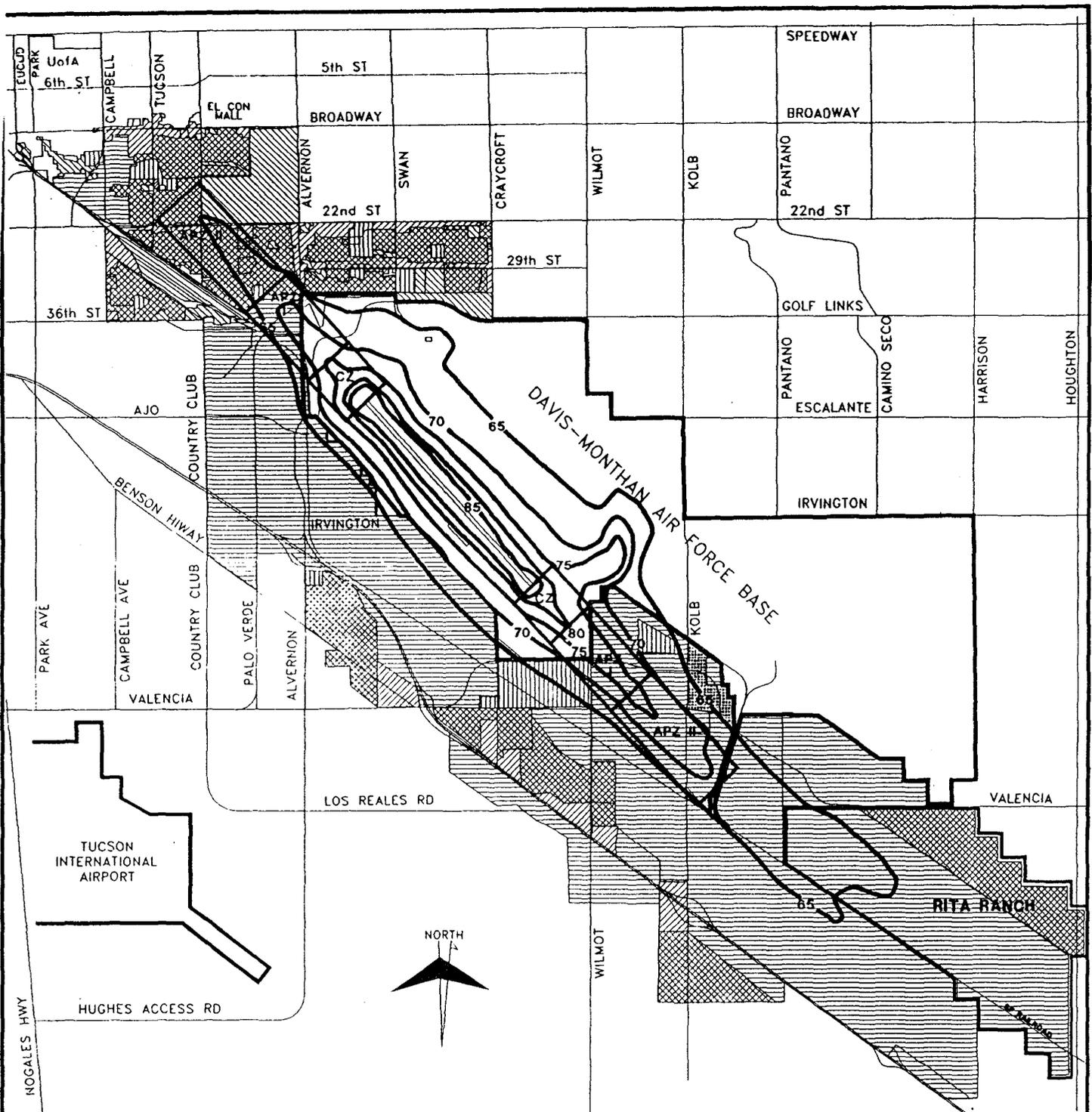
The Arroyo Chico Area is an almost fully developed older urban area that is basically stable in land uses. New development will either be through in-fill on existing vacant parcels, or by rezoning existing developments for other uses. Future land uses as outlined in the Arroyo Chico Area Plan are very similar to the existing land use pattern.

The Arroyo Chico Area Plan, which was developed with input from the Davis-Monthan Planning Staff, has a subgoal to encourage land use compatibility between Davis-Monthan and adjacent development. In order to reach the goal of land use compatibility there are three policies addressed in the area plan to: (1) ensure compatibility of new development with existing and future operations of Davis-Monthan, (2) ensure compatibility of base operations with existing and potential adjacent development, and (3) ensure new development consistent with AICUZ guidelines when compatible with Arroyo Chico Area Plan general policies.

