



#### 5. AIRPORT LAND USE

This chapter deals with compatible land use. It seeks to establish land use patterns on airport property that promote the efficient operation and financial self-sufficiency of the airport while ensuring compatibility with the surrounding community. Off-airport land use planning involves coordinating with surrounding jurisdictions to ensure compatible development on land the airport does not control. This includes coordinating with adjacent communities on their growth plans and continuation of safety and noise overlay zoning that serves to protect the long-term viability of the airport.

Land use compatibility refers to a pattern of land uses around the airport which will be most compatible with activities on the airport. The two primary concerns for land use compatibility are maintaining operationally safe and obstruction free approaches and minimizing impacts due to aircraft noise.

Ensuring compatible land use is a condition of the grant assurances when accepting federal Airport Improvement Program grants. The applicable grant assurances are as follows:

**Compatible Land Use**: It (the airport sponsor) will take appropriate action, including the adoption of zoning laws, to the extent reasonable, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft.

In addition, if the project is for noise compatibility program implementation, it will not cause or permit any change in land use, within its jurisdiction, that will reduce its compatibility, with respect to the airport, of the noise compatibility measures upon which federal funds have been expended.

# Hazard Removal and Mitigation:

It will take appropriate action to assure that such terminal airspace as is required to protect instrument and visual operations to the airport (including established minimum flight altitudes) will be adequately cleared and protected by removing, lowering, relocating, marking, or lighting or otherwise mitigating existing airport hazards and by preventing the establishment or creation of future airport hazards.

# 5.1 Existing Off Airport Land Use

The Avi Suquilla Airport is located on the CRIT Reservation, immediately east of the Town of Parker. **Figure 5-1** shows generalized existing land uses in the vicinity of the Airport. Adjacent land uses have historically been undeveloped land and agricultural uses in addition to the commercial / industrial uses on the east side of Parker. Today, the land uses adjacent to the airport include new commercial and recreational uses from the development of the Moovalya Shopping Center and an 80,000 square foot casino, 200 room hotel and a marina by the Tribes. The shopping center and casino are located on the south side of SR 95 between the eastern boundary of the Town of Parker and Airport Road. The land immediately north of Avi Suquilla is still principally undeveloped land and the land east of the airport that was under agricultural use is no longer being farmed. Land use on the north



side of SR 95 has been, and continues to be, principally undeveloped except adjacent to Lake Moovalya, where there are recreational facilities, RV trailer parks, mobile home developments, and single-family residences in the Blue Water Drive area.



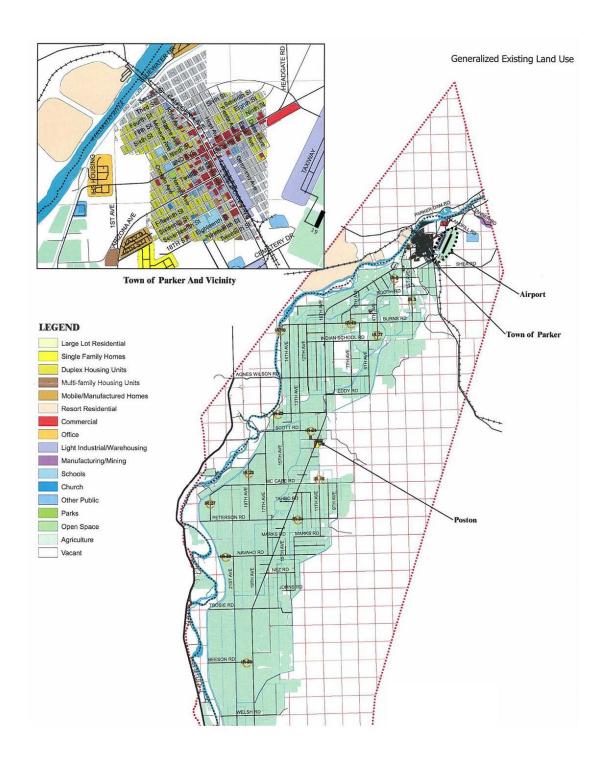


Figure 5-1: Generalized Existing Land Use



### 5.2 Schools and other Public Facilities

The following schools, hospitals and parks are located in the "vicinity" (two to three miles) of the airport. **Table 5-1** identifies the facility, and their location with respect to FAR Part 77 Horizontal and Conical Surfaces and the Airport Influence (Traffic Pattern Airspace) Boundary. **Figure 5-2**, Public Facilities Located near Avi Suquilla Airport shows the location of these facilities.

