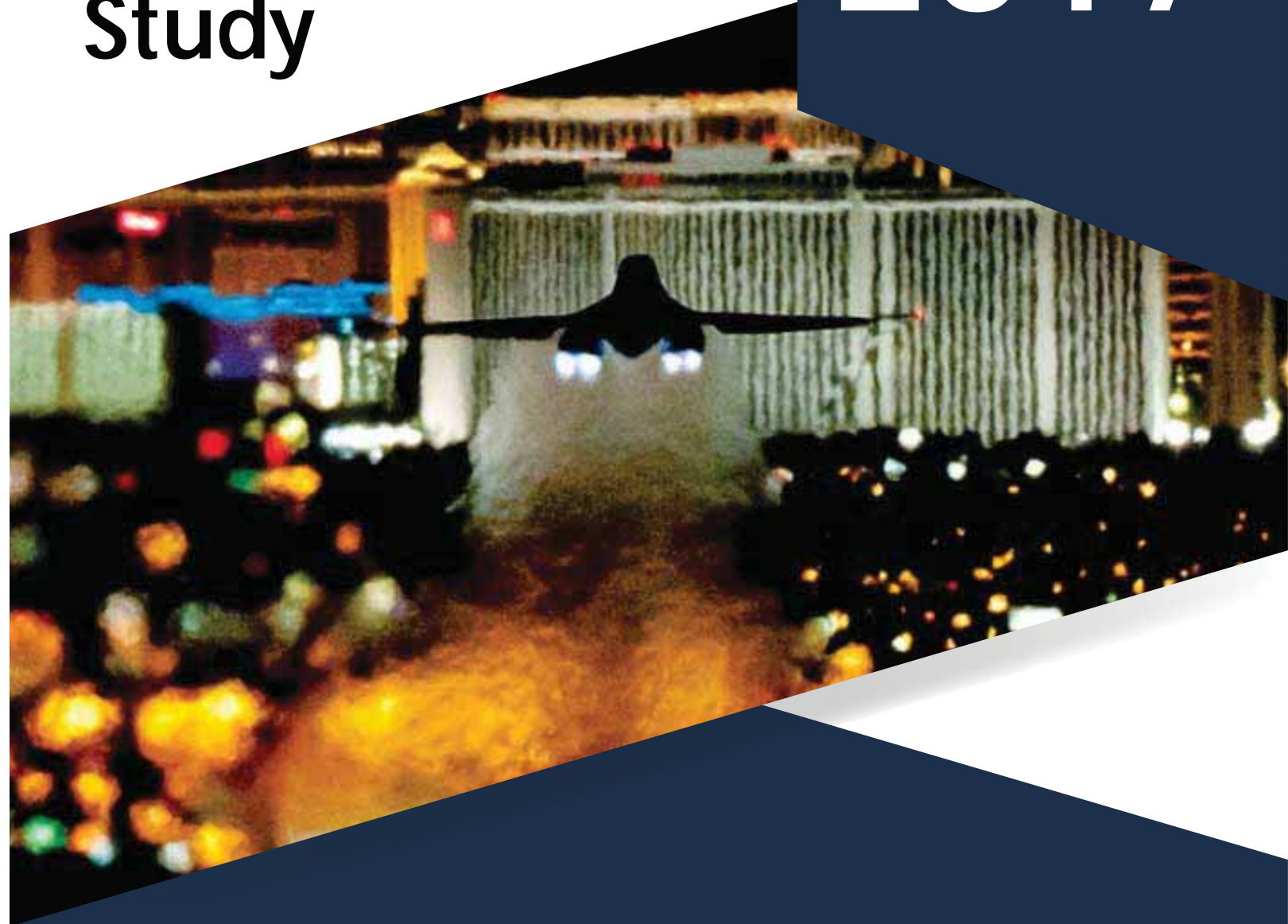


Air Installations Compatible Use Zones (AICUZ) Study



U.S. AIR FORCE

2017



Nellis Air Force Base
Nevada





DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 99TH AIR BASE WING (ACC)
NELLIS AIR FORCE BASE NEVADA



MEMORANDUM FOR AREA GOVERNMENTS

MAR 03 2017

FROM: 99 ABW/CC
4430 Grissom Ave Ste 101
Nellis AFB NV 89191-6520

SUBJECT: Nellis Air Installation Compatible Use Zone (AICUZ) Study

1. This AICUZ Study for Nellis Air Force Base (AFB) is an update of the AICUZ study dated 22 September 2004. This update is a re-evaluation of aircraft noise and accident potential related to Air Force flying operations incorporating the F-35. The study is designed to aid in the development of local planning mechanisms to protect the public safety, as well as preserve the operational capabilities of the Nevada Test and Training Range, Creech and Nellis AFBs.
2. The basic objective of the AICUZ program is to enable compatible use of public and private lands in the vicinity of military airfields. This study details runway clear zones, aircraft accident potential zones and noise contours; and compatible land use for areas in the vicinity of the base. It is our recommendation that you incorporate the AICUZ data into your community plans, zoning ordinances, subdivision regulations, building codes, and other related documents.
3. The Air Force initiated the study with the arrival of the F-35 at Nellis AFB. As the Department of Defense aircraft fleet mix and training requirements change over time the resulting flight operations, which drive the noise contours, change as well. Nellis AFB will work with local agencies to provide guidance on how this AICUZ study can assist with compatible land use.
4. We greatly value the positive relationship Nellis AFB has with its neighbors over the years. We welcome your cooperation in implementing the recommendations and guidelines presented in this AICUZ study and look forward to continuing the long-standing relationships established.


PAUL J. MURRAY
Colonel, USAF
Commander

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1.0 AICUZ Overview

This study is an update of the Nellis Air Force Base (AFB) Air Installations Compatible Use Zones (AICUZ) Study. The update presents and documents the changes to the AICUZ since the last study was released in 2004. It reaffirms Air Force policy of promoting public health, safety, and general welfare in areas surrounding base while seeking development compatible with the defense flying mission. This study presents changes in flight operations since the last study, and provides current noise contours and recommendations for achieving development compatible with the defense flying mission.

1.1 AICUZ Program

Military airfields attract development – people who work on base want to live nearby while others want to provide services to base employees and residents. When incompatible development occurs near an installation or training area, affected parties within the community may seek relief through political channels that could restrict, degrade or eliminate capabilities necessary to perform the defense mission. In the early 1970s, the Department of Defense (DoD) established the AICUZ program. The goal of the program is to protect the health, safety, and welfare of those living and working in the vicinity of a military installation while sustaining the Air Force’s operational mission. The Air Force accomplishes this goal by promoting proactive, collaborative planning for compatible development to sustain mission and community objectives.

The AICUZ Program recommends that noise levels, Clear Zones, Accident Potential Zones (APZs), and flight clearance requirements associated with military airfield operations be incorporated into local community planning programs in order to maintain the airfield’s operational requirements while minimizing the impact to residents in the surrounding community. Mutual cooperation between military airfield planners and their community-based counterparts serves to increase public awareness of the importance of air installations and the need to address mission requirements and associated noise and risk factors. As the communities that surround airfields grow and develop, the United States Department of the Air Force has the responsibility to communicate and collaborate with local government on land use planning, zoning, and similar matters that could affect the installations’ operations or missions.



F-35A Lightning on Arrival

1.2 Purpose, Scope, and Authority

1.2.1 Purpose

The purpose of the AICUZ program is to promote development compatible with the defense flying mission while protecting the health, safety, and welfare of neighbors in surrounding municipalities while preserving the defense flying mission. The inclusion of recommendations from this AICUZ study into the planning process will help the surrounding municipalities and local planning entities meet goals of preventing incompatible uses that might compromise Nellis AFB's ability to fulfill its mission requirements.

1.2.2 Scope

This study is based on projected air operations to present planning noise contours. Clear Zones and Accident Potential Zones associated with Nellis AFB runways are provided with recommendations for compatible land use in the vicinity of the base for state and local governments to incorporate into comprehensive plans, zoning ordinances, subdivision regulations, building codes, and other related documents.

1.2.3 Authority

Department of Defense Instruction (DoDI) 4165.57 establishes policy and assigns responsibility for educating air installation personnel and engaging local communities on issues related to noise, safety, and compatible land use in and around air installations as well as prescribes procedures for plotting noise contours for land use compatibility analysis.

AFI 32-7063 implements DoDI 4165.57 and applies to all Air Force installations with active runways located in the United States and its territories. This instruction provides guidance to installation AICUZ Program Managers (PMs) with a framework to comply with Air Force Policy Directive (AFPD) 32-70.

AF Handbook (AFH) 32-7084 *AICUZ Program Manager's Guide*: This handbook provides installation AICUZ PMs specific guidance concerning the organizational tasks and procedures necessary to implement the AICUZ program. It is written in a "how to" format and aligns with AFI 32-7063.

1.3 Previous AICUZ Efforts and Related Studies

The following studies are relevant to this document:

- The 2004 update to the Nellis AFB AICUZ study for the period 1992-2001.
- The 2011 Environmental Impact Statement (EIS) for the F-35 Force Development Evaluation and Weapons School Beddown.
- 2017 Close Air Support Integrations Group F-16 Beddown.

1.4 Changes that Require an AICUZ Update

The 2017 Nellis AFB AICUZ Study updates the 2004 AICUZ Study and provides flight track, APZ, and noise zone information that reflects the most accurate picture of the installation's aircraft activities as projected to 2024. As such, the AICUZ program allows communities to take a longer view in land use planning.

As the DoD aircraft fleet mix and training requirements change over time the resulting flight operations, which drive the noise contours, change as well. Additionally, non-operational changes may also require the need for an AICUZ update. The primary changes since the previous AICUZ update are:

- Introduction of the F-35 Lightning II aircraft.
- Stand-up of Close Air Support Integration Group.
- Replacement of the 65th AGRS with contracted aggressor aircraft.
- For FY24, the number of annual Red Flag exercises are expected to increase from two to 12 Red Flag Exercises.
- The update of the AICUZ Instruction. The Nellis AICUZ uses the most recent Air Force Instruction (AFI), which uses "annual average day." The primary reason for the change to average annual day is to be consistent with the land use recommendations guidelines.



Air Force Air Demonstration Squadron the "Thunderbirds"

2.0 Nellis AFB, Nevada

Nellis AFB, home of the Warfighter, is a prominent military installation located in the U.S. desert southwest. The installation has a rich history and serves as the staging ground for a vast number of military mission sets. This section provides a bit of detail about the base, the units that call Nellis “home” and the impact that it has on the local economy.



Welcome to Nellis AFB

2.1 Location

As shown in Figure 2-1, Nellis AFB, a part of the United States Air Force's Air Combat Command (ACC), is located approximately eight miles northeast of Las Vegas, Nevada.



A-10s on runway at Nellis AFB

The base itself covers more than 14,000 acres, while the total land area occupied by Nellis and its restricted ranges is about 5,000 square miles, or 2.9 million acres. An additional 7,700 square miles of airspace north and east of the restricted ranges are also available for military flight operations.

The main base is bordered by Nellis Boulevard, Las Vegas Boulevard, and the City of North Las Vegas to the west, unincorporated County lands called Sunrise Manor to the south and southeast, Sunrise Mountain to the east, and City of North Las Vegas and unincorporated Clark County to the north. Interstate 15 passes north of the base connecting Las Vegas to Salt Lake City, Utah, and south to Los Angeles, California.

2.2 History

Nellis AFB began as the Las Vegas Army Air Field in late 1941, hosting the Army Air Corps Flexible Gunnery School which started B-17 gunnery training in early 1942. In 1944, B-17 co-pilot training was added. During the height of World War II, more than 600 gunners and 215 co-pilots graduated from the school every five weeks. In March 1945, B-17 co-pilot training was cancelled and the B-17 gunnery program gave way to B-29 gunnery training. Following the end of the war, the base was a



B-17 Gunnery School / Pilot Training

separation center and then placed on temporary standby status, finally closing in January 1947.

Reopened in 1949 as Las Vegas Air Force Base, it was renamed the next year in honor of Lieutenant William Harrell Nellis. Lt Nellis, a P-47 pilot from southern Nevada, was killed in action Dec. 27, 1944, while on his 70th combat mission over Luxembourg during the Battle of the Bulge in support of the besieged 101st Airborne Division.

Initially an advanced pilot training base, the mission changed to F-86 flight training and gunnery for qualified pilots. During the Korean War, the training received at Nellis AFB was directly responsible for the 14:1 kill ratio of the F-86 against the superior MiG-15. At the time, Nellis was the only base training F-86 combat pilots – pilots returning from the theater were used as instructors at the Combat Crew Training School, and provided the air expertise that allowed the United States to maintain air superiority throughout the war.

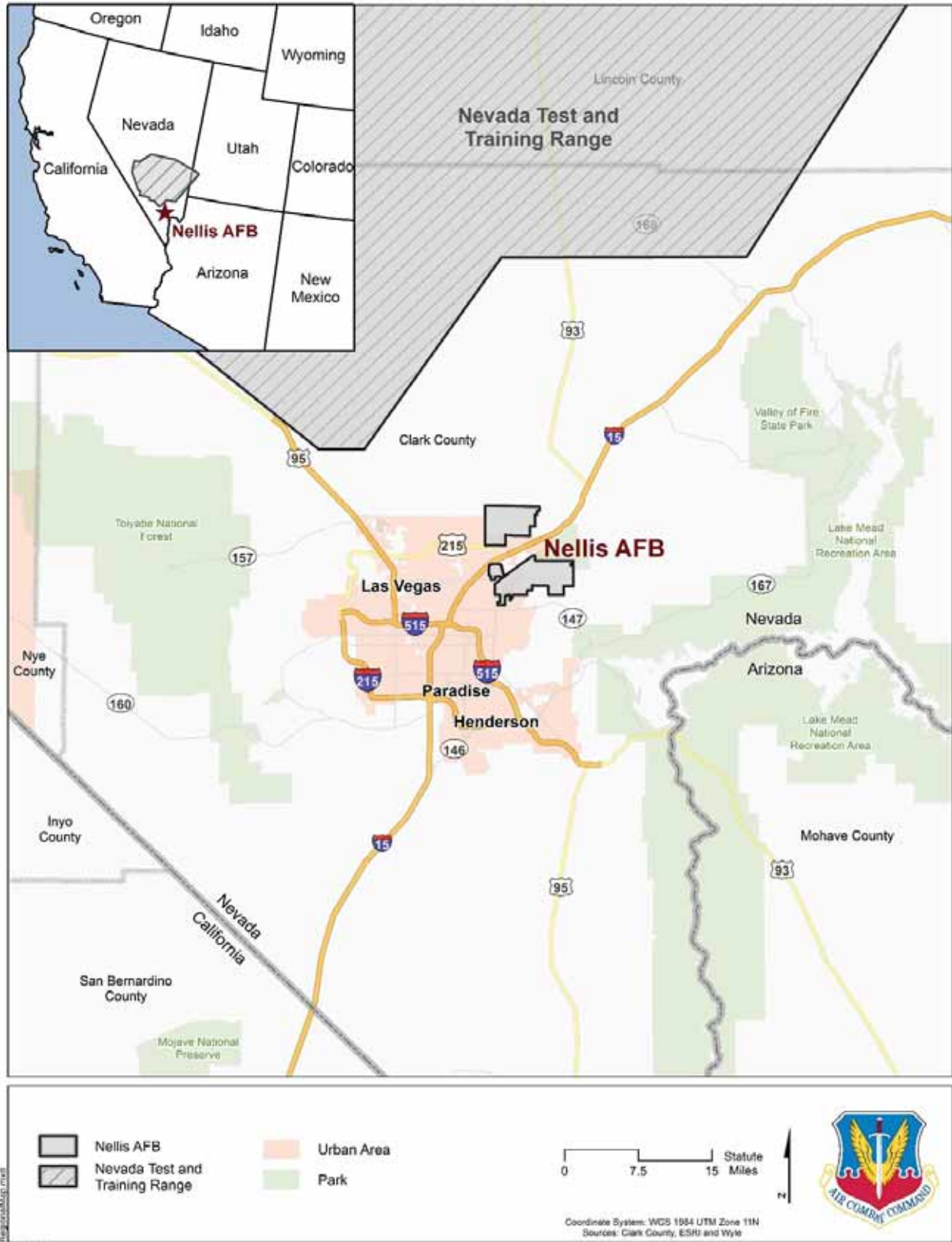
With a 1958 transfer from Air Training Command to Tactical Air Command, the mission transitioned from initial aircraft qualification and gunnery training to advanced, graduate-level weapons training. The United States Air Force (USAF) Tactical Fighter Weapons Center (now the USAF Warfare Center) was activated in 1966. In 1975, Red Flag air-to-air exercises were started and in 1990, the Air Warrior, now Green Flag-West, air-to-ground training mission moved to Nellis AFB.



1Lt William H. Nellis

Today, as part of the USAF Warfare Center (USAFWC), units at Nellis AFB continue to provide training for composite strike forces that include every type of aircraft in the U.S. Air Force inventory, along with air and ground units of the Army, Navy, Marines and air units from allied nations. Nellis AFB is also responsible for operational test and evaluation, as well as tactics development.

Figure 2-1. Regional Setting



2.3 Mission

Nellis AFB provides realistic advanced composite strike force training for the U.S. Air Force, other services, and air and ground units from allied nations, which includes virtually every type of aircraft used by the Air Force, air and ground units from the Army, Navy, and Marines, and air units from allied nations. Flight training is accomplished through Nellis AFB's host command, the USAFWC. Nellis AFB organizations also perform operational testing and evaluation, develop and evaluate combat tactics, and maintain combat-ready forces for worldwide deployment and tactical testing and evaluation, using the latest weapon systems.



To execute its mission, the USAFWC oversees the operations of four wings, two named units, and one detachment: 99th Air Base Wing, 57th Wing, the Nevada Test and Training Range (NTTR) and the Air Force Joint Test Program Office at Nellis AFB; the 53rd Wing at Eglin AFB, Florida; and the 505th Command and Control Wing at Hurlburt Field, Florida, and Air Force Tactical Exploitation of National Capabilities at Schriever AFB, Colorado. Of these, the 57th Wing, the NTTR, and the 53rd Wing are relevant to flying activity at Nellis AFB and are described below.

2.3.1 57th Wing

The 57th Wing is the most diverse wing in the United States Air Force. It provides advanced aerospace training to world-wide combat air forces and showcases aerospace power to the world while overseeing the dynamic and challenging flying operations at Nellis. It manages all flying operations at Nellis AFB and conducts advanced aircrew, space, logistics



F-16's and F15's from Nellis' Aggressor Squadrons

and command and control training through the USAF Weapons School, Red Flag and Green Flag exercises. Important components of the training include adversary tactics replication (provided by the wing's aggressor squadrons) and graduate level instruction and tactics development (accomplished through each of its schools). The wing additionally supports the USAFWC's test and evaluation activities and showcases U.S. air power through the USAF Air Demonstration Squadron "Thunderbirds."

2.3.2 53rd Wing and 53rd Test and Evaluation Group



The 53rd Wing is located at Eglin AFB, FL and serves as the focal point for the Combat Air Forces in electronic warfare, armament and avionics, chemical defense, reconnaissance and aircrew training devices. The wing is responsible for operational testing and evaluation of new equipment and systems proposed for use by these forces. Current wing initiatives include advanced self-protection systems for combat aircraft, aircrew life support systems, aerial reconnaissance improvements, new armament and weapons delivery systems, and improved maintenance equipment and logistics support.

The 53rd Wing comprised of four groups, numbers more than 2,200 military and civilians at 22 various locations throughout the U.S. The wing reports to the USAFWC at Nellis AFB.

The 53rd Test and Evaluation Group (TEG) is responsible for the overall execution of the 53rd Wing's flying activities at Nellis AFB and several other bases throughout the U.S. The mission of the TEG is to provide the warfighter with the latest in software, hardware, weapons and tactics techniques and procedures to win America's wars.



MQ-1 Predator Remotely Piloted Aircraft

Members of the group execute operational test and evaluation (OT&E), and tactics development projects assigned by Air Combat Command (ACC) for A-10, B-1, B-2, B-52, F-15C/E, F-16, F-22A, Guardian Angel, HH-60G, HC-130J, MQ-1, MQ-9, RQ-4, and U-2 combat aircraft. The 53 TEG also supports current Air Force Operational Test and Evaluation Center efforts with the F-35A Lightning II. The unit performs functional management for acquisition, modification, testing and certification for fighter, bomber and combat support aircrew training systems. The group also conducts foreign military exploitation and special access projects. Since July 15, 2012, the group has OT&E responsibility for space control and space range assets.

2.3.3 422nd Test and Evaluation Squadron



As their name implies, the 422nd Test and Evaluation Squadron (422 TES) is tasked with testing and evaluating weapons systems, exploiting foreign technologies, and developing/publishing leading edge tactics to improve the future combat capability of aerospace forces. It is composed of aircrew and support personnel supporting five different flights of fighters and helicopter aircraft: A-10, F-15C, F-15E, F-16C, F-22, F-35 and HH-60G. Testing in a simulated combat environment benefits U.S. aircrews worldwide with operationally proven hardware and software systems.