The Rincon/Southeast Subregion Land Use Plan is being developed with an anticipated adoption date of June 1992. Six subregion land use plans will replace all adopted area, community, and neighborhood plans in unincorporated Pima County.

The land south and southeast of Davis-Monthan is currently covered by the Southeast (part of the Rincon/Southeast Subregion) and the Esmond Station Area Plans. Unlike the land within the Arroyo Chico area, most of the land is undeveloped. With such a large amount of land available for development, this area must be the focus for future compatible land use planning. During the development of the Southeast and Esmond Station Area Plans, information was provided to Pima County and City of Tucson Planning Staffs concerning Davis-Monthan's AICUZ program and recommended guidelines for compatible development. The adopted future land use plan within, and surrounding the AICUZ, is oriented towards industrial usage which is compatible with Davis-Monthan's flying mission.

Davis-Monthan's Planning Staff will be providing updated AICUZ flying information to Pima County Planners and Land Use Panel Members so that the Rincon/Southeast Subregion Land Use Plan reflects compatible land use for areas affected by Davis-Monthan's AICUZ. This is important to ensure Davis-Monthan's ability to continue its flying mission.



SOURCES:

1. The Imagine Project
2. Pima County Planning and Development Services
3. City of Tucson Planning Dept.

FUTURE LAND USE (GENERALIZED)

FIGURE 9

LEGEND

<p> RESIDENTIAL</p> <p> COMMERCIAL</p> <p> INSTITUTIONAL</p>	<p> INDUSTRIAL</p> <p> PARK OR OPEN SPACE</p> <p> MULTI-USE</p>
--	---

TUCSON INTERNATIONAL AIRPORT COORDINATION

Tucson International Airport's (TIA) main runway is 4.5 miles southwest and parallel to Davis-Monthan's runway. Due to the closeness of the two major airports and the heavy use of the airspace, the base and TIA closely coordinate daily traffic routing. There is a mutually beneficial arrangement allowing for commercial aircraft to land at Davis-Monthan and military aircraft to land at TIA. TIA and Davis-Monthan use a regional approach in working with local jurisdictions on land use compatibility for airport environs. Both Davis-Monthan and TIA share similar concerns about urban encroachment and land use compatibility. Each facility supports the other on relevant zoning issues and proposed developments that may be incompatible with airport operations. In 1988 TIA updated their Federal Aviation Regulations (FAR) Part 150 Program to include a noise study report, airport noise exposure maps and a noise compatibility program.

DAVIS-MONTHAN AICUZ ENVIRONS

COMPATIBILITY/INCOMPATIBILITY EVALUATION

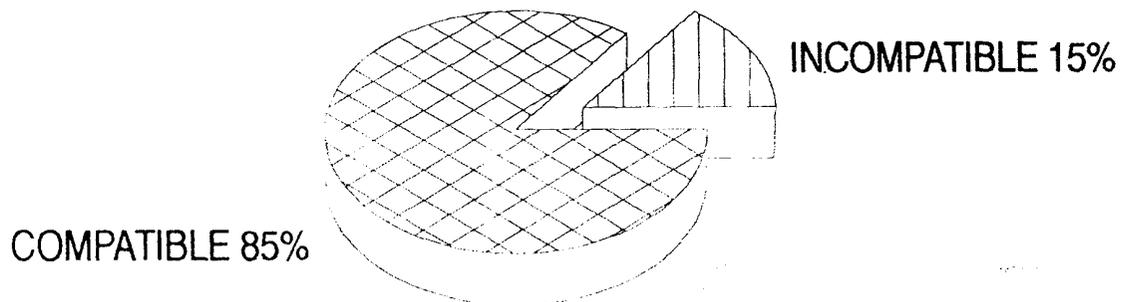
The land within the Davis-Monthan AICUZ Environs northwest of the base runway is the Arroyo Chico Area and contains most of the existing incompatible land uses. Land that is within the Accident Potential Zone II (APZ) with an Ldn level below 65 contains residential, commercial, and recreational land uses. The land uses are compatible except for residential development with a higher density than is recommended by the AICUZ land use guidelines. The predominant land use within APZ II/Ldn 65-70 is single family residential with some multifamily residential. Residential development within APZ II/Ldn 65-70 is compatible if the density is below two dwelling units per acre while multifamily residential is considered an incompatible land use. The evaluation shows that the density is higher than the one to two dwelling units per acre. The Julia Keen Elementary school within APZ II/Ldn 65-70 is an incompatible use. APZ I/Ldn 65-70 contains mainly industrial uses with some incompatible residential development in the northeast part of the subarea. Although industrial uses are generally considered to be compatible land uses, AICUZ guidelines stress the importance of limiting "people-intensive" development within the Accident Potential Zones. Industrial uses also make up the predominant land use within APZ I/Ldn 70-75.