Table 5-1 Public Facilities - Avi Suquilla Airport Vicinity

Description & Address	Part 77 Surface	Within Airport Influence (Traffic Pattern Airspace) Area		
Hospitals La Paz Regional Hospital 1200 W. Mohave Road	Horizontal Surface	Yes		
US Public Health Services Agency Road	Conical Surface	No		
Schools Parker High School 1600 S. Kofa	Horizontal Surface	No		
Blake Elementary 707 Navajo Ave.	Conical Surface	No		
Wallace Elementary School	Horizontal Surface	No		
1600 Mohave Ave.  Wallace Junior High School 1320 18th Street	Horizontal Surface	No		
Parks Community Park & Athletic Fields, South of Park	Horizontal Surface	No		
Monitaba Park Mohave & Second Ave.	Horizontal Surface	No		
Rodeo Grounds 7 <sup>th</sup> Street & Desert Lane	Horizontal Surface	No		
City Park Agency Road & Mohave	Horizontal Surface	No		



Description & Address	Part 77 Surface	Within Airport Influence (Traffic Pattern Airspace) Area
Casinos Blue Water Casino North of SR 95	Horizontal Surface	Yes

As noted in the table, all of the facilities are located within the Horizontal Surface of the airport. Only two facilities are located within the Airport Influence (Traffic Pattern Airspace) Boundary. The facilities are the La Paz Regional Hospital and the Tribe's BlueWater Casino.





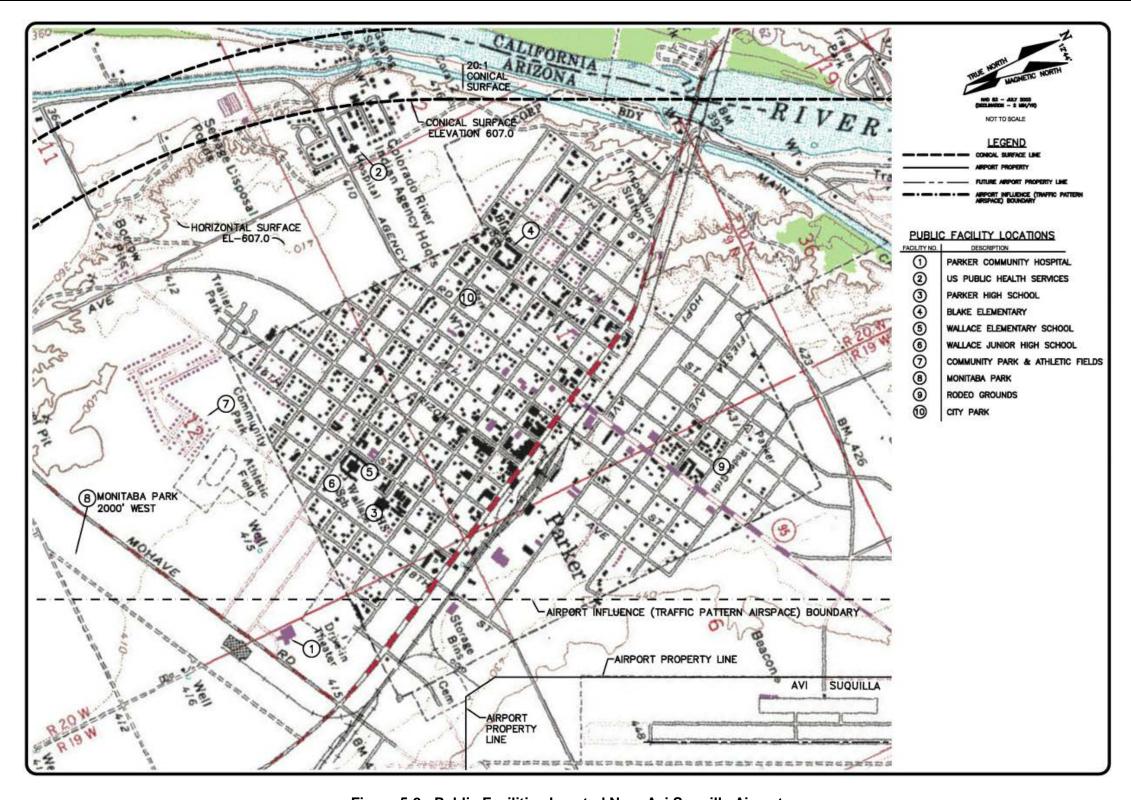


Figure 5-2: Public Facilities Located Near Avi Suquilla Airport





# 5.3 Zoning & Planned Land Use

#### Town of Parker

The Town of Parker Zoning Code establishes seventeen zoning districts and three overlay districts for the Town of Parker and 13,000 acres on non-contiguous land to the southeast known as Parker South. A zoning map for "Parker Central" is sown on **Figure 5-3.** 

Parker Central has seven applicable zoning districts. All districts have a maximum building height limitation of forty feet or less.