2.3.4 Nevada Test and Training Range



The NTTR, formerly the 98th Range Wing, provides the warfighter a flexible, realistic and multidimensional battle-space to conduct testing tactics development, and advanced training in support of U.S. national interests. Aircraft from Nellis AFB operate on the NTTR, which offers more than 7,700 square miles of airspace and 4,700 square miles of restricted land as shown in Figure 2-1. The NTTR also provides instrumentation and target maintenance support for Green Flag-West at the National Training Center and at the Leach Lake Tactics Range (LLTR). More than 75 percent of all live munitions used by the Air Force for training are dropped on the NTTR.

As a Major Range Test Facility Base (MRTFB) activity, the NTTR supports the DoD advanced composite force training, tactics development, and electronic combat testing as well as DOD and Department of Energy (DOE) testing, research, and development. The NTTR hosts numerous Red Flag and U.S. Air Force Weapons School exercises each year, as well as various test and tactics development missions.

The NTTR coordinates operational and support matters with major commands, other services, DOE and Department of Interior, as well as other federal, state, and local government agencies. The NTTR acts as the single point of contact for range customers.

The scope of this AICUZ does not include the NTTR, but some of the flying activity at Nellis AFB is directly related to usage of the NTTR.



A-10 Thunderbolt drops bombs on the Nevada Test and Training Range

2.3.5 **563rd Rescue Group, Operating Location-Alpha (OL-A) and 66th Rescue Squadron**



The mission of the 563rd Rescue Group Operating Location-Alpha (OL-A) is to provide administrative oversight and operational support for the 58th Rescue Squadron, the 66th Rescue Squadron (66 RQS), the 823rd Maintenance Squadron and one detachment, Det. 1, 563rd Operations Support Squadron, at Nellis AFB. The OL-A manages scheduling, training, plans, logistics, maintenance support, safety and resource management functions and provides command and control for home station taskings.

The mission of the 66 RQS is to provide rapidly deployable, expeditionary, and agile combat search and rescue (CSAR) forces to theater combatant commanders in response to contingency operations worldwide. The 66 RQS operates the HH-60G "Pave Hawk" medium-lift helicopter. They tactically employ the HH-60G helicopter and its crew in hostile environments to recover downed aircrew and isolated personnel during day, night, or marginal weather conditions in contested airspace.



HH-60G Pave Hawk Helicopters conduct operations

The 66 RQS directly supports HH-60G logistical and maintenance support requirements for the USAF Weapons School and ACC-directed operational test missions. The squadron also conducts peacetime search and rescue (SAR) in support of the National Search and Rescue Plan and the USAFWC, disaster relief, international aid, and emergency medical evacuations.

2.3.6 **88th Test and Evaluation Squadron**



The 88th Test and Evaluation Squadron (88 TES) is part of the Combat Search and Rescue (CSAR) Combined Test Force (CSAR CTF), which integrates Developmental Test and Operational Test units comprised of personnel and resources from USAF Mobility Command and USAF Air Combat Command. The CSAR CTF is currently the Responsible Test Organization for the HH-60G, HC-130N/P/J aircraft and the Guardian Angel Weapons System.

2.3.7 Department of Energy



The Department of Energy operates the Remote Sensing Lab at Nellis AFB which is a component of the National Nuclear Security Administration (NNSA). The NNSA provides a wide spectrum of services related to nuclear material including defense programs, emergency response, defense of nuclear security, monitoring, etc.

2.4 Airfield Environment

Located on the south eastern side of the main base the airfield (Figure 2-2) includes, but is not limited to aircraft hangars for maintenance and storage, aircraft parking ramps and taxiways, two hard surface runways, assorted office buildings and support facilities such as hush houses for engine run maintenance, and munitions storage areas. The two runways (Figure 2-3) are positioned in parallel and are oriented to a



Nellis Air Force Base

magnetic heading. In one direction, the runways face northeast on a heading of 030^o and at the opposite end, a southwest heading of 210^o. Both runways have the same heading and are distinguished by the suffix “L” for “left” and “R” for “right.” The runways can be used in either direction and they are labeled 03L, 03R and 21L, 21R, or traditionally as 03L/21R and 03R/21L respectively to represent the opposite ends of each runway.

The runways (Rwy) in use are determined by the direction of the prevailing winds and a variety of other factors discussed in Section 3.5. For example, if the prevailing winds are blowing (coming) “from” the north, then aircraft will take off and land towards the north on Rwy 03L/R and if the prevailing winds are blowing (coming) “from” the south, then aircraft will take off and land towards the south on Rwy 21L/R. In other words, “fixed wing” aircraft will almost always takeoff and land “into” the wind.

Helicopters are capable of departing to and arriving from any direction. Three specific areas within the airfield environment are designated for “rotary wing” operations (Jolly Pad, Transient Pad, and Taxiway G) as indicated in Figure 2-3 below.

Figure 2-2. Nellis AFB Airfield Environment

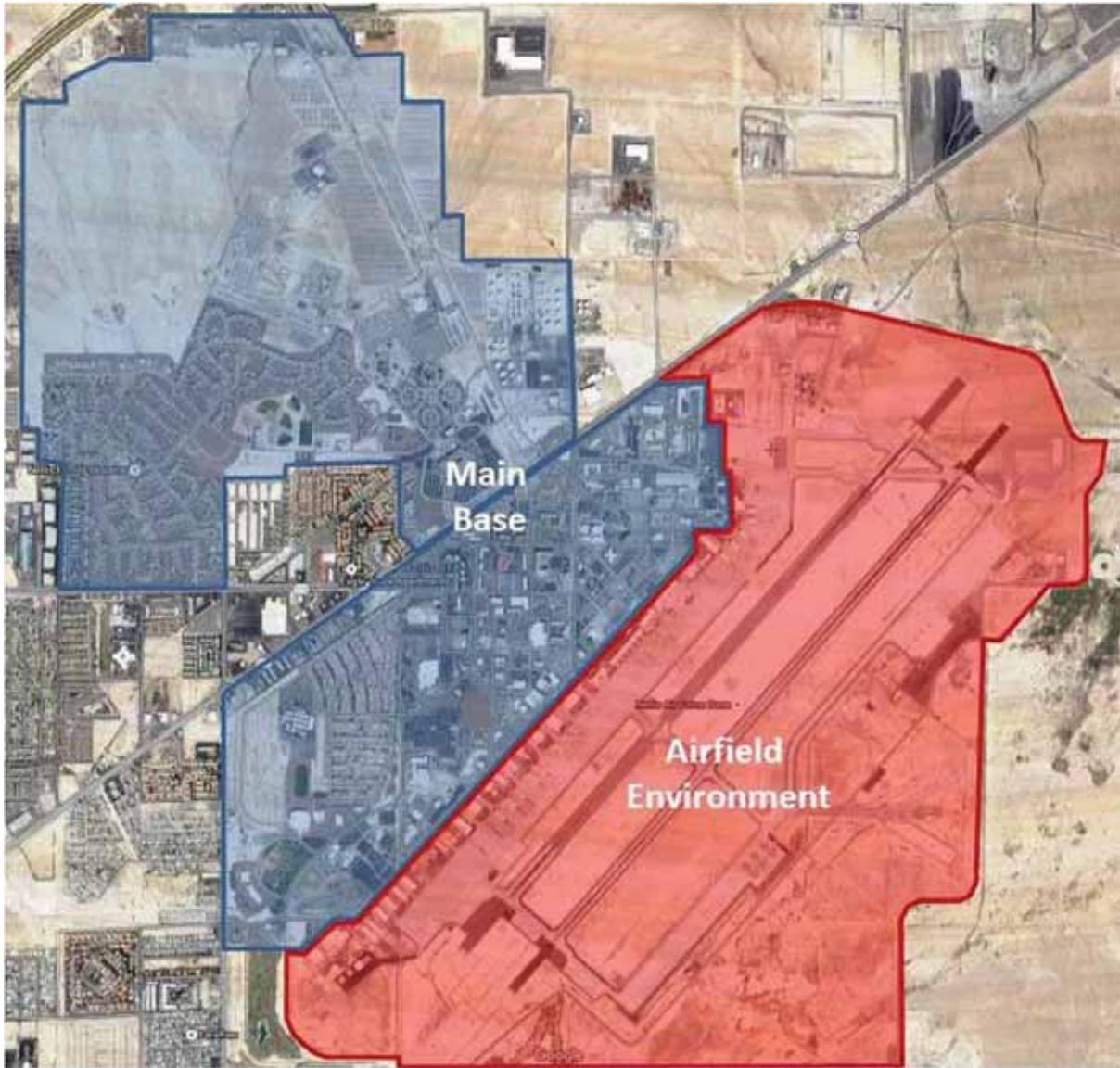
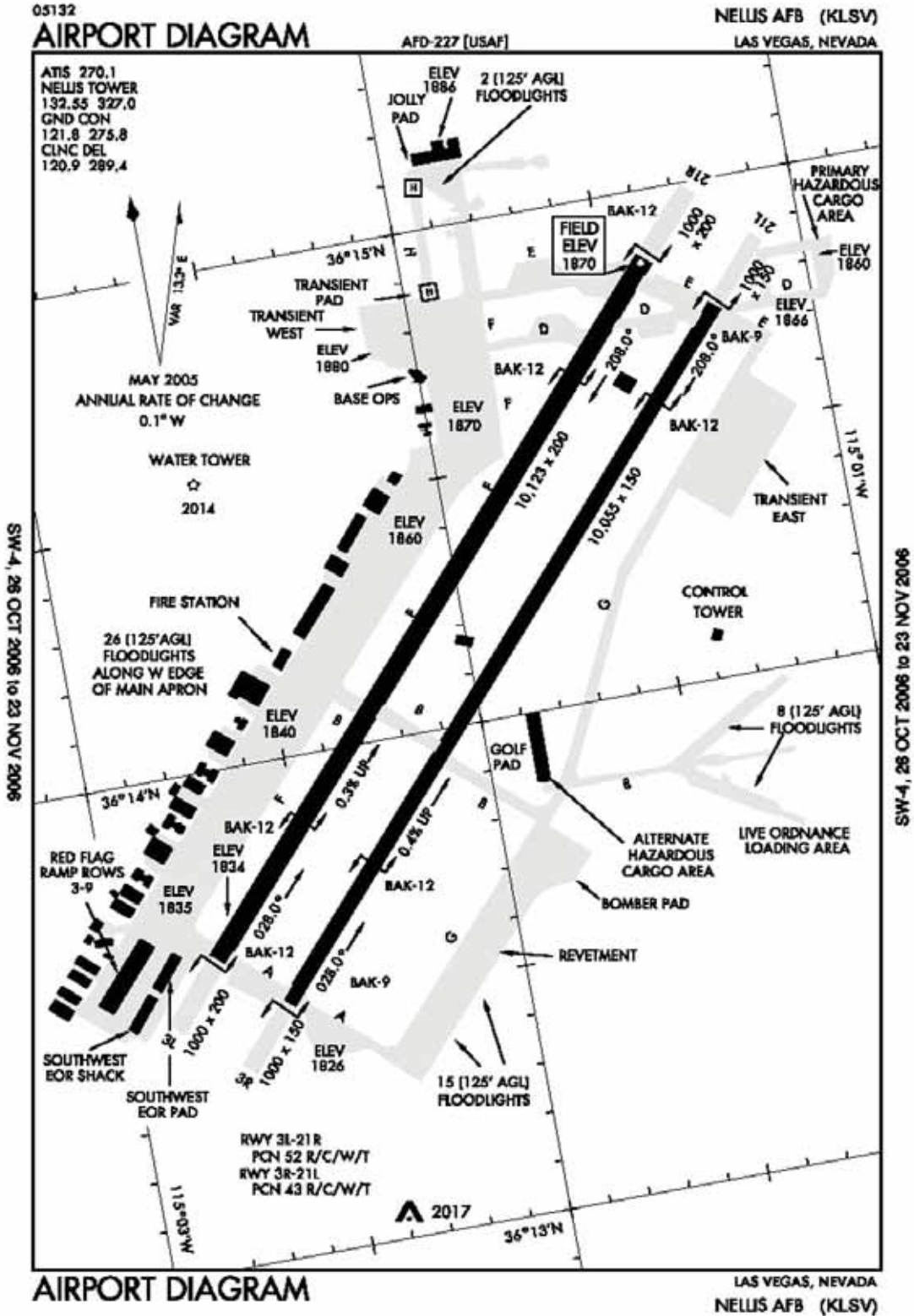


Figure 2-3. Nellis AFB Airport Diagram



2.5 Local Economic Impacts

Nellis AFB is situated in Clark County, Nevada and is considered a part of the greater metropolitan Las Vegas area. Its region of influence (ROI) extends outward to a 50-mile radius from the base borders and includes the five incorporated and nineteen unincorporated townships within the Las Vegas valley. The city's center is one of the largest, most profitable economic hubs in the desert southwest and, since 2001, has been considered one of the fastest-growing cities in the United States. According to the U.S. Census Bureau, there are 2.2 million people living in Clark County as of July 2014.

The Nellis Complex is one of the largest employers in the state of Nevada employing approximately 10,000 military personnel and nearly 4,000 civilians

The Nellis Complex is one of the largest employers in the state of Nevada employing approximately 10,000 military personnel and nearly 4,000 civilians. In addition, the Nellis Complex supports approximately 23,000 military dependents. These personnel reside both on-base and within the community (Table 2-1). Total civilian employment is



B-1B Lancer depart Nellis with Las Vegas in the background

shown in Table 2-2. Nellis military personnel support an annual payroll over \$820 million (Table 2-3). A summary of the gross annual civilian payroll, \$314 million, is shown in Table 2-4. The combined Nellis Complex annual payroll is over \$1 billion. Nellis expenditures for contracts, procurement, material, equipment, supplies, and capital assets are more than \$3.4 billion for 2015 (Table 2-5).

**Table 2-1. Total Military and Dependent Personnel by Classification and Housing
(Total Persons)**

Classification	On-Base Residents	Off-Base Residents	Total
Active Duty	1,819	7,284	9,103
Reserve/Air National Guard		620	620
Dependents	3,638	19,760	23,398
Retirees		29,375	29,375
Total	5,457	57,039	62,496

**Table 2-2. Total Civilian Personnel by Appropriated and Non-Appropriated Funds
(Total Persons)**

Appropriated Fund Civilians	Total
General Schedule	882
Federal Wage Board	123
Sub-Total	1,005
Non-Appropriated Fund AF Civilians	Total
Civilian NAF	484
Civilian Base Exchange	310
Contract Civilians	1,533
Private Business	216
Sub-Total	2,543
Total	3,548

**Table 2-3. Annual Military Payroll by Category and Housing Location
(Millions of Dollars)**

Classification	On-Base Residents	Off-Base Residents	Total
Active Duty	\$113.90	\$693.50	\$807.40
Reserve/Air National Guard	-	\$12.90	\$12.90
Total	\$113.90	\$706.40	\$820.30

**Table 2-4. Annual Civilian Payroll by Appropriated and Non-Appropriated Funds
(Millions of Dollars)**

Appropriated Fund Civilians	Total
General Schedule	\$59.40
Federal Wage Board	\$7.70
Sub-Total	\$67.10
Non-Appropriated Fund AF Civilians	Total
Civilian NAF	\$12.20
Civilian Base Exchange	\$6.80
Contract Civilians	\$221.30
Private Business	\$6.90
Sub-Total	\$247.20
Total	\$314.30

**Table 2-5. Summary of Construction, Contracts, and Expenditures for Materials, Equipment and Supplies
(Millions of Dollars)**

Expense Category	Amount
Commissary (Inventory)	\$2.60
Army & Air Force Exchange Service (inventory)	\$13.80
Health (TRICARE)	\$176.90
Education (Tuition Assistance)	\$5.20
Temporary Duty	\$332.00
Other Materials, Equipment, Supplies	\$800.80
Government Purchase Card Expenses	\$23.60
Utilities	\$12.10
Service Contracts	\$119.20
Construction ⁽¹⁾	\$86.30
Sub-Total	\$1,572.50
Multi-Year Capital Assets	Amount
Existing Equipment (Inventory)	\$678.80
Multi-Year Contracts	\$681.80
Miscellaneous Contracts	\$502.90
Sub-Total	\$1,863.50
Total Annual Expenditure	\$3,436.00

3.0 Aircraft Operations



Armed F-16 Fighting Falcon departs for NTTR

Aircraft operations are the primary source of noise associated with a military airbase. The level of noise exposure relates to a number of variables, including the aircraft type, engine power setting, altitude flown, direction of the aircraft, flight track, temperature, relative humidity, frequency and time of operation (day/night).

This chapter of the AICUZ Study discusses the various types of aircraft and their associated operations at Nellis Air Force Base.

3.1 Aircraft Types

The two primary classifications (types) of aircraft in operation at Nellis AFB are fixed wing or rotary wing (helicopter) aircraft. An assortment of these are permanently assigned to Nellis and are the most commonly observed aircraft to conduct operations from the installation. Aircraft that are not permanently assigned, but conduct operations from the base on an occasional basis are referred to as transient. A brief description of base assigned and the most common transient aircraft is provided below.

3.1.1 Base Assigned Aircraft

The A-10 Thunderbolt II is the first Air Force aircraft specially designed for close air support of ground forces. They are simple, effective and survivable twin-engine jet aircraft that can be used against all ground targets, including tanks and other armored vehicles.



A-10C



F-15CD/E

The F-15 Eagle is a twin engine, all-weather, extremely maneuverable, tactical fighter designed to permit the Air Force to gain and maintain air supremacy over the battlefield.

The F-16 Fighting Falcon is a compact, multi-role fighter aircraft. It is highly maneuverable and has proven itself in air-to-air combat and air-to-surface attack. It provides a relatively low-cost, high-performance weapon system for the United States and allied nations.



The F-22 Raptor, a critical component of the Global Strike Task Force, is designed to project air dominance, rapidly and at great distances and defeat threats attempting to deny access to our nation's Air Force, Army, Navy and Marine Corps. The F-22 cannot be matched by any known or projected fighter aircraft.

The F-35A is the U.S. Air Force's latest fifth-generation fighter. With its aerodynamic performance and advanced integrated avionics, the F-35A will provide next-generation stealth, enhanced situational awareness, and reduced vulnerability for the United States and allied nations.



The C-12 Huron is a military version of an executive passenger and transport aircraft based on the Beech Model 200 Super King Air. It is primarily used by the U.S. Air Force, US Navy, US Army and US Marine Corps for several functions, including range clearance, embassy support, medical evacuation, VIP transport, passenger and light cargo transport.

The primary mission of the HH-60G Pave Hawk helicopter is to conduct day or night personnel recovery operations into hostile environments to recover isolated personnel during war. The HH-60G is also tasked to perform military operations other than war, including civil search and rescue, medical evacuation, disaster response, humanitarian assistance, security cooperation/aviation advisory, NASA space flight support, and rescue command and control.



HH-60G

3.1.2 *Transient Aircraft*



F/A-18E

The McDonnell Douglas F/A-18 Super Hornet, is highly capable across the full mission spectrum: air superiority, fighter escort, reconnaissance, aerial refueling, close air support, air defense suppression and day/night precision strike. Compared to the original F/A-18 A through D models, the Super Hornet has a longer range, can be used as an aerial refueling platform, has increased survivability/lethality and improved carrier suitability.

The KC-135 Stratotanker provides the core aerial refueling capability for the United States Air Force and has excelled in this role for more than 50 years. This unique asset enhances the Air Force's capability to accomplish its primary mission of global reach. It also provides aerial refueling support to Air Force, Navy, Marine Corps and allied nation aircraft. The KC-135 is also capable of transporting litter and ambulatory patients using patient support pallets during aeromedical evacuations.



KC-135

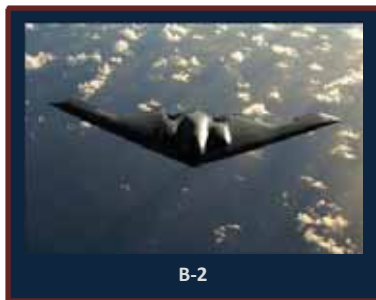


C-130E/H/J

The C-130 Hercules primarily performs the tactical portion of the airlift mission. The aircraft is capable of operating from rough, dirt strips and is the prime transport for airdropping troops and equipment into hostile areas. The C-130 operates throughout the U.S. Air Force, serving with Air Mobility Command, Air Force Special Operations Command, Air Combat Command, U.S. Air Forces in Europe, Pacific Air Forces, Air National Guard and the Air Force Reserve Command,

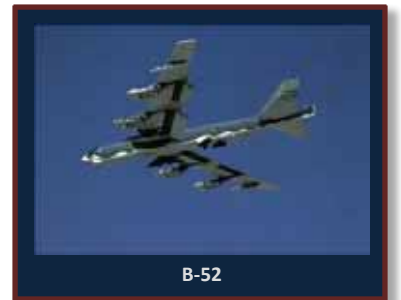
fulfilling a wide range of operational missions in both peace and war situations. Basic and specialized versions of the aircraft airframe perform a diverse number of roles, including airlift support, Antarctic ice resupply, aeromedical missions, weather reconnaissance, aerial spray missions, firefighting duties for the U.S. Forest Service and natural disaster relief missions.

Carrying the largest conventional payload of both guided and unguided weapons in the Air Force inventory, the multi-mission B-1 Lancer is the backbone of America's long-range bomber force. It can rapidly deliver massive quantities of precision and non-precision weapons against any adversary, anywhere in the world, at any time.