Just outside of Davis-Monthan's boundaries to the west, is land that is within the Ldn 65-70. Most of this land is industrial which is compatible with the AICUZ land use guidelines.

The AICUZ Environs extends southeast of the runway into an area of mainly vacant land with some pockets of industrial uses. The land within APZ II/Ldn 75-80, APZ II/Ldn 65-70 and Ldn 65-70 is mostly undeveloped with a few compatible industrial sites. The Southeast Area Plan had projected industrial land uses which are both compatible and desirable for this land. The new Pima County Rincon/Southeast Subregion Land Use Plan also needs to reflect the same land use development policies.

Below is a pie chart illustrating the percentage of incompatible and compatible development within the off base AICUZ Environs.

D-M AICUZ ENVIRONS Land Use Compatibility*



* Based on Off Base AICUZ Environs Acreage

The Davis-Monthan AFB AICUZ Environs for compatible and incompatible land uses is a contrast between an old established urban area and as yet undeveloped county land. Existing and future land use southeast of Davis-Monthan in the AICUZ Environs is very consistent with minimal incompatible development. This is in contrast to the AICUZ Environs northwest of Davis-Monthan which contain some incompatible residential, educational, and some high density industrial land uses. Much of the urban development in this area was built over 20 years ago. The major opportunity for compatible land use in the Arroyo Chico area rests with close evaluation of future zoning change requests and compliance with Tucson's Airport Environs Zone. Southeast of Davis-Monthan, the major opportunity for compatible development rests with implementation of the Rincon/Southeast Subregion Land Use Plan and compliance with Pima County's Airport Zoning Ordinance.

IMPLEMENTATION

The implementation of the AICUZ study must be a joint effort between the Air Force and adjacent communities. The Air Force role is to minimize the impact of Davis-Monthan operations on local communities. The communities must ensure that development of the environs is compatible with accepted planning and development principles and practices.

AIR FORCE RESPONSIBILITIES

In general, the Air Force perceives its AICUZ responsibilities as falling within 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 avoid aircraft accidents. However, despite the best training and maintenance, history makes it clear that accidents unfortunately do occur. It is imperative that flights be routed over sparsely populated areas as much as possible to reduce exposure to a potential accident. Aircraft noise is generated both in the air and on the ground. At Davis-Monthan AFB the following noise abatement and safety practices are undertaken:

Air Operations

1. Airfield departures and arrivals, to the maximum extent possible and consistent with established safety procedures, will use the airspace southeast of the base.
2. Traffic patterns will be designed to minimize overflights of populated areas.
3. Efforts are continually made to control and schedule missions to keep noise levels at an absolute minimum during evening hours.
4. Operational areas for aircraft are over very sparsely populated areas.
5. Quiet hours for aircraft operations are normally from 10:30 P.M. to 6:00 A.M. (2230 to 0600) unless a high priority mission or an emergency situation occurs.

Ground Operations

Base maintenance run-up activities are not normally performed between 10:30 P.M. and 6:00 A.M. (2230 to 0600) except for high priority mission requirements or when an emergency situation occurs.

REVIEW

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

PARTICIPATION IN THE PLANNING PROCESS

Preparation and presentation of this Davis-Monthan AFB AICUZ report is the continuation of Air Force participation in the local planning process. The AICUZ program is an ongoing activity, even after compatible land use development plans are adopted and implemented. In recognition of this requirement, Base Civil Engineering Planning Staff are prepared to participate in the continuing discussion of zoning, noise, and other land use matters as they may affect Davis-Monthan AFB.

LOCAL COMMUNITY RESPONSIBILITIES

Davis-Monthan AFB has a long history of working with the citizens of the Tucson Region to develop policies that are beneficial to all. We believe 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:

1. Incorporate AICUZ policies and guidelines into local comprehensive plans. Use overlay maps of the Davis-Monthan AICUZ noise contours and Air Force Land Use Compatibility Guidelines to evaluate existing and future land use proposals.
2. Continue to support existing zoning ordinances so as not to permit incompatible construction within the AICUZ zones.
3. Ensure height and obstruction ordinances reflect current Air Force and Federal Aviation Administration (FAA) Part 77 requirements.
4. Modify building codes to ensure that new construction within the AICUZ area has the recommended noise level reductions incorporated in design and construction.
5. Require that sellers of property within the AICUZ zones disclose in writing to the purchaser, the fact that the properties are affected by aircraft noise.
6. Inform Davis-Monthan AFB of planning and zoning actions that have the potential of affecting base operations.