# La Paz County

The unincorporated areas surrounding the Avi Suquilla Airport are within the Colorado River Indian Tribes (CRIT) reservation. La Paz County's zoning ordinance and comprehensive planning documents do not apply to Indian Reservation Lands.

### **Colorado River Indian Tribes Reservation**

CRIT has jurisdiction over land surrounding airport outside the jurisdictional limits of the Town of Parker. CRIT also has ownership control of this land.

**Figure 5-4** is a composite of Site Plans and Land Use Plans for CRIT in and around the Town of Parker compiled for the 2008 Transportation Planning Study by THK Associates. The plan shows commercial and industrial uses planned adjacent to the airport on the south side of SR 95, which is compatible with airport operations.

On the north side of SR 95, the tribes have implemented the first phase of a mixed-use development of the "Blue Water Resort Area" located along the Colorado River off of SR 95 along Blue Water Drive. This includes an 80,000 square foot casino, a 200 room hotel and a marina. The plans for the second phase comprise the entire area between SR 95 and the Colorado River and include several residential subdivisions, shops, and a golf course. The specific components of the second phase of the project have not yet been proposed.

### **5.4 Noise Compatibility**

Aircraft noise emissions are often the most noticeable environmental effect an airport will produce on the surrounding area. If the sound is sufficiently loud or frequent in occurrence, it may interfere with various activities or otherwise be considered objectionable. To assist planners in ensuring that land uses near the airport are compatible with aircraft operations, federal land use guidelines have been included in this report and are summarized on **Figure 5-5**.