The B-2 Spirit is a multi-role bomber capable of delivering both conventional and nuclear munitions. A dramatic leap forward in technology, the bomber represents a major milestone in the U.S. bomber modernization program. The B-2 brings massive firepower to bear, in a short time, anywhere on the globe through previously impenetrable defenses.

The B-52 Stratofortress is a long-range, heavy bomber that can perform a variety of missions. The bomber is capable of flying at high subsonic speeds at altitudes up to 50,000 feet. It can carry nuclear or precision guided conventional ordnance with worldwide precision navigation capability.



3.2 Maintenance Operations



F-16 in Hush House

Maintenance is an integral part of any flying operation and it requires a dedicated team of professionals to ensure that units can meet flying schedule requirements. Two key tasks in maintaining aircraft are low and high powered engine maintenance runs.

Engine runs may be conducted at any power setting between idle and maximum power. Low to mid-range

powered engine runs are typically conducted on aircraft parking ramps or just outside of maintenance hangars. High powered engine runs are typically conducted in two acoustical enclosures commonly referred to as hush houses (buildings specifically designed to muffle engine noise). Noise associated with these operations is included in the noise analysis and has been modeled for incorporation into the Nellis noise contours.

3.3 Flight Operations

Each time an aircraft crosses over a runway threshold (the beginning or ending of a runway's useable surface) with the intent to either takeoff, practice an approach, or land, it is counted or considered as a single flight operation. For example, a departure counts as a single operation but a pattern is counted as two because an aircraft crosses both the approach and departure ends of a runway.

Operations in the Nellis terminal area are conducted on a year around basis and in general, temporarily increase during large-scale simulated combat exercises such as Red Flag and Green Flag. The following paragraphs and figures highlight a number of various operations and their associated flight tracks. Each track is designed to maximize air traffic efficiency while simultaneously minimizing the effects of noise.



F-16 departs over the community

- **Takeoff.** When an aircraft is positioned on the runway, the engine power is set to facilitate movement and eventual flight.
- **Departure.** For the purpose of air traffic sequencing, separation, noise abatement, compliance with avoidance areas, and safety, aircraft follow specific ground tracks and altitude restrictions to depart an airfield (Figure 3-2).
- **Straight-In Arrival.** An aircraft is aligned with the runway extended centerline and begins a gradual descent for landing. This type of approach enables an aircraft to maintain a smooth, stable and steady approach and requires no additional maneuvering.
- **Overhead Break Arrival.** An expeditious arrival using visual flight rules (VFR). The aircraft arrives over the airfield on the runway centerline at a specified point and altitude and then performs a 180-degree “break turn” away from the runway to

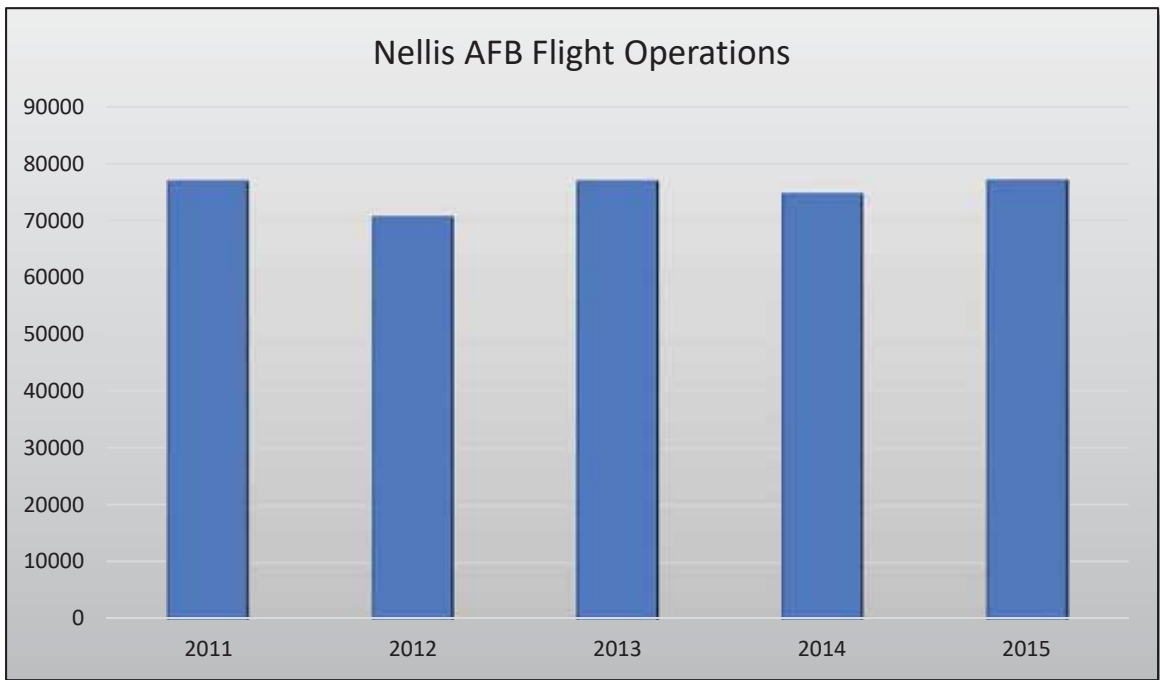
enter the landing pattern. Once established, the landing gear and flaps are lowered and the pilot performs a second 180-degree descending turn toward runway centerline to land.

- **Pattern Work.** Pattern work refers to traffic pattern training where the pilot performs takeoffs and landings in quick succession by taking off, flying the pattern, and then landing. Traffic pattern training is demanding and utilizes all the basic flying maneuvers a pilot learns: takeoffs, climbs, turns, climbing turns, descents, descending turns, and straight and level landings.
 - **Low Approach.** A low approach is an approach to a runway that does not result in a landing, but rather a descent towards the runway followed by a climb-out away from the airfield. Low approaches are accomplished for a number of reasons. One such reason is to practice avoiding potential ground obstructions (i.e., vehicles, debris, stray animals, etc.).
 - **Touch and Go.** A touch-and-go landing pattern is a maneuver that involves landing on a runway and taking off again without coming to a full stop. Usually the pilot then circles the airport in a defined pattern known as a circuit and repeats the maneuver.
 - **Box Pattern.** Ground Control Approach (GCA) is a radar or “talk down” approach directed from the ground by an air traffic controller (ATC). ATC personnel provide pilots with verbal course and glide slope information, allowing them to make an instrument approach during inclement weather. A Box Pattern is normally flown to practice GCA approaches. The Box Pattern utilizes a “box-shaped” flight pattern with four 90-degree turns done at a set altitude, used to practice a variety of approach procedures at an airfield.
 - **Radar Approach.** An instrument approach is provided with active assistance from ATC during poor weather conditions. ATC personnel direct the aircraft toward the runway centerline. Once established on the centerline, pilots use aircraft instruments to maintain runway alignment and adherence to altitude restrictions until the pilot is able to acquire visual sight with the runway environment. Pilots often practice this type of approach to maintain proficiency.
 - **Simulated Flame-Out (SFO).** This is a visual flight maneuver for single-engine aircraft used to simulate a landing recovery from a complete loss of engine thrust. To execute the maneuver, a pilot must establish the aircraft on a specified flight profile (altitude, airspeed, position over the airfield) which would allow the aircraft to glide safely across the runway threshold in a position to land. If properly executed, the maneuver should not require the use of additional engine power until after the maneuver is complete.

3.4 Annual Aircraft Operations

Figure 3-1 describes all aircraft operations that occurred at Nellis over a five-year period, including based and transient aircraft. As described below, total annual operations account for each departure and arrival, including those conducted as part of a pattern operation.

Figure 3-1. Summary of Flight Ops for FY 2011 – FY 2015



3.5 Runway Utilization & Flight Tracks

3.5.1 Runway Utilization

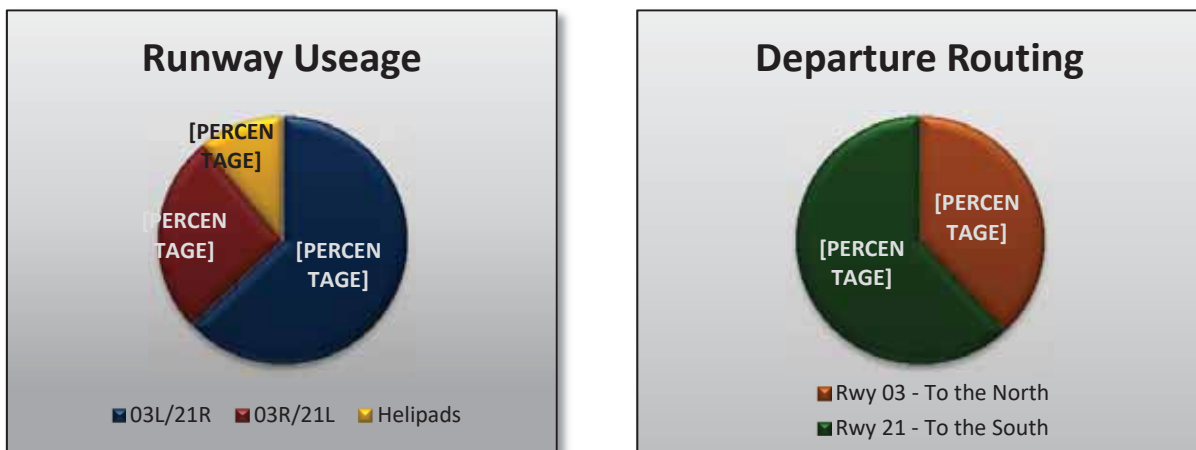
The frequency with which a runway is used is determined by a variety of factors including the airfield environment (layout, lights, runway length, etc.), direction of prevailing winds, location of natural terrain features (rivers, lakes, mountains, etc.), wildlife activity, number of aircraft in the pattern, and/or the preference of a runway for the purpose of safety and noise abatement.

The runway in use at Nellis is established by Base Operations, control tower personnel and the Supervisor of Flying. Pattern procedures are adjusted accordingly to maximize air traffic flow efficiency. Table 3-2 depicts the runway orientation and size characteristics for each runway while Figure 3-2 displays how frequent each runway is used. The Jolly and Transient helicopter pads are referenced in Section 2.4 are also displayed in the graph below.

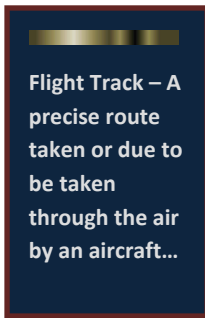
Table 3-1. Runway Dimensions and Orientations

Runway	Orientation (relative to magnetic North)	Length (ft)	Width (ft)	Overrun Length (ft)
03L/21R (inboard)	29° / 209°	10,120	200	1,000 ft each end
03R/21L (outboard)	29° / 209°	10,051	150	1,000 ft each end

Figure 3-2. Runway Usage and Departure Routing



3.5.2 *Flight Tracks*



Flight tracks depict where aircraft fly in relation to an airfield. They are designed for departures, arrivals and for pattern work procedures, and are designated for each runway to facilitate operational safety, noise abatement (Section 3.6), aircrew proficiency and the efficient flow of air traffic within the tower controlled airspace. Aircraft flight tracks are not set highways in the sky. While flight tracks are shown as a line on the map, they are actually bands. Aircraft de-confliction, configuration, pilot technique, takeoff weight, and wind all affect the path taken. The flight tracks for Nellis AFB are presented in figures 3-3, 3-4 and 3-5.

3.6 Noise Abatement

The Air Force recognizes that noise from military operations may cause concern for people living near military installations.

For this reason, the Air Force has established a Noise Program aimed at reducing and controlling the emission of noise and vibrations associated with the use of military aircraft, weapons systems and munitions. The result is the implementation of various strategies, techniques and procedures, documented under the Nellis AFB Noise Abatement Program, that are aimed at protecting persons and structures from the harmful effects of noise and vibrations.

Nellis AFB has noise abatement procedures for departures from Runway 21 include:

- Initially maintain runway heading and expedite their climb to an altitude of 2,500-3,000 ft Mean Sea Level (MSL).
- Terminate use of afterburner no later than reaching 300 kts or abeam the southwest end of the on-base Nellis golf course, whichever occurs last.
- Initiate a 60° banked right turn to a heading of 300° to avoid populated areas and fly between Shadow Creek Golf Course and Craig Ranch Regional Park.
- In the vicinity of the Shadow Creek Golf Course and Craig Ranch Regional Park, be at a minimum altitude of 5,000-6,000 ft MSL.
- Intercept a northbound heading (if heading north) at a maximum distance of 12 nautical miles from the Nellis runways.
- Remain within an arc of radius 4 nautical miles from the Nellis runways until heading westbound.
- Avoid the Las Vegas airport by 7.5 nautical miles.

Base leadership periodically reviews existing flight operations practices and their potential impact on surrounding communities and other populated areas. This requirement facilitates the planning, designation and establishment of flight tracks preferably over sparsely populated areas and/or waterways as often or practicable as possible to balance operational safety and reduce noise exposure levels to surrounding communities.

Flight tracks are established over sparsely populated areas as often as possible.

3.7 Noise Complaints

Nellis AFB has historically experienced a minimum of noise complaints due to its location away from main public use areas. All noise complaints are evaluated to ensure future operations, where possible, do not generate unacceptable noise and provide results from noise investigations back to the complainant as soon as practical. Citizens are encouraged to contact 99th Air Base Wing Public Affairs with any noise complaints. The public affairs office can be reached at 702-652-2750.

Figure 3-3. Departure Flight Tracks

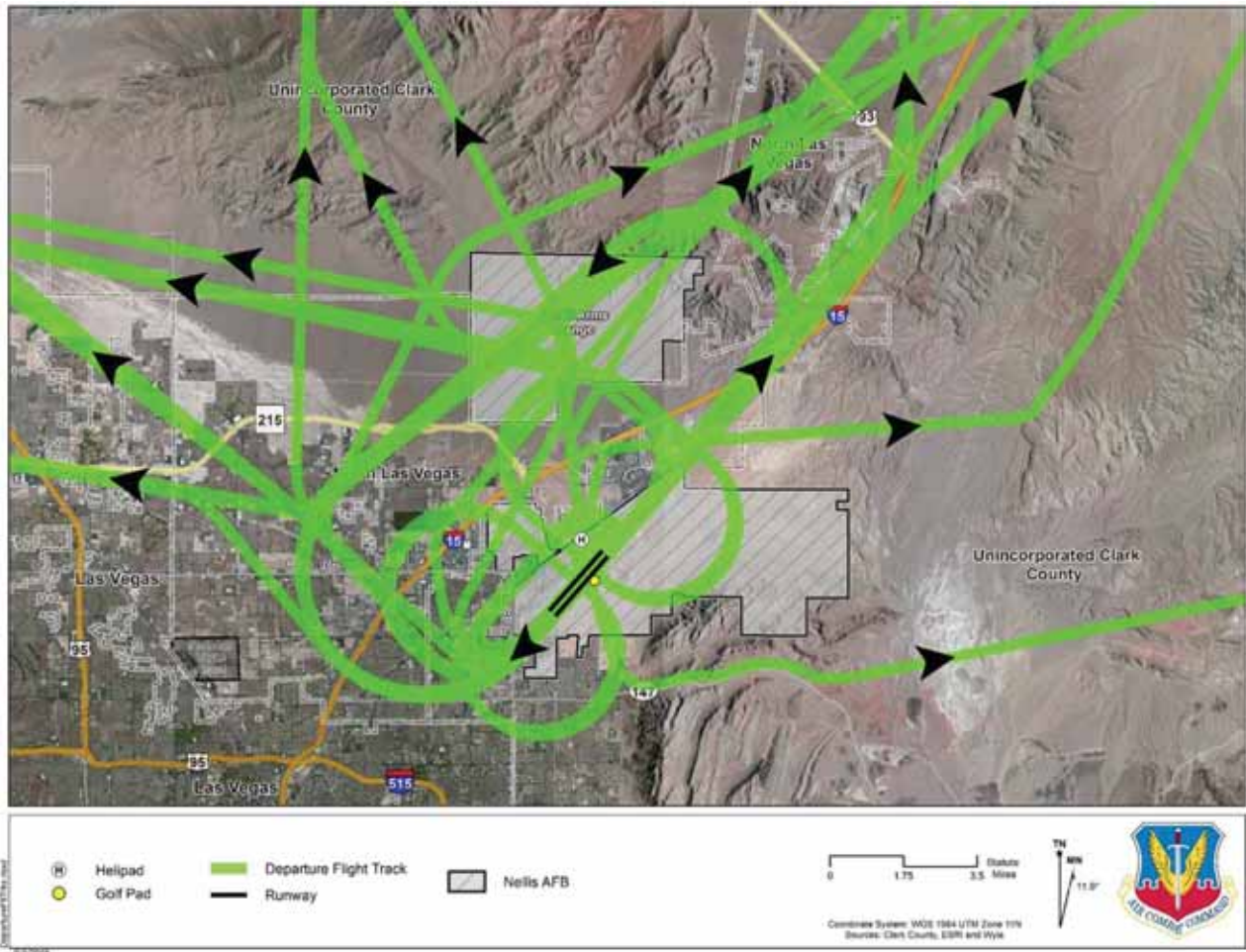


Figure 3-4. Arrival Flight Tracks

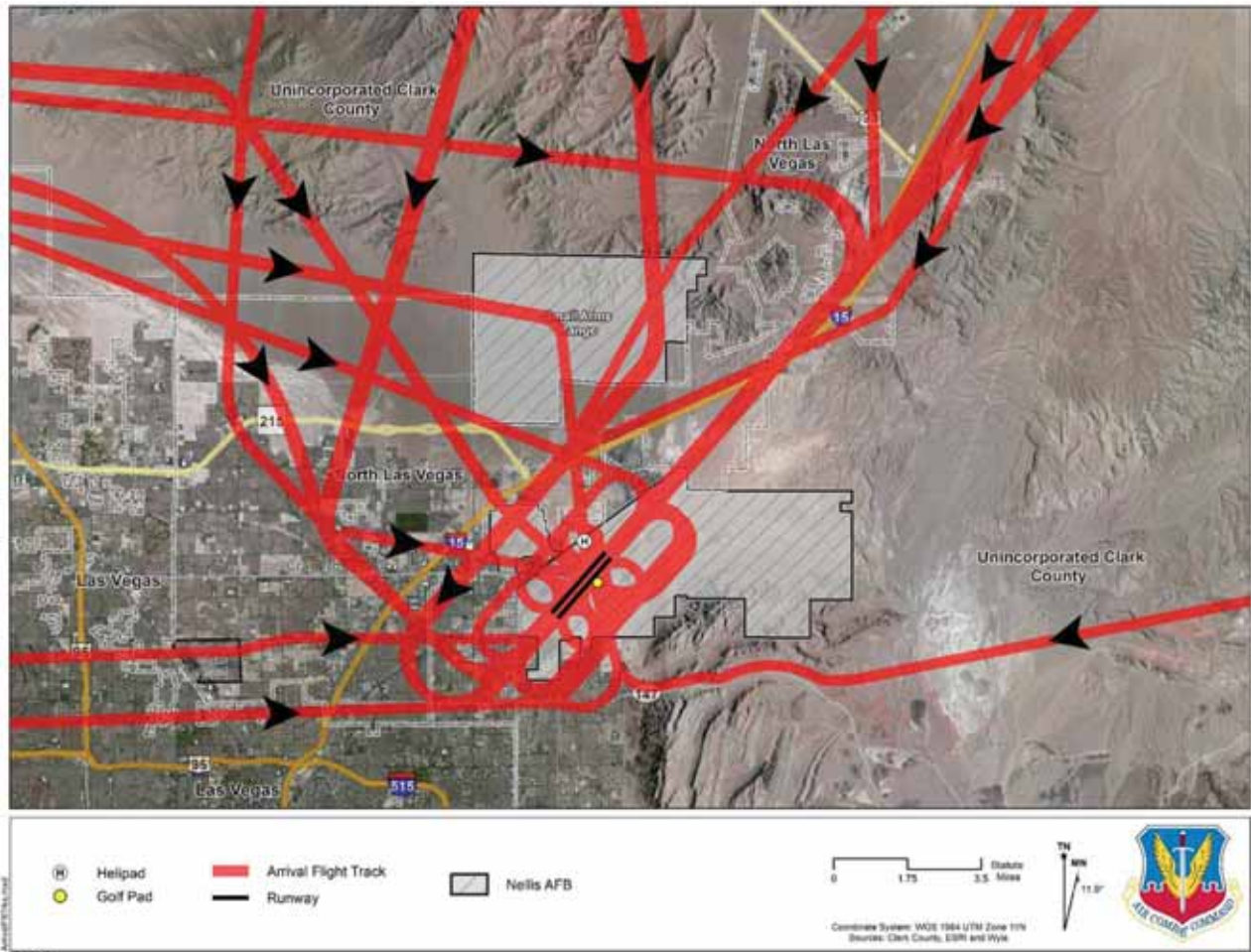
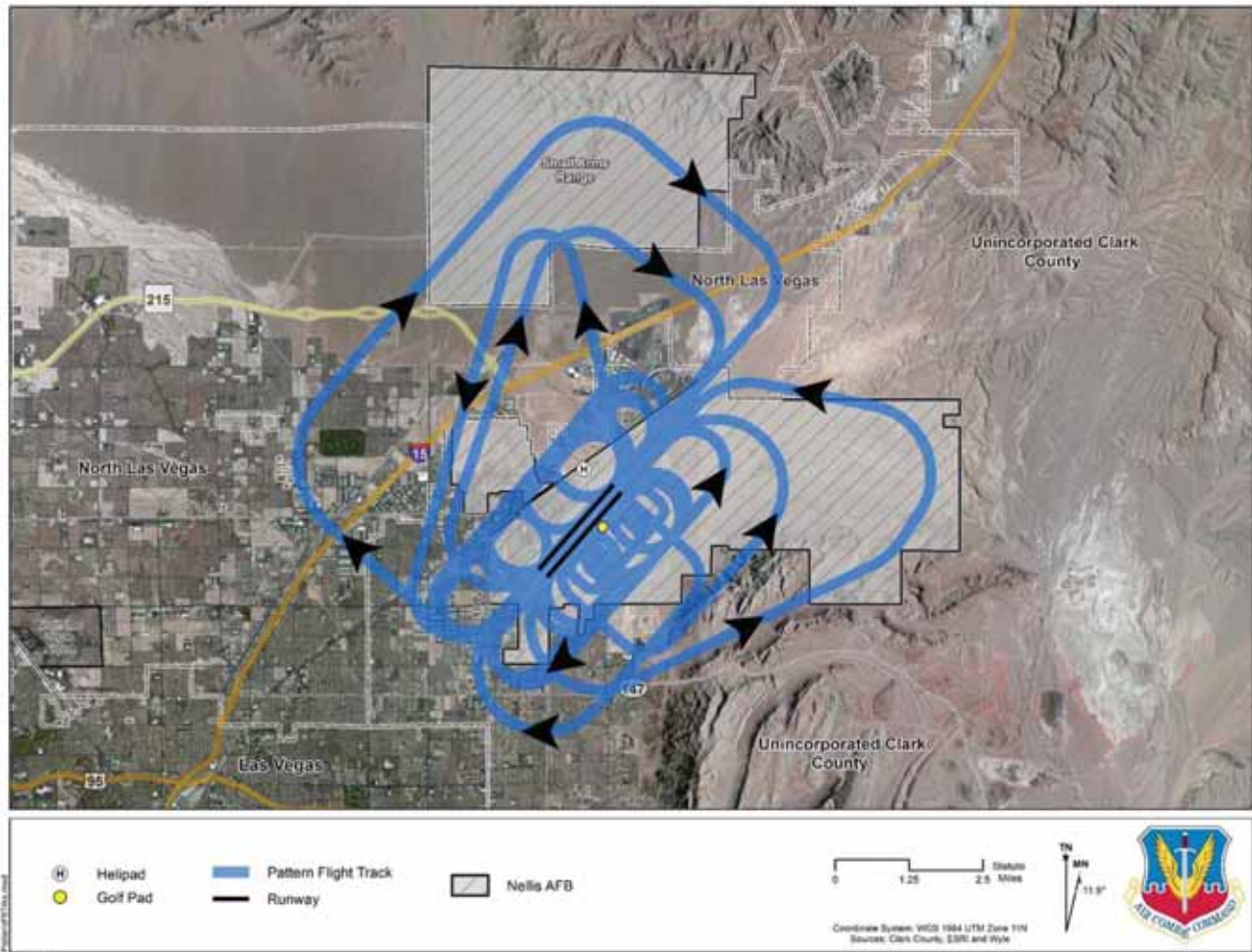


Figure 3-5. Closed Pattern Flight Tracks



4.0 Aircraft Noise

Terrain features, weather phenomena, man-made structures and daily life activity contribute to noise exposure...

The level of noise produced by aircraft has a direct impact on communities in close proximity to military airbase installations. Other factors such as an airfield's layout (its buildings, parking ramps and runways etc.), type or category of aircraft in operation at the field, natural terrain features, weather phenomena, man-made structures, and daily activities also play a part in varying the levels of noise that the community experiences.

For this reason, noise contours for Nellis AFB have been developed in accordance with the AICUZ Instruction to graphically depict how sound, or noise, propagates from around an airfield and out to surrounding communities. The following sections will define and discuss sound/noise and how it's perceived, and will then conclude with a graphic of the Nellis AFB Noise Contour.

4.1 What is Sound/Noise?

Sound is vibrations in the air, which can be generated by a multitude of sources to include roadway traffic, a barking dog, a radio – or aircraft operations. The vibrations are known as compression waves. Just like a pebble dropped into a pond creates ripples, the compression waves – formed of air molecules pressed together – radiate out, decreasing with distance. If these vibrations reach your eardrum, at a certain rate and intensity, we perceive it as sound. When the sound is unwanted, we refer to it as noise. Generally, sound becomes noise to a listener when it interferes with normal activities. Sound has three components: intensity, frequency and duration.

Sound becomes noise when it interferes with normal activities.

- Intensity or loudness is related to sound pressure change. As the vibrations oscillate back and forth, they create a change in pressure on the eardrum. The greater the sound pressure change, the louder it seems.
- Frequency determines how the pitch of the sound is perceived. Low-frequency sounds are characterized as rumbles or roars, while high-frequency sounds are typified by sirens or screeches. Sound frequency is measured in terms of cycles per second or hertz (Hz). While the range of human hearing goes from 20 to 20,000 Hz, we hear best in the range of 1,000 to 4,000 Hz. For environmental noise, we use A-weighting, which focuses on this range, to best represent human hearing. While A-weighted decibels may be written as “dBA,” if it is the only weighting being discussed, the “A” is generally dropped.
- Duration is the length of time the sound can be detected.

4.2 How Sound is Perceived

The loudest sounds that can be comfortably heard by the human ear have intensities a trillion times higher than those of sounds barely heard. Because such large numbers become awkward to use, we measure noise in decibels (dB), which uses a logarithmic scale, which doubles the noise energy every three decibels.

Figure 4-1 is a chart of A-weighted sound levels from common sources. A sound level of 0 dB is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal speech has a sound level of approximately 60 dB. Sound levels above 120 dB begin to be felt inside the human ear as discomfort, while sound levels between 130 and 140 dB are felt as pain.

Table 4-1 tabulates the subjective responses with change in (single-event) sound level. While noise energy doubles or halves with every three-decibel change, we do not perceive all that noise energy. It takes a 10-decibel increase or decrease for our ear to perceive a doubling or halving of loudness.

Figure 4-1. Typical A-weighted Sound Levels of Common Sounds

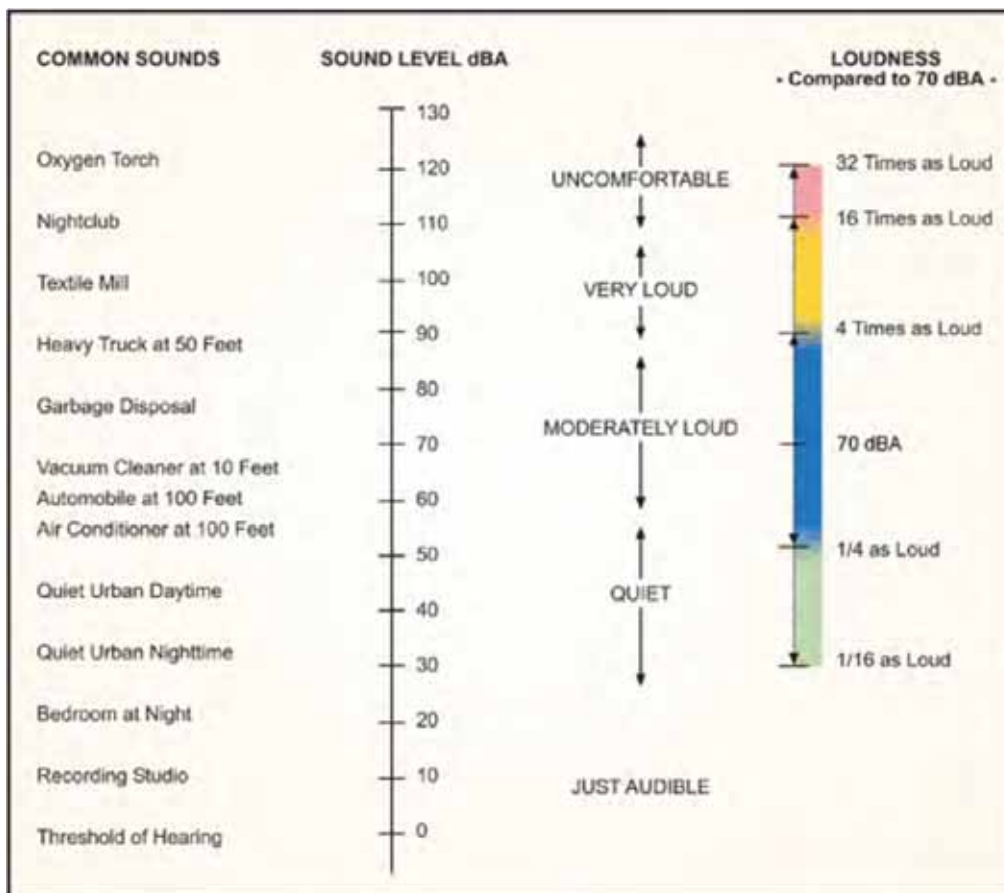


Table 4-1. Subjective Response to Changes in Sound Level

Change in Sound Level	Change in Loudness
20 dB	Striking 4-fold Change
10 dB	Dramatic 2-fold or Half as Loud
5 dB	Quite Noticeable
3 dB	Barely Perceptible
1 dB	Requires Close Attention to Notice

4.3 The Day-Night Average Sound Level

When we hear an aircraft fly overhead, the question may be asked, “How loud was that?” While we may often find ourselves concerned over the loudness of a sound, there are other dimensions to the sound event that draw our interest. For instance, does one overflight draw the same interest as two separate overflights – or as twenty? Also, does the 30-second run-up of engines prior to takeoff roll draw the same interest as a 30-minute maintenance run? Additionally, is an overflight more noticeable at two in the afternoon – or two in the morning, when the ambient noise is low and you are trying to sleep?

The length and number of events – the total noise energy – and the time of day play key roles in our perception of noise. To reflect these concerns, the Air Force uses a metric called the Day-Night Average Sound Level (DNL). DNL was created by the Environmental Protection Agency (EPA) and is used throughout the United States.

DNL, when used as a metric for aircraft noise, represents the accumulation of noise energy from all aircraft noise events in 24 hours. Additionally, for all operations between 10:00 at night and 7:00 in the morning, 10 decibels is added to each event to account for the intrusiveness of nighttime operations. As is implied in its name, the DNL represents the noise energy present in a daily period. However, because aircraft operations at military airfields fluctuate from day to day, DNL is typically based upon a year’s worth of operations thus represents annual average daily aircraft events.

DNL is not a level heard at any given time, but represents long-term exposure. Scientific studies have found good correlation between the percentages of groups of people highly annoyed and the level of average noise exposure measured in DNL.

4.4 Preparing Noise Contours

The Air Force prepares noise contours, as needed, to assess the compatibility of aircraft operations. This AICUZ Study presents the historic and planning noise contours. Per AFI 32-7063, the Air Force utilizes NOISEMAP, the DoD standard model for assessing noise exposure from military aircraft operations at air installations.

4.5 AICUZ Noise Contours

4.5.1 *Planning Contours*

This AICUZ study provides a planning noise contour. Long-range planning by local land use authorities involves long-range strategies that influence present and future uses of land. Frequent AICUZ updates can undermine a community's planning assumptions for comprehensive planning. To assist communities, the Air Force provides planning contours – noise contours based on reasonable projections of future missions and operations. AICUZ studies using planning contours provide a description of the long-term (5-10 year) aircraft noise environment for projected aircraft operations that is consistent with the planning horizon used by State, tribal, regional and local planning bodies.

These projections are based on the best available, realistic long-range projections of unclassified estimates of future mission requirements, including reasonable projections of future operations based on trends in operational tempo, retirement of legacy aircraft, new aircraft entering the inventory, etc.

These long-range projections are not commitments of future operations. Inclusion of planning contours in the AICUZ study does not eliminate the need to conduct appropriate environmental analysis if an assumption used in the development of the planning contours becomes a proposed Air Force action. While the assumptions are logical, changes to certain factors supporting these assumptions are highly likely.¹ When significant changes in the projected mission or operational tempo warrant it, the AICUZ study will again be updated.

Assumptions included in the Nellis AFB planning contour include:

- Airfield operations projected to 2024 when beddown of the of F-35A Lightning II at Nellis is scheduled to be complete.
- Transient aircraft from all services will include an increase F-35 operations as legacy aircraft transition to the Lightning II.
- Inclusion of up to 10 additional large-scale exercises utilizing the NTTR, increasing the numbers of aircraft temporarily based at Nellis.

Table 4-2 presents the projected operations for the Nellis AFB planning contour.

¹ When the planning contours were prepared, the A-10 aircraft was scheduled to be replaced by the F-35 aircraft in the ground support role. Since then, the Secretary of Defense and Congress have taken steps to delay retirement of that aircraft. Consequently, no final decision on the date of retirement or replacement has been reached. Noise contours at Nellis AFB, however, are derived primarily from higher performance aircraft. Because A-10 operations at Nellis AFB are relatively lower than higher performance aircraft operations, the presence or absence of A-10 aircraft would have little or no effect on the planning contours.

Table 4-2. Annual Aircraft Flight Operations for AICUZ Noise Contours

Aircraft	Departures			Arrivals			Closed Patterns			Totals		
	Day (7 AM– 10PM)	Night (10PM– 7AM)	Total	Day (7 AM– 10PM)	Night (10PM– 7AM)	Total	Day (7 AM– 10PM)	Night (10PM– 7AM)	Total	Day (7 AM– 10PM)	Night (10PM– 7AM)	Total
F-15C/D/E	2,808	108	2,916	2,806	108	2,914	520	–	520	6,134	216	6,350
F-16C	3,181	202	3,383	3,168	215	3,383	225	–	225	6,574	417	6,991
F-22	1,689	88	1,777	1,733	44	1,777	2,151	350	2,501	5,573	482	6,055
F-35A	11,250	653	11,903	11,630	273	11,903	2,406	–	2,406	25,286	926	26,212
HH-60G	1,337	35	1,372	1,202	170	1,372	3,996	–	3,996	6,535	205	6,740
C-12	88	4	92	88	4	92	62	1	63	238	9	247
Transient	32,444	12	32,456	32,444	12	32,456	–	–	–	64,888	24	64,912
Grand Total	52,797	1,102	53,899	53,071	826	53,897	9,360	351	9,711	115,228	2,279	117,507

Figure 4-2. 2017 AICUZ Noise Contours with Gradient Shading

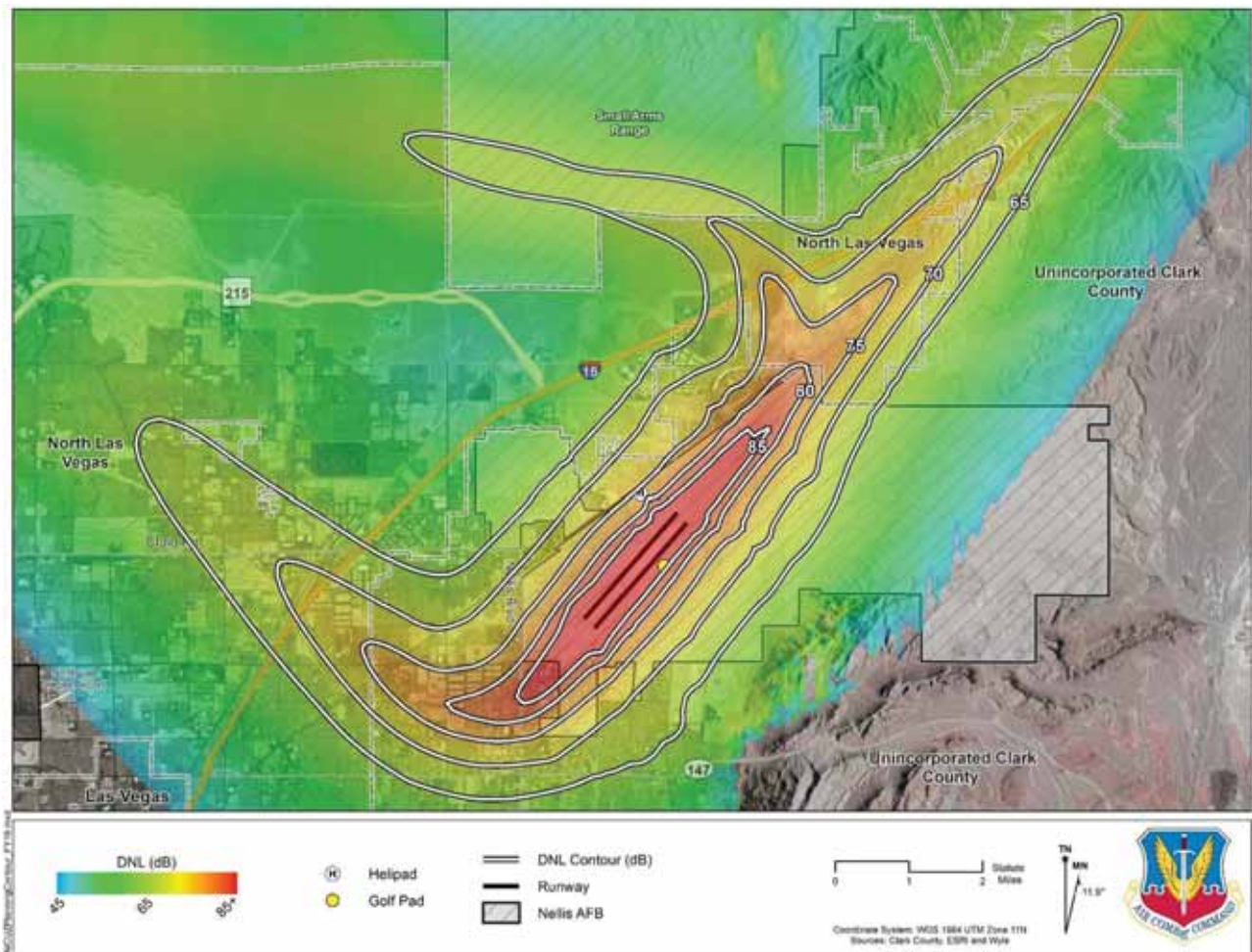
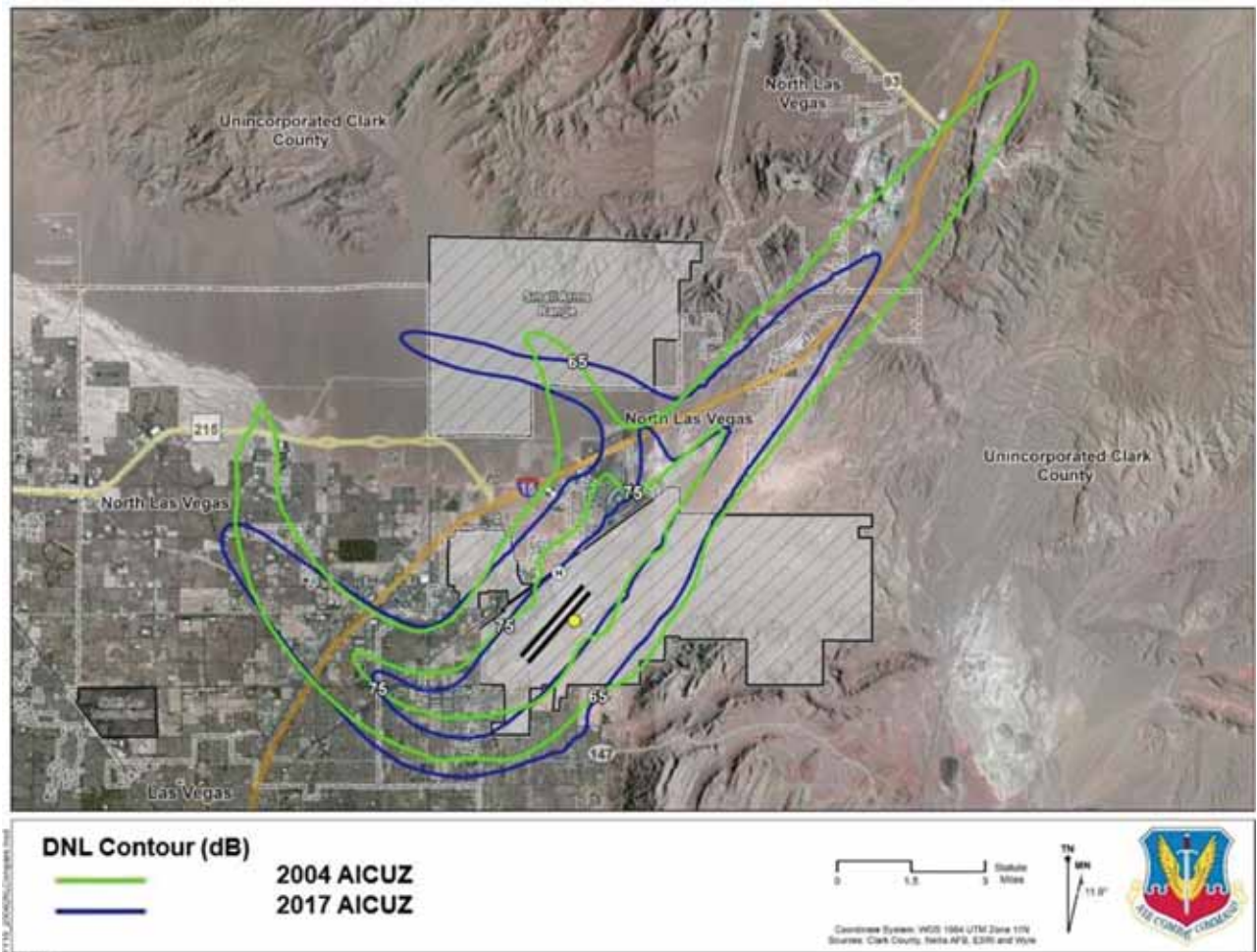


Figure 4-3. Comparison of 2004 and 2017 AICUZ Noise Contours



4.5.2 Nellis AFB Noise Contours

Figure 4-2 The 2017 AICUZ released by Nellis is based on planning contours for the year 2024 (Figure 4-2). The 65 dB DNL contour extends beyond the northern boundary of the base approximately 5.4 miles to the northeast and 5.3 miles to the northwest, within unincorporated Clark County and the cities of Las Vegas and North Las Vegas. It also stretches out to the southwestern boundary of the base approximately 5 miles west. The 75 dB DNL contour extends beyond the base boundary 1.4 miles to the northeast, 1.2 miles to the northwest, and 1.9 miles to the west. The F-35A is a main contributor to the 2017 AICUZ contours.