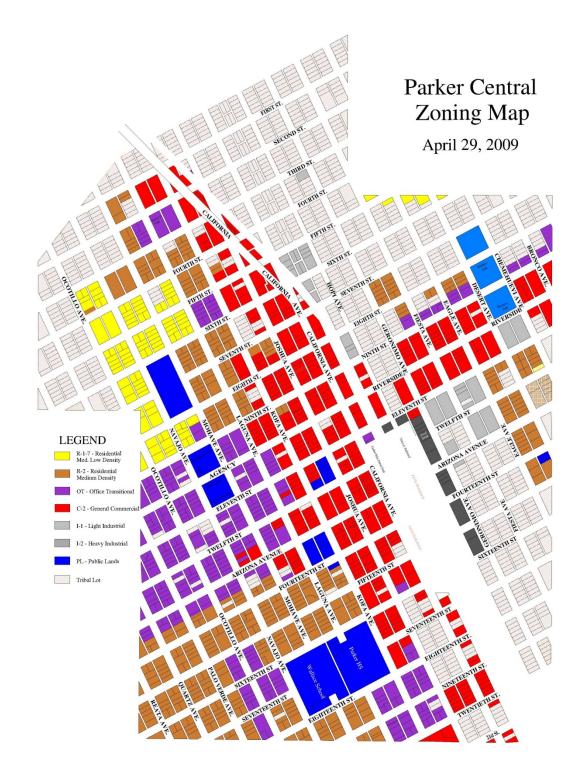


Figure 5-3: Central Parker Zoning Map



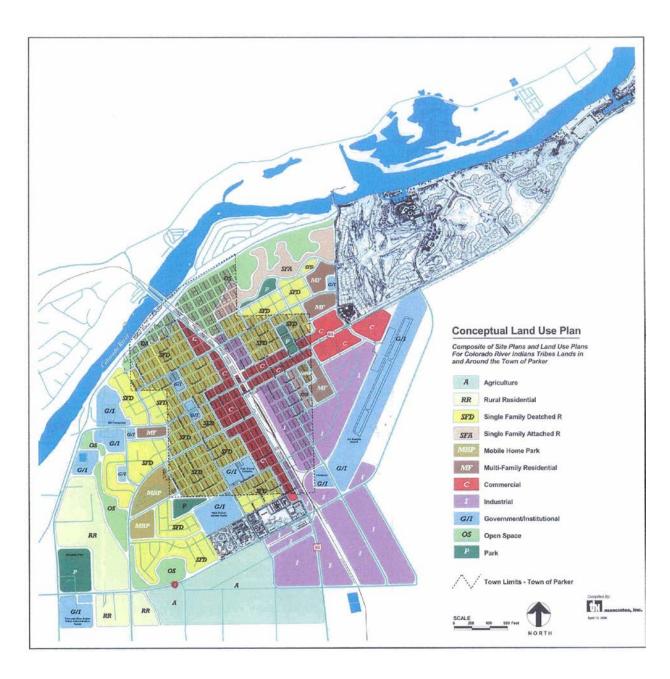


Figure 5-4: Conceptual Land Use



LAND USE	Yearly day-night average sound level (DNL) in decibels						
	Below 65	65–70	70–75	75–80	80–85	Over 85	
Residential							
Residential, other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N	
Mobile home parks	Υ	N	N	N	N	N	
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N	
Public Use							
Schools	Y	N(1)	N(1)	N	N	N	
Hospitals and nursing homes	Υ	25	30	N	N	N	
Churches, auditoriums, and concert halls	Y	25	30	N	N	N	
Governmental services	Y	Y	25	30	N	N	
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)	
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N	
Commercial Use							
Offices, business and professional	Y	Υ	25	30	N	N	
Wholesale and retail—building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N	
Retail trade—general	Υ	Y	25	30	N	N	
Utilities	Y	Υ	Y(2)	Y(3)	Y(4)	N	
Communication	Υ	Y	25	30	N	N	
Manufacturing and Production							
Manufacturing, general	Y	Υ	Y(2)	Y(3)	Y(4)	N	
Photographic and optical	Υ	Y	25	30	N	N	
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)	
Livestock farming and breeding	Υ	Y(6)	Y(7)	N	N	N	
Mining and fishing, resource production / extraction	Υ	Y	Υ	Y	Y	Υ	
Recreational							
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N	
Outdoor music shells, amphitheaters	Y	N	N	N	N	N	
Nature exhibits and zoos	Y	Υ	N	N	N	N	
Amusements, parks, resorts and camps	Y	Υ	Υ	N	N	N	
Golf courses, riding stables and water recreation	Y	Υ	25	30	N	N	

<sup>\*</sup>The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

See next page for Notes and Key to table.

Figure 5-5: Land Use Compatibility Guidelines



### Key

SLUCM=Standard Land Use Coding Manual.

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

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

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

25, 30, or 35=Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.

#### **Notes**

- (1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential 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. However, the use of NLR criteria will not eliminate outdoor noise problems.
- (2) Measures to achieve NLR 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
- (3) Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
- (4) Measures to achieve NLR 35 dB 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 level is low.
- (5) Land use compatible provided special sound reinforcement systems are installed.
- (6) Residential buildings require an NLR of 25.
- (7) Residential buildings require an NLR of 30.
- (8) Residential buildings not permitted.

Source: FAR Part 150, Appendix A, Table 1

Figure 5-5 (Continued) Land Use Compatibility Guidelines



As part of the 2006 Environmental Assessment for the relocation, widening and extension of Runway 1-19, a noise contour analysis was conducted for the Avi Suquilla Airport.

Noise Contour maps were prepared for the airport for the years 2000, 2005 and 2025 assuming development of an 8,400 foot runway on its current alignment. Noise contours are based on the annual number of flight operations at an airport and the airport fleet mix. The FAA considers the DNL metric useful for airport noise studies because it uses a single number to describe the constantly fluctuating noise levels at a receiver location during an average 24 hour day. The use of DNL contours is meant to provide a general indication of impact and is not intended to determine the reaction of people due to individual events.

With the adoption of FAR Part 150, *Airport Noise Compatibility Planning*, the FAA established that noise exposure contour maps would be used as a planning tool to determine if land located near airports is compatible with the operation of the airport and to determine if noise-sensitive locations near airports would be negatively impacted by changes to an airport or its operations. This document determined that residences and schools should not be located within the 65 DNL contour associated with an airport.

Arizona Revised Statutes (ARS) 28-8486 and House Bill 2523 require that the Arizona Department of Real Estate shall make available a map showing the exterior boundaries of each territory in the vicinity of a public airport to the public on request. Because of this legislation, the Arizona Department of Real Estate requested that all public airports provide the Department with data to satisfy the statute, including a noise contour map showing the 60 DNL noise contour with nearby properties for counties with a population of more than 500,000 persons and the 65 DNL contour for counties with a population of 500,000 persons or less.

The predicted DNL contours for any airport do not precisely define impacts. The purpose of the noise contours, and specifically the 65DNL contour, is to highlight potential incompatibilities between an airport and surrounding development, assess relative noise exposure levels, and provide guidance for the development of land use control devices, such as zoning ordinances, subdivision regulations and building codes.

The predicted noise contours for the 2025 time horizon under the current runway alignment is shown in **Figure 5-6.** The contours were developed using a high operations forecast, which represents more activity than predicted in this master plan. Thus the contours provide a "worst case scenario." As is typical for a general aviation airport, the 65 DNL contour is located almost entirely on airport property.



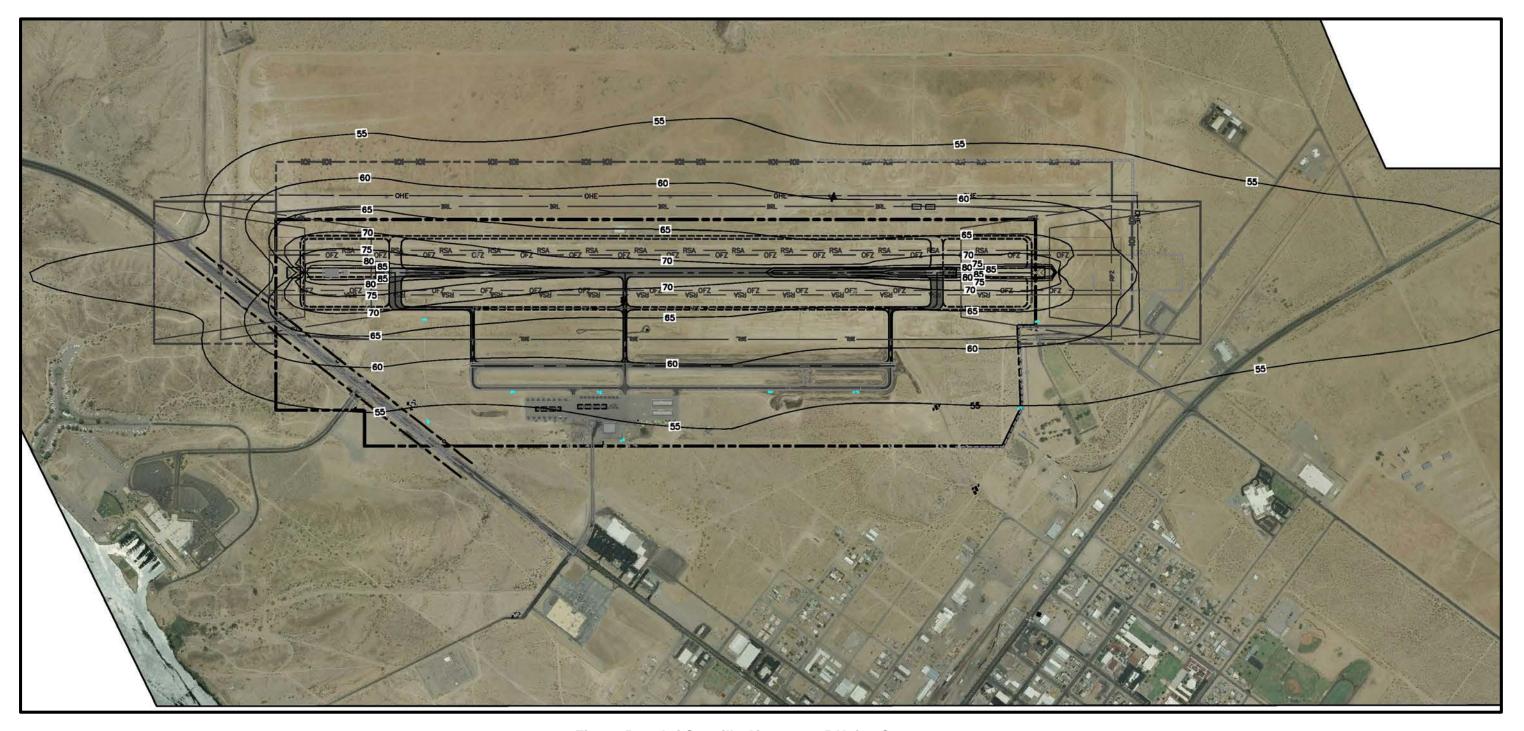


Figure 5-6: Avi Suquilla Airport 2025 Noise Contours





While the 65 DNL noise contours for Avi Suquilla Airport are forecast to remain contained within the airport boundary, it should be recognized that noise complaints often come from residents outside the 65 DNL contour. It should also be recognized that the DNL metric represents average sound over a twenty four hour period. Individual overflight of low flying aircraft will create individual noise events that exceed DNL noise levels and may cause annoyance. In order to ensure continued land use compatibility with aircraft noise, CRIT should consider the following recommendations:

- Continue to plan non-residential, noise compatible development in the vicinity of the Avi Suquilla Airport.
- For proposed development within the CRIT Reservation, submit development plans within traffic pattern airspace to Airport Manager for review pertaining to compatible use.
- Coordinate with the Town of Parker to include the Airport Manager in the review of development requests within the traffic pattern airspace in the jurisdictional limits of the Town of Parker.



#### 5.5 OPERATIONAL PROTECTION

Development within the operational airspace of aircraft using the airport can have an impact on the safe operation of the airport. Because large areas can be affected by the need to constrain heights of objects, zoning is generally the most reasonable and effective means of protection. However, since CRIT is in the unique position of possessing ownership control of the land in the immediate vicinity of the Avi Suquilla Airport, effective preservation of the airspace can be accomplished through Tribal planning and policy rather than zoning.