Figure 4-3 shows a comparison of the 2024 and the 2004 AICUZ's DNL contours. In general, the DNL contours for 2024 are smaller, especially regarding the lobes to the north of the AFB. This is primarily due to a decrease in modeled daily operations. The shape of the 65 dB DNL contours to the west and northwest differ from those of the 2004 AICUZ due to changes in flight tracks.

Table 4-3 presents the off-base land acreage and estimated population within the planning contours. The population estimates are based on 2010 Census block-level data. A geometric proportion method was used to determine the estimated population within the contour bands. This method assigns population based on the portion of a census block that falls within the contour. The population across census blocks is assumed to be evenly distributed.

Figure 4-3 shows a comparison of the 2017 and the 2004 AICUZ noise contours.

The exposure to a minimum of 65 dB DNL would be approximately 19,500 acres and 85,400 people, approximately 90 percent of which falls within the 65-69 dB DNL and 70-74 dB DNL noise zones. Over 2,000 acres and nearly 5,800 people would be in the 75-79 dB DNL noise zone. Approximately 525 acres and 67 people would be exposed to DNL greater than or equal to 80 dB.

Table 4-1. Off-Base Land Area and Estimated Population within Noise Zones for the 2017 AICUZ Noise Contours

Noise Zone (dB DNL)	Acres	Population
65-69	10,958	55,506
70-74	5,828	24,009
75-79	2,169	5,783
80-84	395	20
85+	131	47
Total (65+)	19,481	85,365

5.0 Community and Aircraft Safety

Community and aircraft safety is paramount to the Air Force, and airfield safety is a shared responsibility between the Air Force and the surrounding communities, each playing a vital role in its success. Cooperation between the Air Force and the community results in strategic and effective land use planning and development. As such, the Air Force has established a flight safety program and has designated areas of accident potential around its air installations to assist in preserving the health, safety, and welfare of the people living near the airfield. This AICUZ Study provides the information needed, in part, to reach the shared safety goal.

Identifying safety issues assists the community in developing land uses compatible with airfield operations. As part of the AICUZ program, the Air Force defines areas of accident potential, imaginary surfaces and hazards to flight.

Clear zones and accident potential zones are the subject of Section 5.1. Section 5.2 presents the imaginary surfaces and Section 5.3 discusses the zones associated with hazards to aircraft flight.

5.1 Clear Zones and Accident Potential Zones

In the 1970s and 1980s, the military conducted studies of historic accident and operations data throughout the military. The studies showed that most aircraft mishaps occur on or near the runway, diminishing in likelihood with distance from the runway. Based on these studies, the DOD identified Clear Zones and Accident Potential Zones (APZ) as areas where an aircraft accident is most likely to occur if an accident were to take place – they are not predictors of accidents. The studies identified three areas that, because of accident potential, should be considered for density and land use restrictions: the Clear Zone (CZ), Accident Potential Zone I (APZ I) and Accident Potential Zone II (APZ II). These zones (Figure 5-1) are described below:



F-16 mishap on runway

- **Clear Zone.** At the end of all active runways is an area known as the Clear Zone (CZ). The CZ is a square area beyond the end of the runway and centered on the runway centerline extending outward for 3,000 feet. A Clear Zone is required for all active runways and should remain undeveloped.
- **APZ I.** Beyond the CZ is Accident Potential Zone I (APZ I). APZ I is 3,000 feet in width and 5,000 feet in length along the extended runway centerline.

- **APZ II.** Accident Potential Zone II (APZ II) is the rectangular area beyond APZ I. APZ II is 3,000 feet in width by 7,000 feet in length along the extended runway centerline.

Figure 5-1. Runway CZs and APZs



While the APZs extend outward from the ends of the runway along the extended runway centerline, a curved APZ may be added where over 80-percent of the operations follow a curved departure.

Within the CZ, most uses are incompatible with military aircraft operations. For this reason, it is the Air Force’s policy, where possible, to acquire real property interests in land within the CZ to ensure incompatible development does not occur. Within APZ I and APZ II, a variety of land uses are compatible; however, higher density uses (e.g., schools, apartments, churches, etc.) should be restricted because of the greater safety risk in these areas. Land use and recommendations for addressing incompatibility issues within APZs for each airfield are provided and discussed in Chapter 6.

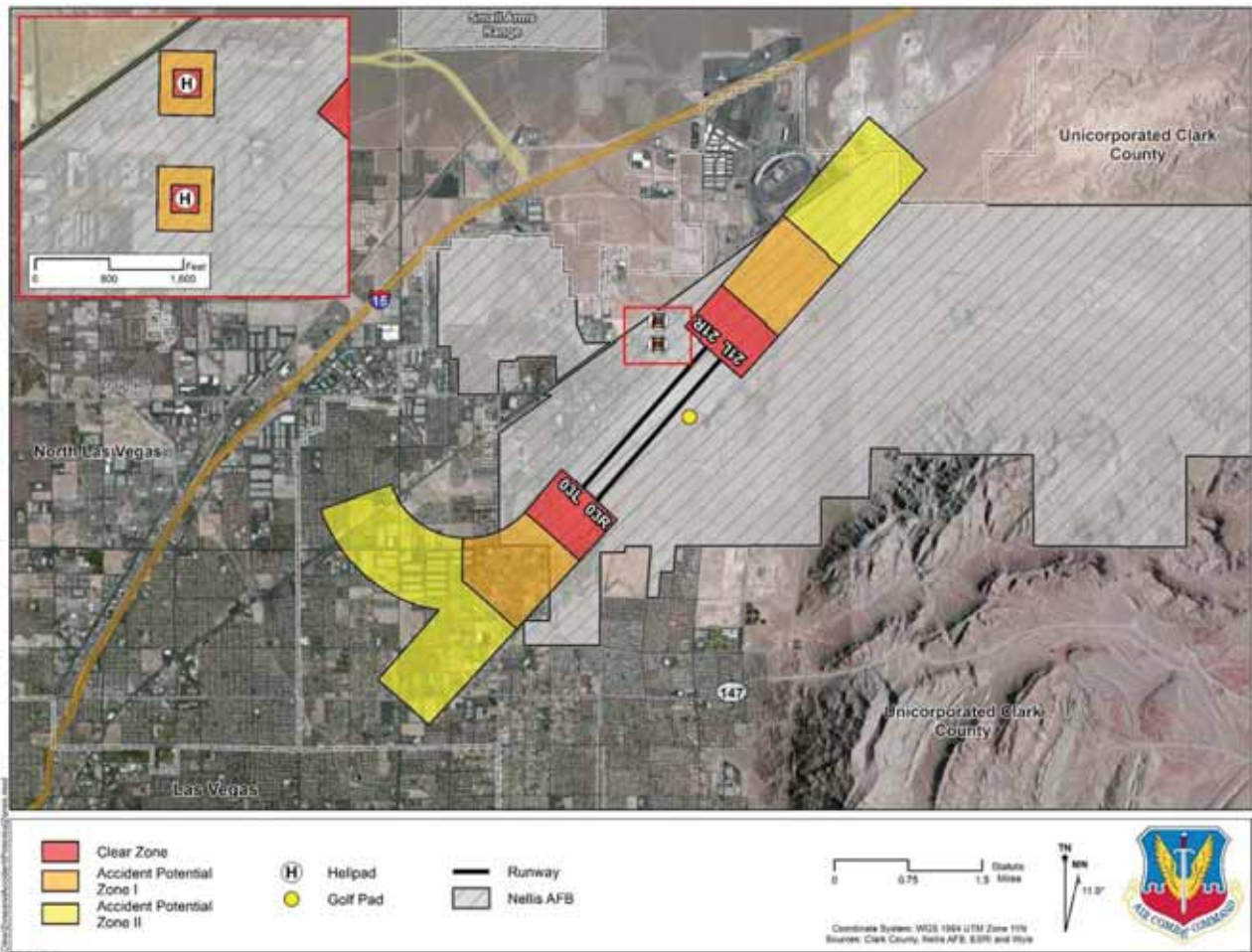
Figure 5-2 depicts the CZs and APZs for Runways 03L/21R and 03R/21L. Consistent with AFI 32-7063 (U.S. Air Force 2015a), there is a curved set of APZs I and II on the south end. Rotary-wing APZs are applicable to the JOLLY and Transient helipads. The 2017 AICUZ CZs and APZs have not changed since the 2004 AICUZ update.

Table 5-1 tabulates the off-base land acreage and estimated population within the CZs and APZs. Approximately 5,600 people are located within the 1,492 off-base acres of APZ II. Approximately 380 acres of APZ I extend beyond the base property containing nearly 320 people. The CZs are fully contained within the base property. The CZs and APZs lie almost entirely within the City of Las Vegas, with a small portion of the northern APZ II within unincorporated Clark County.

Table 5-1. Off-Base Land Area and Estimated Population within the Accident Potential/Clear Zones

Zone	Acres	Population
CZ	0	0
APZ I	380	318
APZ II	1,492	5,605
Total	1,872	5,923

Figure 5-2. 2017 AICUZ Clear Zones and Accident Potential Zones for Nellis AFB



5.2 Imaginary Surfaces

The DoD and Federal Aviation Administration (FAA) identify a complex series of imaginary planes and transition surfaces which define the airspace which needs to remain free of obstructions around an airfield. Obstruction-free imaginary surfaces help ensure safe flight approaches, departures, and pattern operations. Obstructions include natural terrain and man-made features, such as buildings, towers, poles, wind turbines, cell towers, and other vertical obstructions to airspace navigation.

Fixed-wing runways and rotary-wing runways/helipads have different imaginary surfaces. Brief descriptions of the imaginary surfaces for fixed-wing runways are provided on Figure 5-3 and in Table 5-2. Figure 5-4 depicts the runway airspace imaginary surfaces specific to Nellis AFB. In general, no above-ground structures are permitted in the primary surface of clear zones, and height restrictions apply to transitional surfaces and approach and departure surfaces. Height restrictions are more stringent as one approaches the runway and flight path.

Figure 5-3. Runway Imaginary Surfaces and Transition Planes

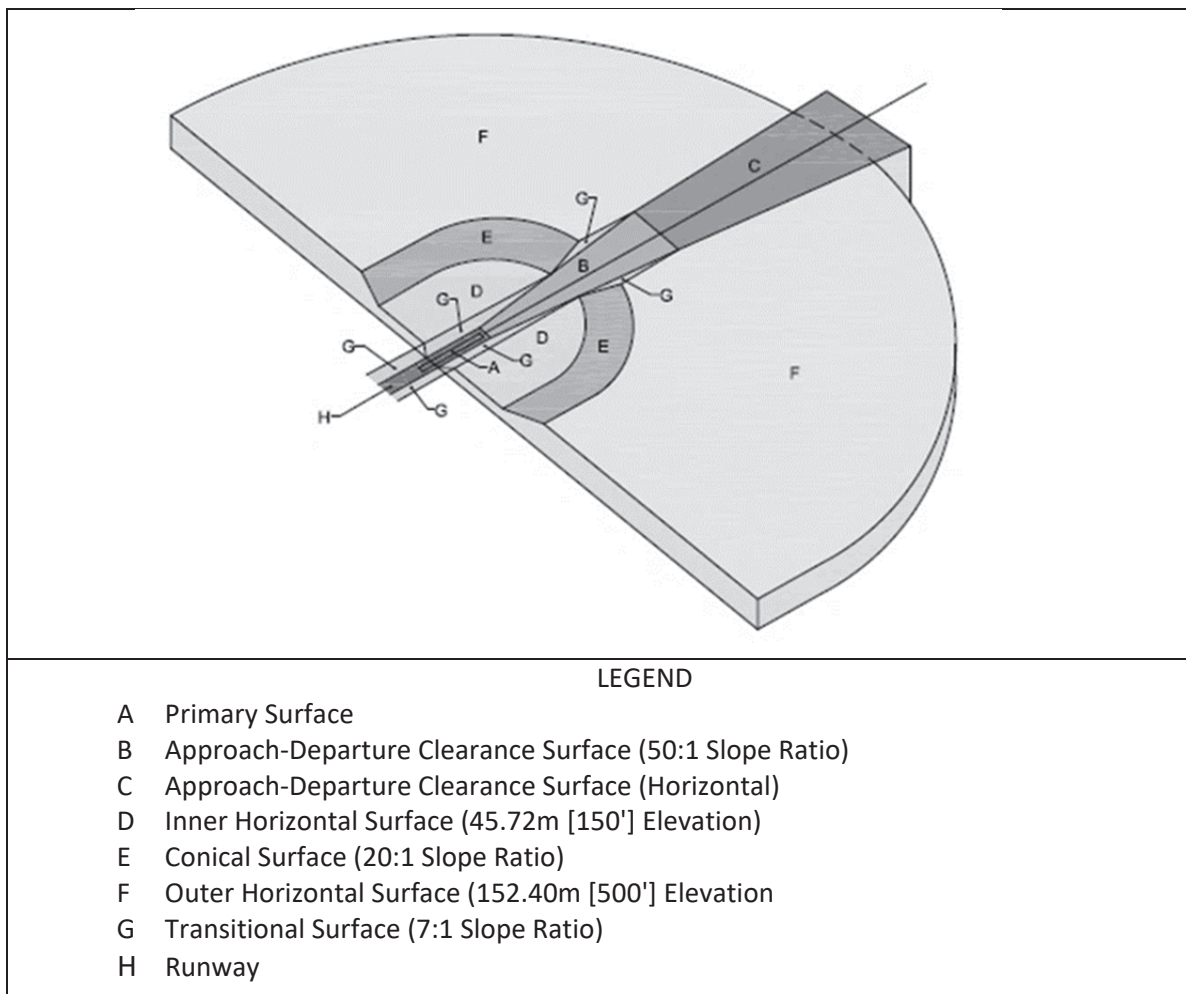


Table 5-2. Description of Imaginary Surfaces for Runways

<p>Primary Surface</p>	<p>An imaginary surface symmetrically centered on the runway, extending 200 feet beyond each runway end that defines the limits of the obstruction clearance requirements in the vicinity of the landing area. The width of the primary surface is 2,000 feet, or 1,000 feet on each side of the runway centerline.</p>
<p>Approach-Departure Clearance Surface</p>	<p>This imaginary surface is symmetrically centered on the extended runway centerline, beginning as an inclined plane (glide angle) 200 feet beyond each end of the primary surface, and extending for 50,000 feet. The slope of the approach-departure clearance surface is 50:1 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 starting point. The width of this surface at the runway end is 2,000 feet, flaring uniformly to a width of 16,000 feet at the end point.</p>
<p>Inner Horizontal Surface</p>	<p>This imaginary surface is an oval plane at a height of 150 feet above the established airfield elevation. The inner boundary intersects with the approach-departure clearance surface and the transitional surface. The outer boundary is formed by scribing arcs with a radius 7,500 feet from the centerline of each runway end and interconnecting these arcs with tangents.</p>
<p>Conical Surface</p>	<p>This is an inclined imaginary 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. The conical surface connects the inner and outer horizontal surfaces.</p>
<p>Outer Horizontal Surface</p>	<p>This imaginary surface is located 500 feet above the established airfield elevation and extends outward from the outer periphery of the conical surface for a horizontal distance of 30,000 feet.</p>
<p>Transitional Surface</p>	<p>This surface extends outward and upward at right angles to the runway centerline and extended runway centerline at a slope of 7:1. The transitional surface connects the primary and the approach-departure clearance surfaces to the inner horizontal, the conical, and the outer horizontal surfaces.</p>

Figure 5-4. Runway Airspace Imaginary Surfaces and Transition Planes for Nellis AFB