# FAR Part 77 – Objects Affecting Navigable Airspace

The Federal Aviation Regulations (FAR) Part 77 defines airport imaginary surfaces. Although not specifically "design standards," these surfaces are geometric shapes which surround every airport. These surfaces determine, in part, the approach minima and compliance to standards for each airport. The imaginary surfaces are defined relative to the runway, the established airport elevation, elevation of the approach end runways, and type of existing or planned approaches for each runway end. Any object, whether natural or manmade, which penetrate FAR Part 77 surfaces should be recommended for marking, lighting, or removal. All obstructions to FAR Part 77 surfaces are identified in the Airport Layout Plan set of drawings.

Runway 1-19 currently corresponds to dimensional standards for a larger than utility runway with a visual approach. To allow for future improvements to runway approaches, it is recommended that the airspace be protected based on Part 77 standards for larger than utility non-precision instrument runway with visibility minimums as low as ¾ mile criteria. **Figure 5-7** shows the existing Part 77 airspace surface structure at Avi Suquilla Airport.

**Primary Surface:** A surface longitudinally centered on a runway. When the runway has a paved surface, the primary surface extends 200 feet beyond each end of the runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. The width of primary surface is currently 500 feet wide and should be planned for 1000 feet wide for Runway 1-19.

**Approach Surface:** The Approach Surfaces are trapezoidal in shape, are longitudinally centered on the extended runway centerline and extend outward and upward from each end of the primary surface. The beginning width of the Approach Surfaces is the same width as the primary surface. The approach surfaces for Runways 1 and 19 extend to a width of 1,500 feet at a distance 5,000 feet from its beginning. The approach slope for Runways 1 and 19 extend outward and upward at a slope of 20:1. To meet requirements for a larger than utility non-precision instrument runway with visibility minimums as low as ¾ mile criteria, the approach surface should be planned to extend to a width of 4,000 feet at a distance 10,000 feet from its beginning. The approach slope for Runways 1 and 19 would extend outward and upward at a slope of 34:1.

**Horizontal Surface:** The Horizontal Surface is a horizontal plane 150 feet above the established airport elevation or 608.4 feet MSL (458.4 + 150). The radius for a visual runway measures 5,000 feet and for all other runways the radius is 10,000 feet.



**Conical Surface:** An inclined surface at a slope of 20:1 extending upward and outward from the periphery of the horizontal surface for a distance of 4,000 feet.

**Transitional Surface:** These surfaces extend outward and upward at right angles to the runway centerline extended at a slope of 7:1 from the sides of the primary surface and approach surfaces until intersecting with the horizontal surface and the precision approach surfaces that extend beyond the limits of the conical surface.

The width of the primary surface impacts the setback requirement for the Building Restriction Line (BRL), depicted on the Airport Layout Plan. The BRL provides the airport with the minimum setback from the runway centerline for permanent structures, such as hangars. Typically, the BRL is located where the height of the Transitional Surface reaches approximately 35 feet above ground level, or the planned maximum height of buildings closest to the runway.