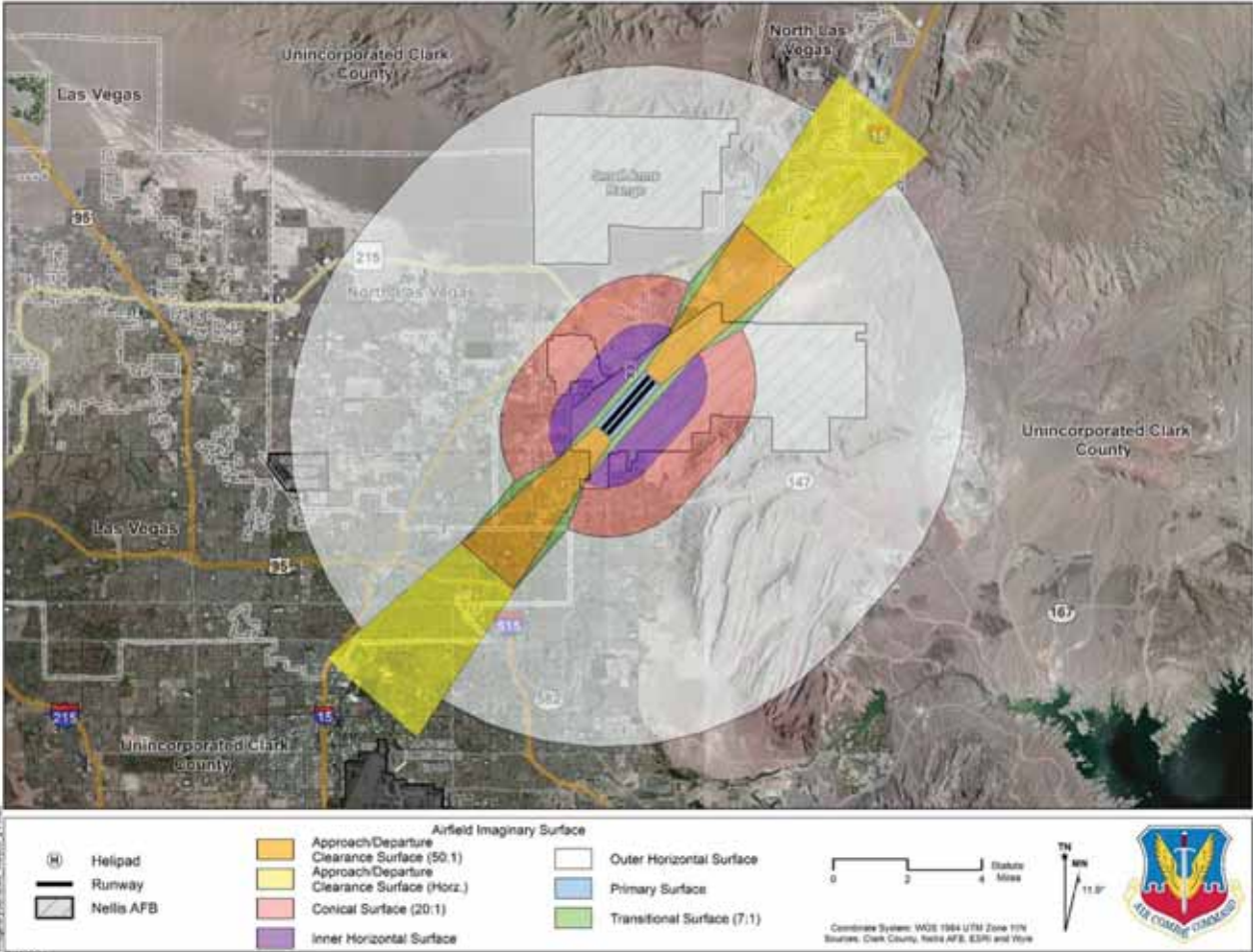


Figure 5-5. Imaginary Surfaces and Transition Planes for VFR Helipads

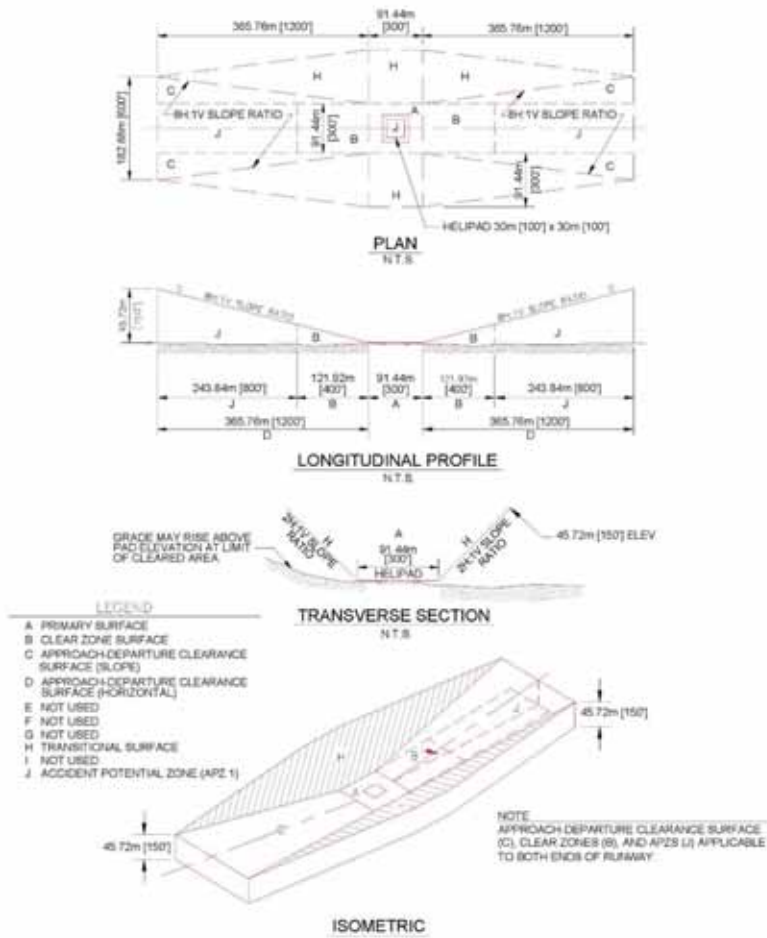
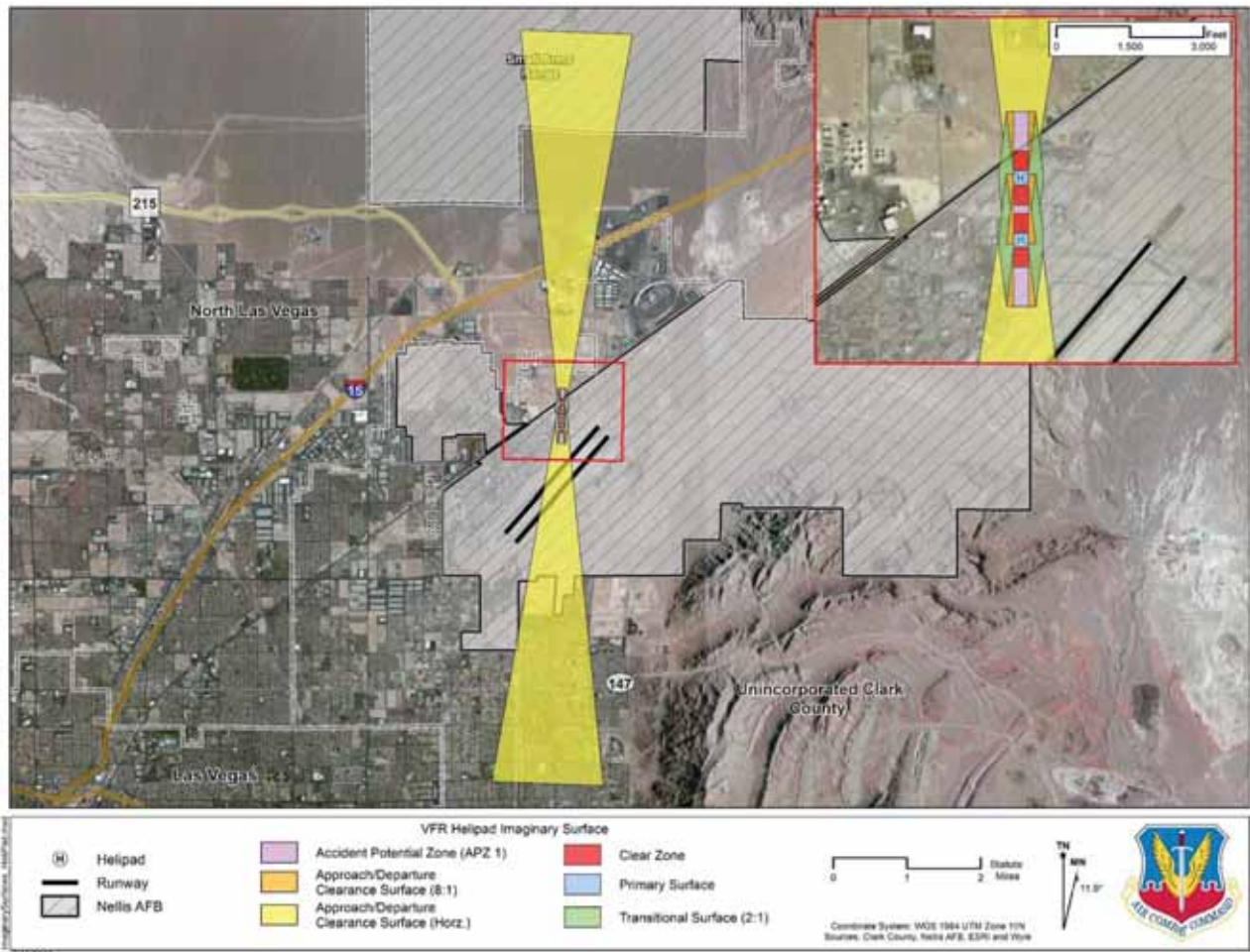


Figure 5-6. Helipad Airspace Imaginary Surfaces and Transition Planes for Nellis AFB



5.3 Hazards to Aircraft Flight Zone (HAFZ)

Certain land uses and activities can pose potential hazards to flight. To ensure land uses and activities are examined for compatibility; the Air Force has identified a “Hazards to Aircraft Flight Zone (HAFZ).” The HAFZ is defined as the area within the “Imaginary Surfaces” that are described in the UFC 3-260-01, and in 14 CFR Part 77.17. Unlike Noise and Safety Zones, the HAFZ does not have recommended land use compatibility tables. Instead, it is a consultation zone for the purposes of project applicants and local planning bodies to consult with the Air Force to ensure the project is built compatibly. These land uses and activities include:



- **Height:** Tall objects can pose significant hazards to flight operations or interfere with navigational equipment (including radar). City/County agencies involved with approvals of permits for construction should require developers to submit calculations which show that projects meet the height restriction criteria of FAA Part 77, for the specific airfield described in the AICUZ study.
- **Visual Interference:** Industrial or agricultural sources of smoke, dust, and steam in the airfield vicinity can obstruct the pilot’s vision during takeoff, landing, or other periods of low-altitude flight. These concerns can often be mitigated with close coordination between the base and the landowner. For example, irrigating before plowing greatly can greatly reduce dust concerns.
- **Light Emissions:** Bright lights, either direct or reflected, in the airfield vicinity can impair a pilot’s vision, especially at night. A sudden flash from a bright light causes a spot or “halo” to remain at the center of the visual field for a few seconds or more, rendering a person virtually blind to all other visual input. This is particularly dangerous at night when the flash can diminish the eye’s adaptation to darkness. Partial recovery of this adaptation is usually achieved in minutes, but full adaptation typically requires 40 to 45 minutes. Lasers that emit in the visible spectrum can be potentially harmful to a pilot’s vision during both day and night.
- **Bird/Wildlife Aircraft Strike Hazard (BASH):** Wildlife represents a significant hazard to flight operations. Birds, in particular, are drawn to different habitat types found in the airfield environment including hedges, grass, brush, forest, water, and even the warm pavement of the runways. Although most bird and animal strikes do not result in crashes, they cause structural and mechanical damage to aircraft as well as loss of flight time. Most collisions occur when the

aircraft is at an elevation of less than 1,000 feet. Due to the speed of the aircraft, collisions with wildlife can happen with considerable force.

To reduce the potential of BASH, the Air Force recommends that land uses that attract birds not be located near base with an active air operations mission. The FAA recommends that municipal solid waste landfills be sited at least 6 miles from civilian airports. These land uses include:

- Waste disposal operations
- Wastewater treatment facilities
- Transfer stations
- Landfills
- Golf courses
- Wetlands
- Storm water ponds
- Dredge disposal sites

Birds in search of food or rodents will flock to landfills, increasing the probability of BASH occurrences. Design modifications also can be used to reduce the attractiveness of these types of land uses to birds and other wildlife.

- **Radio Frequency/Electromagnetic Interference (RF/EMI):** New generations of military aircraft are highly dependent on complex electronic systems for navigation and critical flight and mission-related functions. Consequently, care should be taken in siting any activities that create EMI. EMI is defined by the American National Standards Institute as any electromagnetic disturbance that interrupts, obstructs, or otherwise degrades or limits the effective performance of electronics/electrical equipment.

Additionally, EMI may be caused by atmospheric phenomena, such as lightning and precipitation static, and by non-telecommunications equipment, such as vehicles and industry machinery. Cellular towers are not a significant source of EMI.

EMI also affects consumer devices, such as cell phones, FM radios, television reception, and garage door openers. In some cases, the source of interference occurs when consumer electronics use frequencies set aside for military use.

5.4 The Nellis-NTTR Live Ordnance Overflight Corridor (LOOC)



Technician hangs ordnance on F-16

Between Nellis AFB and the Nevada Test and Training Range (NTTR) lies an inter-facility LOOC. The corridor spans approximately 50 miles and serves as the route for military aircraft to transit with live ordnance (Figure 5-7). The LOOC lies over 176,882 acres of multijurisdictional property (Figure 6-8). Most of the area belongs to the BLM or is tribal lands, while other portions of the property fall within the City of North Las Vegas, and unincorporated Clark County.

Nellis AFB serves as the staging and launch area for warfighting capabilities, testing, training and tactics integration. The combined total number of sorties conducted between the Weapons School, Red Flag, Green Flag and participating international allies constitutes more than 29,000 annual sorties and of these, more than 70-percent are loaded with live munitions and armament.




Armed F-16 heads out to the Range

On occasion, armed aircraft may experience a hung ordnance emergency. Hung ordnance occurs when a pilot attempts to release a weapon and it fails to detach or fire due to a malfunction of the weapon itself, the rack mount or launcher rail, or the aircraft release and control of the system. Of those aircraft that have experienced a hung ordnance emergency, several have actually dropped during the emergency return to the airfield. This type of malfunction requires a pilot to “safe” the weapon and disable the system, however, the potential still

exists that the munition could unintentionally detach from an aircraft before the pilot can safely land with the malfunctioning weapon.

For this reason and to assure public safety and security, Nellis prohibits armed departures to the south. Mountainous terrain to the east and an adjacent, heavily populated area immediately west of the airfield also limit armed aircraft overflight. The remaining alternative is to conduct live ordnance flight operations over established flight tracks to the north of the field where the land is currently and predominantly undeveloped or sparsely populated. These inter-facility flight tracks are overlaid by the LOOC.



Designed by Nellis airspace planners (with aircrew operational guidance), Nellis leadership restricts live ordnance flight operations between the air base and the NTTR to a single corridor over sparsely populated lands. This route is known as the Live Ordnance Overflight Corridor (LOOC). The corridor is designed to accommodate both armed arrival and departure missions, adding to the efficiency and safety of these flight operations.

The area beneath the LOOC is at risk of potential ordnance mishaps. While the chances of an ordnance mishap are remote, there is the potential for munitions and armament to detach from an aircraft causing significant damage to property and life.

Nellis AFB recommends land use planning authorities work with the base community planner to establish a consultation zone or other appropriate mechanism for proposed development of land underlying the LOOC. The consultation zone or other appropriate mechanism should call for notification to landowners and prospective developers that military operations involving live ordnance occur in this area and for consultation between the necessary parties and the Air Force regarding compatible development. The AICUZ study includes the LOOC to provide awareness to local, county, tribal, Federal agency, and regional planning bodies of the potential hazards to development proposed beneath the corridor. Nellis AFB leadership is committed to expeditiously coordinating with pertinent planning authorities on development proposals for land underlying the LOOC.

6.0 Land Use Analysis

CZs, APZs, noise zones and the HAFZ make up the AICUZ footprint for an air installation. The AICUZ footprint defines the minimum recommended area within which land use controls are needed to enhance the health, safety, and welfare of those living or working near a military airfield and to preserve the flying mission. The AICUZ footprint, combined with the guidance and recommendations set forth in the AICUZ study, are the fundamental tools necessary for the planning process. The Air Force recommends that the existing noise zones, CZs, APZs and HAFZ be adopted into individual county and city planning studies, regulations, and processes to best guide compatible development around the installation. The AICUZ footprint for Nellis AFB is used as the basis for the land use compatibility analysis and is provided on Figure 6-1.

6.1 Land Use Compatibility Guidelines and Classifications

To establish long-term compatibility for lands within the vicinity of military air installations, the DoD has created AICUZ land use compatibility recommendations based on the Federal Highway Administration's Standard Land Use Coding Manual (SLUCM). These guidelines are used by DoD personnel for on-base planning and for engaging with the local community to foster compatible land use development. Suggested land use compatibility guidelines within noise zones and the Clear Zones (CZ) and Accident Potential Zones (APZ) are shown in Table A-1 of Appendix A. Table A-2 of Appendix A provides land use compatibility recommendations within noise contours.

6.2 Planning Authorities

This section presents information for each of the governing bodies who have land-use jurisdictions near Nellis AFB, including descriptions of existing and future land uses: the State of Nevada, unincorporated Clark County, the CNLV, and the CLV.

6.2.1 *U.S. Bureau of Land Management*



The federal government is a major landowner in the State of Nevada. The extensive federal lands in the Nellis AFB vicinity are managed by the Bureau of Land Management within the Department of the Interior. Providing stewardship per the Federal Land Policy and Management Act of 1976, BLM is a collaborative planning partner with the Department of Defense. The BLM Southern Nevada District office in Las Vegas has worked with the Air Force on significant land management issues such as the 2.9 million acres withdrawn for the Nevada Test and Training Range, including the land withdrawal renewal.

6.2.2 State of Nevada



Nevada Revised Statutes, Title 22, Chapter 278 authorizes areas to establish regional planning coalition to set planning policies, goals, and objectives on a regional basis. These polices are ratified by the county and every city located within the planning coalition area. In southern Nevada, the Southern Nevada Regional Planning Coalition (SNRPC) establishes the regional planning goals in the Las Vegas Valley. Section 6.2.3.1 provides more detail about the SNRPC.

In addition, Nevada Revised Statutes, Section 278.150 requires Clark County to develop a master plan “for the physical development of city, county, or region.” The master plan may include a variety of subject matters including community design and transportation.

6.2.3 Regional and Local Government Comprehensive Planning

Comprehensive plans typically contain chapters known as “elements” which address future land use, transportation, infrastructure, housing, coastal management, conservation, recreation and open space, intergovernmental coordination, and capital improvements. The following comprehensive plans guide development adjacent to Nellis AFB.

6.2.3.1 Southern Nevada Regional Planning Coalition



Clark County, the cities of Boulder City, Henderson, Las Vegas and North Las Vegas and Clark County School District comprise the Southern Nevada Regional Planning Coalition (SNRPC). The purpose of the SNRPC is to focus and capitalize on strategies that create a sustainable and balanced environment where economic and fiscal vibrancy, social equity, environmental preservation, and physical improvements are experienced by all in the community.

The SNRPC developed the Southern Nevada Strong (SNS) Regional Plan in a consortium comprising of the SNRPC (each city in the SNRPC, Clark County, and Clark County School District) and the following regional agencies: Regional Transportation Commission of Southern Nevada, University of Nevada Las Vegas, Southern Nevada Regional Housing Authority, Southern Nevada Water Authority, Southern Nevada Health District, and Conservation District of Southern Nevada.

The purpose of SNS is to develop regional support for long-term economic success and stronger communities by integrating reliable transportation, quality housing for all income levels, and job opportunities throughout Southern Nevada. These ideals were developed through a comprehensive public outreach program which garnered almost 70,000 inputs.

Collectively, the Consortium supports a region characterized by:

- A diversified economy with a wide range of job opportunities.

- High-quality educational systems for youth and the workforce.
- A multi-modal, well-connected transit system.
- Housing options for all preferences and budgets.
- Strong social service networks and high-quality health care.
- Safe, desirable and engaged communities.

These are the overall regional goals but the implementation relative to each community’s planning processes would still lie within the purview of the each community. The following presents the community planning for the communities adjacent to Nellis AFB.

6.2.3.2 Unincorporated Clark County



The Community Planning Division of the Clark County Comprehensive Planning Department is responsible for developing and implementing the Comprehensive Plan for Clark County. The Comprehensive Plan is divided into eleven planning areas. The two planning areas adjacent to Nellis AFB are Sunrise Manor and Northeast County. The 2010 Sunrise Manor Land Use Plan and 2012 Northeast County Land Use Plan, the most recently adopted plans, use an Airport Environs Overlay District that was established to protect the public from noise and safety hazards. The district regulations supplement the zoning district in the areas, but supersede the zoning in case of a conflict. Airport Environ sub-zones align with the generalized land use compatibility guidelines discussed in Section 6.4. They also add restrictions adjacent to ordnance loading areas and a runway protection zone.

6.2.3.3 City of North Las Vegas



In 1905, the City of Las Vegas was founded on 110 acres. In The City of North Las Vegas Comprehensive Master Plan was published in 2006 and updated in 2011. This Comprehensive Plan sets the policy document that guides city decision makers as they implement the plan and achieve the envisioned future for the city over the next 20 years. North Las Vegas has developed the Visioning 2025 Strategic Plan to guide future planning efforts.

Similar to the Sunrise Manor and Northeast County Land Use Plans, the CNLV plan established an Airport Environs Overlay District to guide zoning and allowable uses in noise and safety areas for both the North Las Vegas Airport and Nellis AFB. These airport sub-zones also align with the generalized land use compatibility guidelines discussed in Section 6.4. However, the airport sub-zones for the CNLV do not include ordnance loading areas or runway protection because they do not reach the extents of the city’s limits.

6.2.3.4 City of Las Vegas



The City of Las Vegas developed the Land Use and Rural Neighborhoods Preservation Element of the Las Vegas 2020 Master Plan in 2009 and updated it in 2012. The purpose of the plan is to inventory and classify the types of land uses in the city and serve as a comprehensive planning document for the most desirable utilization of land. In addition, it addresses the acquisition and use of federal land and develops general plans that preserve the character and density of rural neighborhoods.

6.3 Land Use and Proposed Development

6.3.1 Existing Land Use

This section only covers the lands within the AICUZ noise contours and CZs/APZs – the AICUZ footprint. The LOOC falls outside this area and is not discussed in this section.

Existing land uses within the AICUZ footprint are shown on figures 6-1 and 6-2, respectively. The land uses are based on the Clark County Assessor land use codes. The county-wide, parcel-based dataset was provided by the Clark County Comprehensive Planning Department. For AICUZ planning purposes, similar land uses were consolidated into the seven generalized categories as discussed in upcoming Section 6.4. See Appendix A for additional details.

Three communities lie adjacent to Nellis AFB: Sunrise Manor to the southeast, the CNLV to the west and north, and the CLV, south of the base. Overall, most development occurs south and west toward the Las Vegas urban area and is characterized by strip commercial parcels, mobile homes, single family homes, and industry. Land to the north and northeast, including the Apex Industrial Area, are predominately open range in the existing land use. Property to the east of Nellis AFB is primarily undeveloped land in unincorporated Clark County mostly under the management of the Bureau of Land Management. Commercial/Industrial uses dominate the area along Las Vegas Boulevard and Interstate 15.

6.3.2 Current Zoning

Zoning is the legal regulation of property use to protect the health, safety, and welfare of citizens; protect property rights; conserve resources; and avoid incompatible uses. In Nevada, counties and cities enact zoning ordinances to implement respective comprehensive plan objectives.

Current zoning data for Unincorporated Clark County was provided by the Clark County Comprehensive Planning Department. The CLV Department of Planning provided current zoning for both the CLV and the CNLV. For AICUZ planning purposes, similar zoning categories were consolidated into the seven generalized categories as discussed in Section 6.4. See Appendix A for additional details.

In general, the regulations prohibit development within CZs and discourage anything other than low density development in APZ I and APZ II. Residential development is restricted to low density developments with noise attenuation in zones with noise levels greater than 70 dB DNL.

As described in Section 6.3.1, zoning classifications are generalized to illustrate compatibility across common zoning types. Figure 6-3 shows current zoning and AICUZ planning contours in the areas surrounding Nellis AFB. Figure 6-4 presents zoning within Nellis AFB's Clear Zones and APZ I and II.

6.3.3 Future Land Use

Future land uses are presented on figures 6-5 and 6-6. Future land use data for Unincorporated Clark County was provided by the Clark County Comprehensive Planning Department. The City of Las Vegas Department of Planning provided future land use for both Las Vegas and North Las Vegas. For AICUZ planning purposes, similar land use categories were consolidated into the seven generalized categories as discussed in Section 6.4. See Appendix A for additional details.

The greatest change in land use is planned for North Las Vegas in the Apex Industrial Area north of the AFB. The entire corridor between and adjacent to Interstate 15 and Las Vegas Boulevard would be converted from primarily open/agriculture/low density to industrial land uses but would also include commercial and business residential.

Unincorporated Clark County would re-designate a majority of the area immediately west of Nellis AFB, roughly between Las Vegas Boulevard and East Lake Mead Boulevard, as industrial or commercial. An additional area just north of Las Vegas Boulevard, from Lamb Boulevard west to North Pecos Road, would also be converted to industrial or commercial land uses.

The City of Las Vegas areas within the Nellis AFB vicinity are extensively developed and future changes will primarily be a result of redevelopment and renovation with little change in usage.

Figure 6-1. Existing Land Use and 2017 AICUZ Noise Planning Contours Corridor

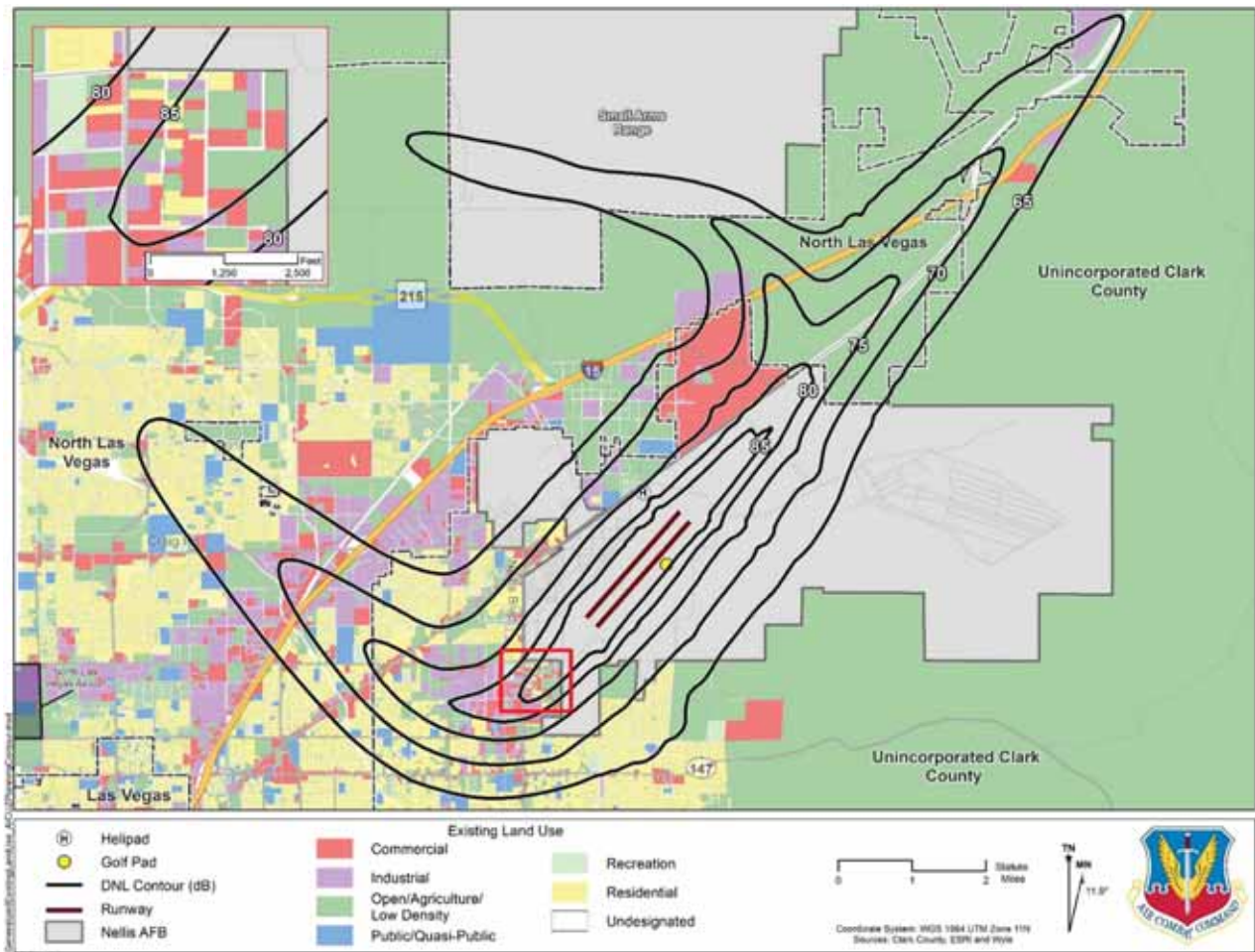


Figure 6-2. Generalized Existing Land Use and Accident Potential/Clear Zones

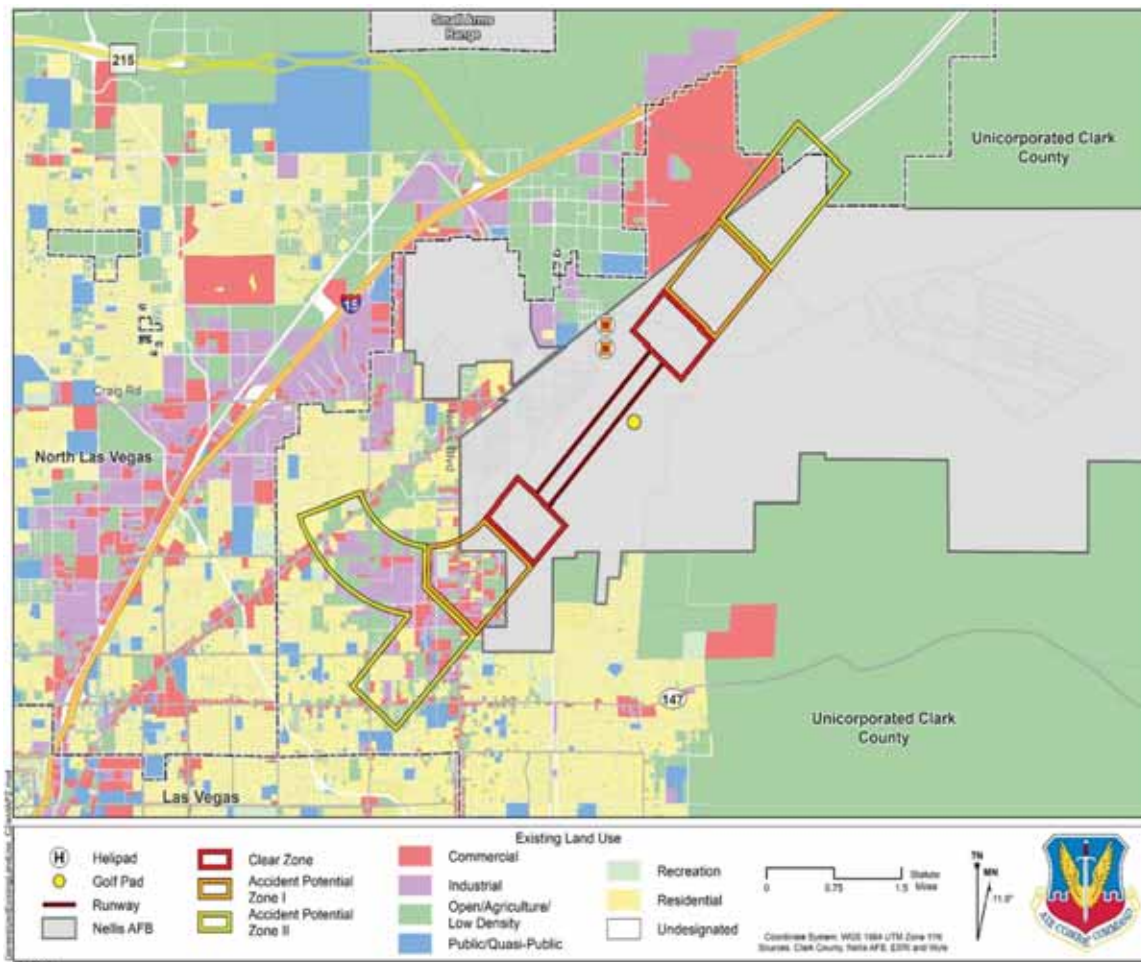


Figure 6-3. Existing Zoning and 2017 AICUZ Noise Planning Contours

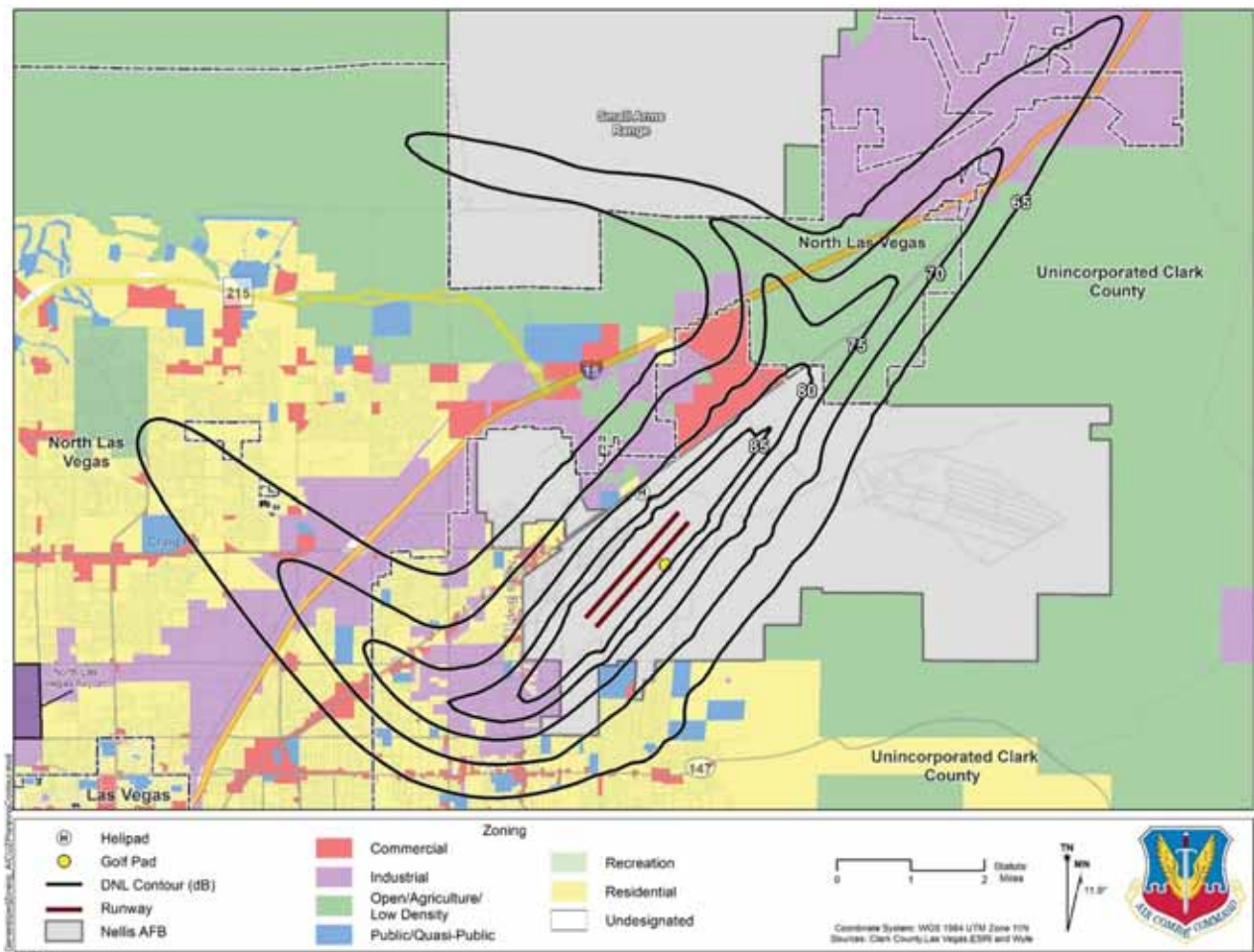


Figure 6-4. Existing Zoning and Accident Potential/Clear Zones

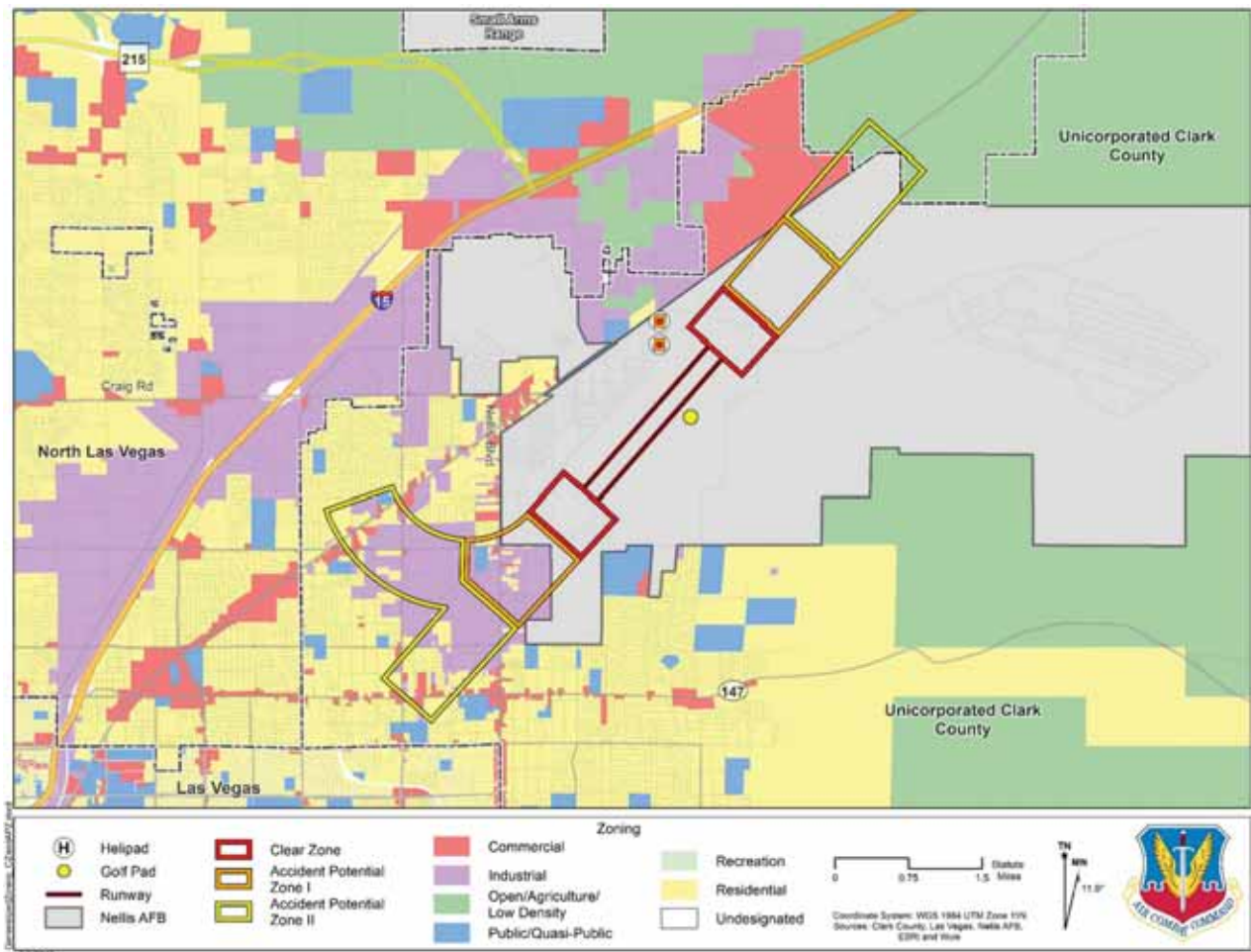


Figure 6-5. Future Land Use and 2017 AICUZ Noise Planning Contours

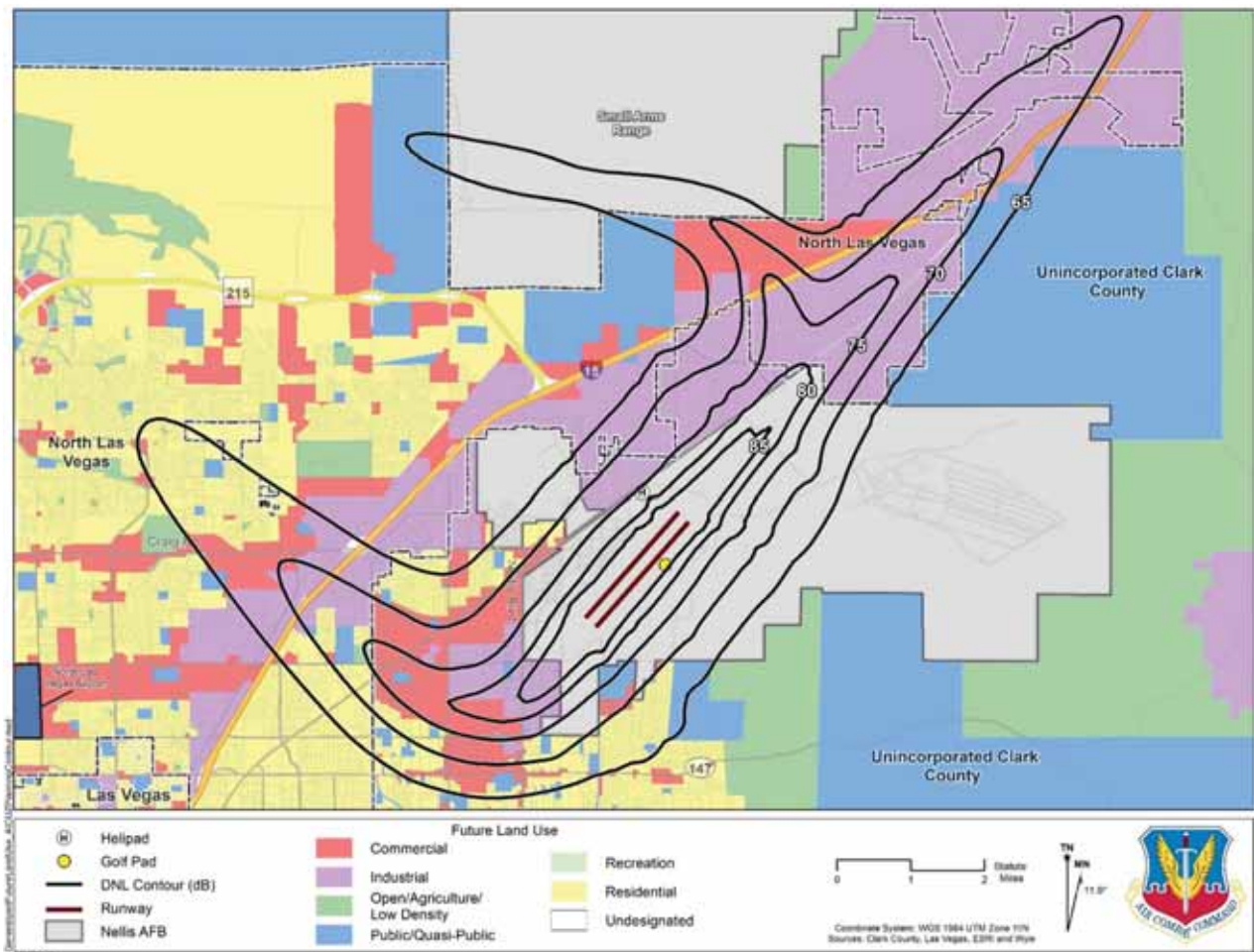
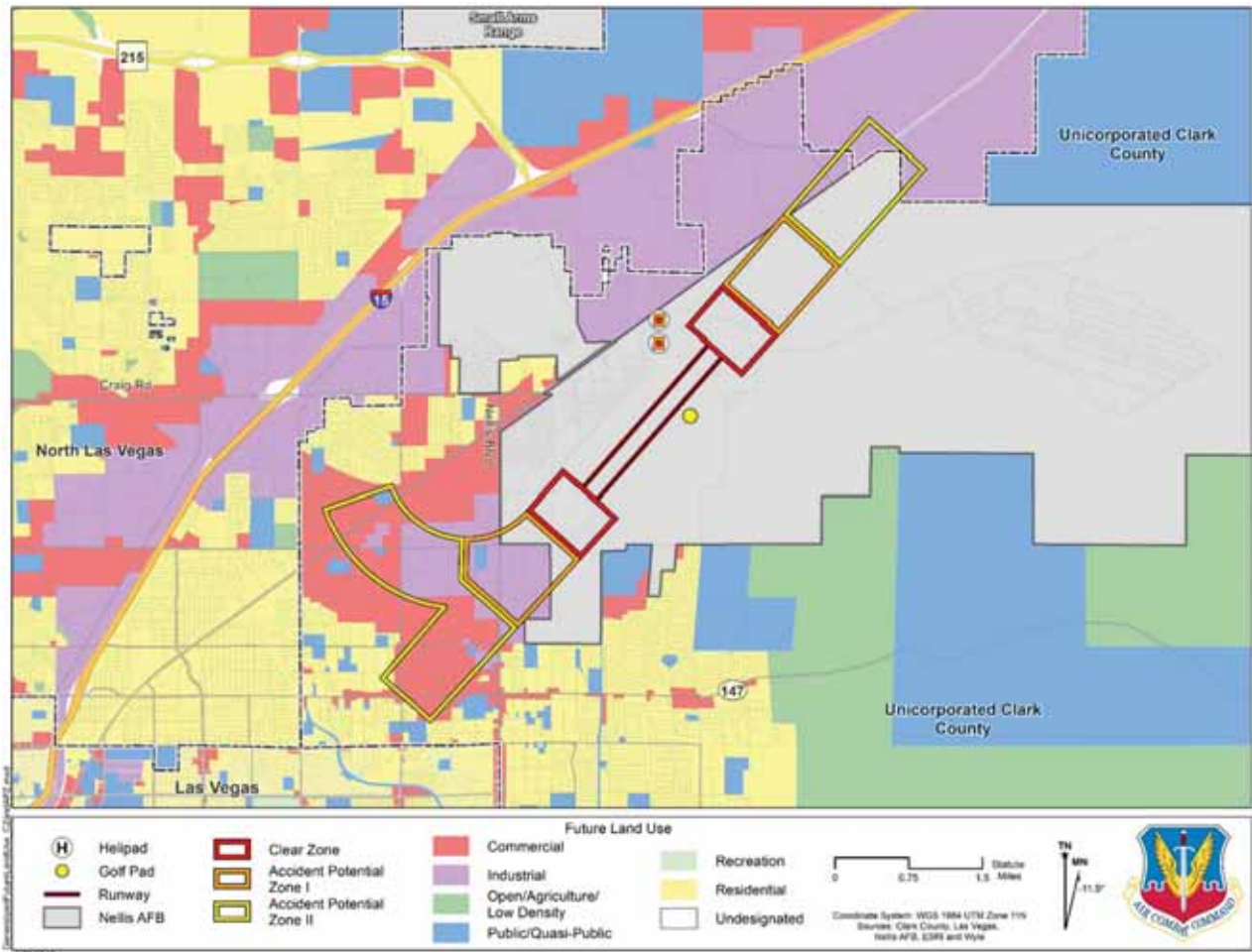


Figure 6-6. Future Land Use 2017 AICUZ CZs and APZs



6.4 Compatibility Concerns

6.4.1 Land Use Analysis

Land use describes how land is modified and managed, and is characterized by the dominant function occurring within an area. To compare land use consistently across jurisdictions, this analysis uses generalized land use classifications illustrating land use compatibility across common land use types. These generalized land use categories do not exactly represent the local community's land use designations, but combine similar uses into the one of the following seven categories:

- **Residential:** This category includes all types of residential activity, such as single and multi-family residences and mobile homes, at a density greater than one dwelling unit per acre.
- **Commercial:** Offices, retails, restaurants and other types of commercial establishments.
- **Industrial:** Manufacturing, warehouses and other similar uses.
- **Public/Quasi-Public:** Publicly owned lands and/or land to which the public has access, including military reservations and training grounds, public buildings, schools, churches, cemeteries, and hospitals.
- **Recreational:** Land areas designated for recreational activity, such as parks, wilderness areas and reservations, conservation areas, and areas designated for trails, hikes, camping, etc.
- **Open/Agriculture/Low Density:** Undeveloped land areas, agricultural areas, grazing lands and areas with residential activity at densities less than or equal to one dwelling unit per acre.
- **Undesignated:** Applies to parcels that have no indicated value or were listed as 'undesignated' in the original datasets.