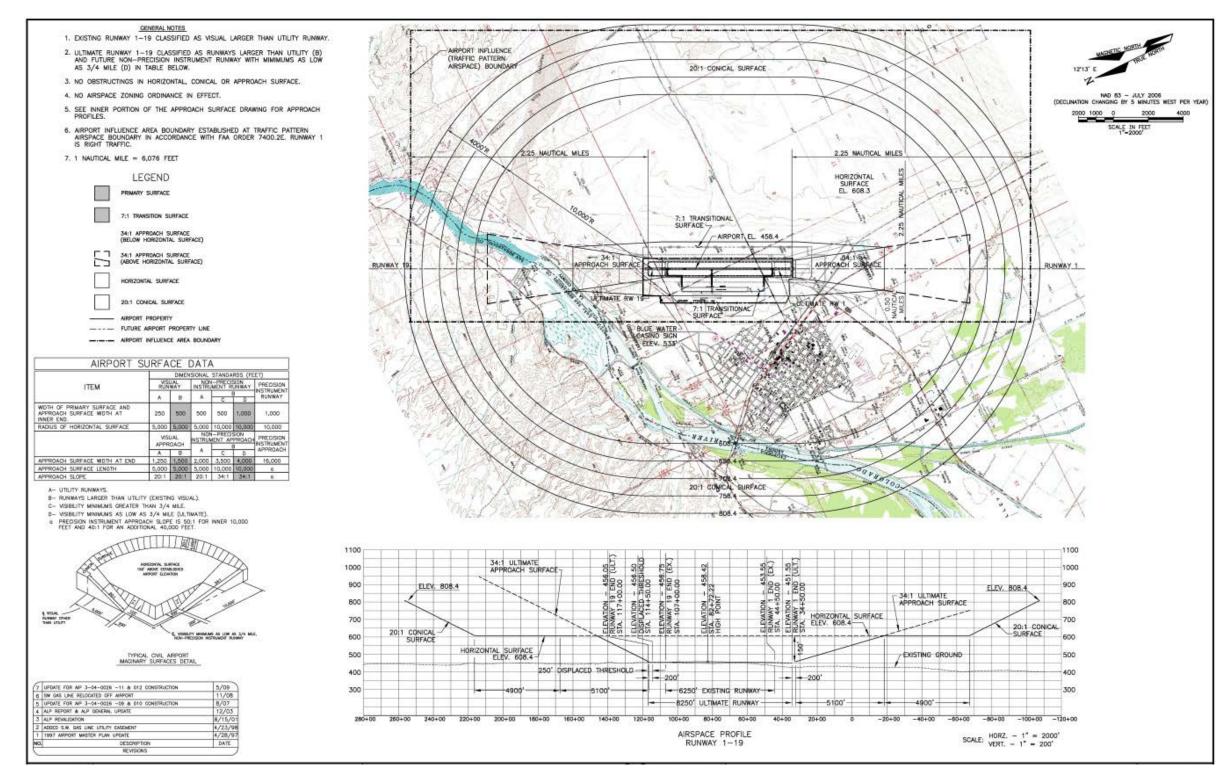


Figure 5-7 FAR Part 77 Imaginary Airspace Surfaces, Avi Suquilla Airport





To ensure the safety of aircraft arriving and departing the airport and the ability to establish future approaches to each runway end, CRIT should consider adopting regulations and development guidelines to insure land use in the vicinity of the airport remains compatible with the airport. The FAA, in AC 150/5190-4A has provided a model zoning height and hazard zoning ordinance based upon Federal Aviation Regulations (FAR) Part 77, Objects Affecting Navigable Airspace. The Part 77 Airspace Drawing prepared for this master plan provides a graphic depiction of the Part 77 regulatory criterion applicable to the recommendations of this master plan.

### **Hazardous Wildlife Attractants**

The FAA has developed Advisory Circular 150/5200-33B, Hazardous Wildlife Attractants on or near Airports, to provide guidance on certain land uses that have the potential to attract hazardous wildlife on or near public-use airports.

Information about the risks posed to aircraft by certain wildlife species has increased a great deal in recent years. Improved reporting, studies, documentation, and statistics clearly show that aircraft collisions with birds and other wildlife are a serious economic and public safety problem. While many species of wildlife can pose a threat to aircraft safety, they are not equally hazardous. The Circular ranks the wildlife groups commonly involved in damaging strikes in the United States.

Most public-use airports have large tracts of open, undeveloped land that provide added margins of safety and noise mitigation. These areas can also present potential hazards to aviation if they encourage wildlife to enter an airport's approach and departure airspace or air operations area (AOA). Constructed or natural areas – such as poorly drained locations, detention/retention ponds, roosting habitats on buildings, landscaping, odor-causing rotting organic matter (putrescible waste) disposal operations, wastewater treatment plants, agricultural or aquaculture activities, surface mining, or wetlands-can provide wildlife with ideal locations for feeding, loafing, reproduction, and escape. Even small facilities, such as fast food restaurants, taxicab staging areas, rental car facilities, aircraft viewing areas, and public parks can produce substantial attractions for wildlife.

During the past century, wildlife-aircraft strikes have resulted in the loss of hundreds of lives worldwide, as well as billions of dollars in aircraft damage. Hazardous wildlife attractants on or near airports can jeopardize future airport expansion, making proper community land-use planning essential.

When considering proposed land uses, airport operators, local planners, and developers must take into account whether the proposed land uses, including new development projects, will increase wildlife hazards. Land-use practices that attract or sustain hazardous wildlife populations on or near airports can significantly increase the potential for wildlife strikes. The FAA recommends minimum separation criteria for land-use practices that attract hazardous wildlife to the vicinity of airports. Current land-uses in the vicinity that are identified as possible hazards by the Advisory Circular are discussed below.

Avi Suquilla Airport has not historically had problems with bird strikes or other wildlife hazard issues. Future coordination with surrounding jurisdictions when considering proposed land



uses will be critical in ensuring that new wildlife hazards do not emerge. The following guidelines and recommendations are provided by FAA:

# **Waste Disposal Operations**

Municipal solid waste landfills (MSWLF) are known to attract large numbers of hazardous wildlife, particularly birds. Because of this, these operations, when located within 5 miles, are considered incompatible with safe airport operations. FAA recommends against locating new MSWLF facilities within the separation criteria.

# **Water Management Facilities**

Drinking water intake and treatment facilities, storm water and wastewater facilities, associated retention and settling ponds, ponds built for recreational use, and ponds that result from mining activities often attract large numbers of potentially hazardous wildlife. To prevent wildlife hazards, land-use developers and airport operators may need to develop management plans in compliance with local and state regulations, to support the operation of storm water management facilities on or near public-use airports to ensure a safe airport environment.

**Existing storm water management facilities.** On-airport storm water management facilities allow quick removal of surface water, including discharges related to aircraft deicing, from impervious surfaces, such as pavement and terminal/hangar building roofs. Existing on-airport detention ponds collect storm water, protect water quality, and control runoff. Because they slowly release water after storms, they create bodies of water that can attract hazardous wildlife.

Where possible, airport operators should modify storm water detention ponds to allow a maximum 48-hour detention period for the design storm. Detention basins should remain totally dry between rainfalls.

New storm water management facilities. The FAA strongly recommends that off-airport storm water management systems located within 10,000 feet of the airport be designed and operated so as not to create above-ground standing water. Storm water detention ponds should be designed, engineered, constructed, and maintained for a maximum 48-hour detention period after the design storm and remain completely dry between storms. To facilitate the control of hazardous wildlife, the FAA recommends the use of steep-sided, riprap lined, narrow, linearly shaped water detention basins. If the soil conditions and other requirements allow, the FAA encourages the use of underground storm water infiltration systems, such as French drains or buried rock fields, because they are less attractive to wildlife.

The FAA recommends that airport operators encourage off-airport storm water treatment facility operators to incorporate wildlife hazard mitigation techniques into storm water treatment facilities operating practices when their facility is located within 10,000 feet of the airport.

**Existing wastewater treatment facilities.** The FAA strongly recommends that airport operators immediately correct any wildlife hazards arising from existing wastewater treatment facilities located on or near the airport. Accordingly, airport operators should encourage wastewater treatment facility operators to incorporate measures, developed in



consultation with a wildlife damage management biologist, to minimize hazardous wildlife attractants. Airport operators should also encourage those wastewater treatment facility operators to incorporate these mitigation techniques into their standard operating practices. In addition, airport operators should consider the existence of wastewater treatment facilities when evaluating proposed sites for new airport development projects and avoid such sites when practicable.

New wastewater treatment facilities. The FAA strongly recommends against the construction of new wastewater treatment or associated settling ponds within 10,000 feet of the airport or 5 statute miles of approach, departure and circling airspace. The FAA defines wastewater treatment facility as "any devices and/or systems used to store, treat, recycle, or reclaim municipal sewage or liquid industrial wastes." During the site-location analysis for wastewater treatment facilities, developers should consider the potential to attract hazardous wildlife if an airport is in the vicinity of the proposed site, and airport operators should voice their opposition to such facilities if they are in the proximity of the airport.

Wastewater discharge and sludge disposal. The FAA recommends against the discharge of wastewater or sludge on airport property because it may improve soil moisture and quality on unpaved areas and lead to improved turf growth that can be an attractive food source for many species of animals. Also, the turf requires more frequent mowing, which in turn may mutilate or flush insects or small animals and produce straw, both of which can attract hazardous wildlife. In addition, the improved turf may attract grazing wildlife, such as deer and geese. Problems may also occur when discharges saturate unpaved airport areas. The resultant soft, muddy conditions can severely restrict or prevent emergency vehicles from reaching accident sites in a timely manner.

### **Agricultural Activities**

Because most, if not all, agricultural crops can attract hazardous wildlife during some phase of production, the FAA recommends against the use of airport property for agricultural production, including hay crops, within 10,000 feet of the airport. If the airport has no financial alternative to agricultural crops to produce income necessary to maintain the viability of the airport, then the airport shall follow the crop distance guidelines listed in Table 3-10 titled "Crop Buffers" found in AC 150/5300-13A, *Airport Design*. The cost of wildlife control and potential accidents should be weighed against the income produced by the onairport crops when deciding whether to allow crops on the airport.

#### **Golf Courses**

The large grassy areas and open water found on most golf courses are attractive to hazardous wildlife, particularly Canada geese and some species of gulls. These species can pose a threat to aviation safety. The FAA recommends against construction of new golf courses within 5 miles of the airport. Existing golf courses located within these separations must develop a program to reduce the attractiveness of the sites to species that are hazardous to aviation safety. Airport operators should ensure these golf courses are monitored on a continuing basis for the presence of hazardous wildlife. If hazardous wildlife is detected, corrective actions should be immediately implemented.