For the purpose of this analysis, the DoD AICUZ compatibility guidelines (Tables A-1 and A-2 of Appendix A) have been consolidated into the seven generalized land use classifications. The generalized compatibility guidelines are shown in Table 6-1. Land use compatibility falls into one of four categories: (1) Compatible, (2) Compatible with Restrictions, (3) Not Compatible, and (4) Not Compatible with Exceptions. The conditionally compatible land use, i.e., categories 2 and 4, may require incorporation of noise attenuation measures into the design and construction of structures and further evaluation to be considered "compatible" or density limitations for land in CZs and APZs.

Table 6-1. Generalized Land Use Categories and Noise/Safety Compatibility

Generalized Land Use Category ³	Noise Zone (dB DNL)						CZ	APZ I	APZ II
	<65	65-69	70-74	75-79	80-84	85+			
Residential	Yes	No ¹	No ¹	No	No	No	No	No	No
Commercial	Yes	Yes	Yes ²	Yes ²	No	No	No	Yes ²	Yes ²
Industrial	Yes	Yes	Yes	Yes	Yes ²	No	No	Yes ²	Yes ²
Public/Quasi-Public	Yes	Yes ²	Yes ²	Yes ²	No	No	No	No	Yes ²
Recreation	Yes	Yes ²	Yes ²	No	No	No	No	Yes ²	Yes ²
Open/Agriculture/ Low Density	Yes	Yes ²	Yes ²	Yes ²	Yes ²	Yes ²	No	Yes ²	Yes ²
Undesignated	Yes	No	No	No	No	No	No	No	No

¹ Incompatible with exceptions

² Compatible with restrictions

³ Refer to Appendix A for details

6.4.2 Existing Land Use Compatibility Concerns

Table 6-2 provides existing land use compatibility acreages for areas exposed to DNL greater than or equal to 65 dB for Nellis AFB. CZ and APZ related land use acreages are provided in Table 6-3.

Figure 6-7 shows the location of all incompatible existing land uses. This is a combination of both incompatible areas in the AICUZ planning contours and in the CZs/APZs. The acreage of the combined incompatible areas is also provided.

6.4.2.1 Unincorporated Clark County



Incompatible residential areas within the 2017 AICUZ noise planning contours in unincorporated Clark County lie east of North Pecos Road roughly between East Craig Road and just south of East Lake Mead Boulevard. The few houses in the 80-84 dB DNL and 85+ dB DNL noise zones are in a pocket of land adjacent to the base that is east of Nellis Boulevard roughly between Cheyenne Avenue and East Carey Avenue. These same residences also fall within APZ I.

All of the incompatible commercial, industrial, and recreational areas are in unincorporated Clark County. Nellis Meadows Park on Cheyenne Avenue is the recreational area in noise zones 75-79 dB DNL and 80-84 dB DNL.

6.4.2.2 City of North Las Vegas



Aside from 13 acres of recreational land use in the 2017 AICUZ noise planning contours along North Pecos Road, residential land use is the only incompatible existing land use in the City of North Las Vegas. One area of residential incompatibility within the contours lies west of North Pecos Road, slightly north of East Cheyenne Avenue, and just south of East Lake Mead Boulevard, extending west to Interstate 15. The second area of incompatible residential land use is west of Losee

Road and north of East Craig Road, trending northwesterly to Camino Al Norte. No CZ and APZ incompatibilities occur in North Las Vegas.

Table 6-2. Off-Base Existing Land Use Acreage within the 2017 AICUZ Noise Planning Contours

Designation	Generalized Land Use Category ³	Noise Zone (dB DNL)										Total
		65-69	Note	70-74	Note	75-79	Note	80-84	Note	85+	Note	
Incompatible	Residential	2,300	(1)	926	(1)	242		14		14		3,496
	Commercial							123		39		162
	Industrial									15		15
	Public/Quasi-Public							–		–		–
	Recreation					35		6		–		41
	Open/Agriculture /Low Density											
	Undesignated	–		–		–		–		–		–
Compatible	Residential											
	Commercial	838		775	(2)	358	(2)					1,971
	Industrial	858		448		233		126	(2)			1,665
	Public/Quasi-Public	290	(2)	221	(2)	23	(2)					534
	Recreation	31	(2)	39	(2)							70
	Open/Agriculture /Low Density	4,998	(2)	2,642	(2)	1,055	(2)	75	(2)	49	(2)	8,819
	Undesignated											
Subtotals	Incompatible	2,300		926		277		143		68		3,714
	Compatible	7,015		4,125		1,669		201		49		13,059
TOTAL		9,315		5,051		1,946		344		117		16,773

Note: All contour areas on-base and over roadways are excluded from the counts

¹ Incompatible with exceptions

Table 6-3. Off-Base Existing Land Use Acreage within the 2017 AICUZ CZs and APZs

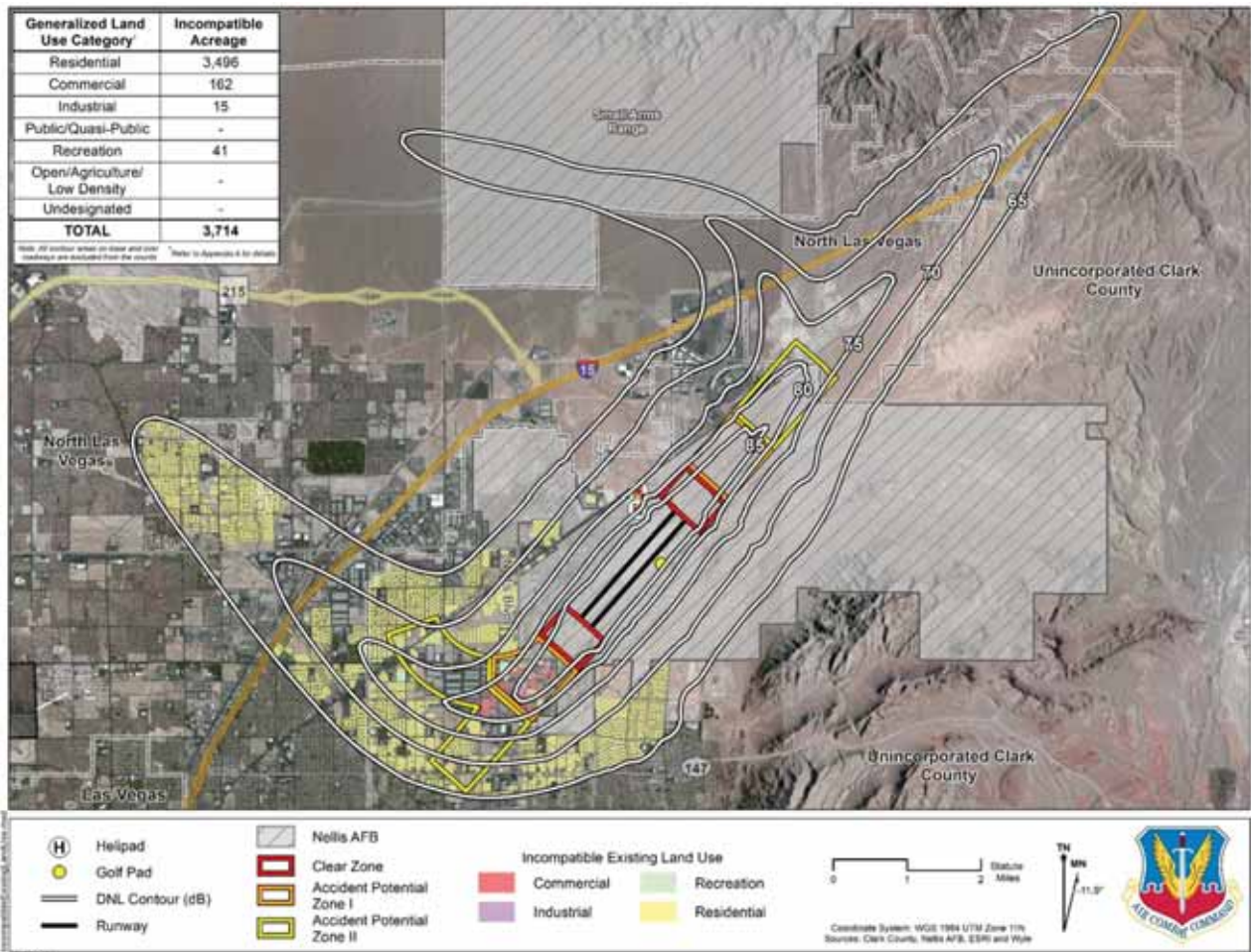
Designation	Generalized Land Use Category ²	CZ	Note	APZ I	Note	APZ II	Note	Total
Incompatible	Residential	–		40		246		286
	Commercial	–						–
	Industrial	–						–
	Public/Quasi-Public	–		–				–
	Recreation	–						–
	Open/Agriculture /Low Density	–						–
	Undesignated	–		–		–		–
Compatible	Residential							
	Commercial			106	(1)	243	(1)	349
	Industrial			81	(1)	349	(1)	430
	Public/Quasi-Public					15	(1)	15
	Recreation			19	(1)	12	(1)	31
	Open/Agriculture /Low Density			94	(1)	440	(1)	534
	Undesignated							
Subtotals	Incompatible	–		40		246		286
	Compatible	–		300		1,059		1,359
TOTAL		–		340		1,305		1,645

Note: All accident potential/clear zones areas on-base and over roadways are excluded from the counts

¹ Incompatible with exceptions

² Refer to Appendix A for details

Figure 6-7. Incompatible Existing Land Use



6.4.2.3 City of Las Vegas



Existing incompatible development consists of residential in the high noise zones greater than 65 dB DNL and in the APZs. However, the area is fully developed with limited infill opportunities.

6.4.3 Future Land Use Compatibility Concerns

The generalized AICUZ compatibility guidelines in Table 6-1 were compared to future land use plans to determine what type of compatibility is associated with the 2017 Nellis AICUZ noise planning contours, CZs, and APZs (the AICUZ footprint). Future land use compatibility acreages are provided in Tables 6-4 and 6-5.

Figure 6-8 identifies areas at risk to incompatible future developments within the AICUZ footprint. The acreage of the combined incompatible areas is provided in Table 4-2. Since the LOOC is not within the AICUZ footprint it was not included. Figure 6-8 provides the location of all incompatible future land uses.

When comparing future and existing land use compatibility acreages, it's important to recognize the differences in the structure of the land use datasets. The existing land use dataset is parcel based and excludes road areas. Aside from the exclusion of Interstate 15, the future land use dataset has continuous coverage between land uses. As a result, the future land use dataset will produce slightly higher acreage values due to the inclusion of road areas.

Table 6-4. Off-Base Future Land Use Acreage within the 2017 AICUZ Noise Planning Contours

Designation	Generalized Land Use Category ³	Noise Zone (dB DNL)										Total
		65-69	Note	70-74	Note	75-79	Note	80-84	Note	85+	Note	
Incompatible	Residential	3,452	(1)	592	(1)	7		–		–		4,051
	Commercial							113		–		113
	Industrial									131		131
	Public/Quasi-Public							6		–		6
	Recreation					–		–		–		–
	Open/Agriculture /Low Density											
	Undesignated	–		–		–		–		–		–
Compatible	Residential											
	Commercial	1,894		1,438	(2)	618	(2)					3,950
	Industrial	4,185		3,354		1,399		275	(2)			9,213
	Public/Quasi-Public	1,213	(2)	262	(2)	84	(2)					1,559
	Recreation	–	(2)	–	(2)							–
	Open/Agriculture /Low Density	27	(2)	27	(2)	15	(2)	–	(2)	–	(2)	69
	Undesignated											
Subtotals	Incompatible	3,452		592		7		119		131		4,301
	Compatible	7,319		5,081		2,116		275		–		14,791
TOTAL		10,771		5,673		2,123		394		131		19,092

Note: All contour areas on-base and over I-15 are excluded from the counts

¹ Incompatible with exceptions

² Compatible with restrictions

³ Refer to Appendix A for details

Table 6-5. Off-Base Future Land Use Acreage within the 2017 AICUZ CZs and APZs

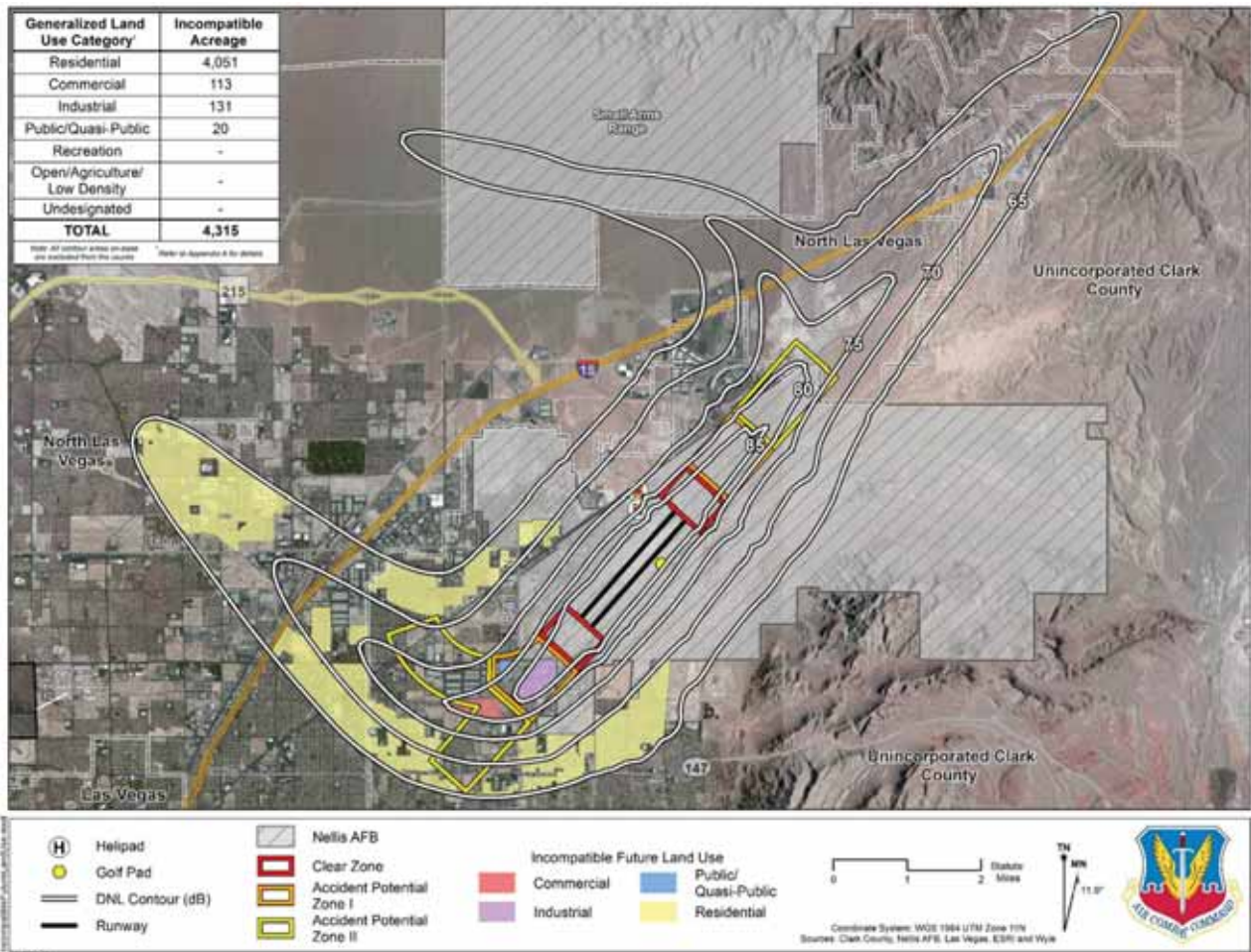
Designation	Generalized Land Use Category ²	CZ	Note	APZ I	Note	APZ II	Note	Total
Incompatible	Residential	–		–		13		13
	Commercial	–						–
	Industrial	–						–
	Public/Quasi-Public	–		20				20
	Recreation	–						–
	Open/Agriculture /Low Density	–						–
	Undesignated	–		–		–		–
Compatible	Residential							
	Commercial			–	(1)	844	(1)	844
	Industrial			359	(1)	608	(1)	967
	Public/Quasi-Public					26	(1)	26
	Recreation			–	(1)	–	(1)	–
	Open/Agriculture /Low Density			–	(1)	–	(1)	–
	Undesignated							
Subtotals	Incompatible	–		20		13		33
	Compatible	–		359		1,478		1,837
TOTAL		–		379		1,491		1,870

Note: All accident potential/clear zones areas on-base are excluded from the counts

¹ Compatible with restrictions

² Refer to Appendix A for details

Figure 6-8. Incompatible Future Land Use



6.4.3.1 Unincorporated Clark County



Under future conditions, incompatible land uses would still occur within unincorporated Clark County, but would be greatly reduced in some categories. While incompatible industrial land use would increase, both incompatible commercial and residential land uses would decrease.

There would be little or no incompatible land use in the 80-84 dB DNL and 85+ dB DNL noise zones in the future condition as compared to 28 acres under the existing conditions. Under future conditions incompatible residential land use in the 75-79 dB DNL noise zone would decrease by 235 acres. The majority of the residential areas in the noise zones would be in 60-64 dB DNL noise zone.

Incompatible residential land use within the APZs would decrease from 286 acres down to 13 acres.

6.4.3.2 City of North Las Vegas



Much of the City of North Las Vegas incompatibilities would not change under future conditions. The largest change is the conversion of several land use types to residential in the area from I-15 extending southwest to North Pecos Road at the city boundary.

Residential would be the only incompatible land use within North Las Vegas.


6.4.3.3 City of Las Vegas



There would be no additional incompatibilities associated within the Las Vegas land uses near Nellis AFB.

6.4.3.4 The Nellis-NTTR Live Ordnance Overflight Corridor (LOOC)

The LOOC overlies land controlled by multiple jurisdictions. While still sparsely populated today, the expectation of development north of the Las Vegas metropolitan area became a reality in 1989, when Congress established the Apex Industrial Park. Situated along the I-15 corridor, north of Nellis AFB, Apex Industrial Park comprises 22,000 acres and is currently under development. Before the Apex land was transferred to private development, the Air Force and BLM included land use controls giving the Air Force the right to prevent incompatible development. The Apex Industrial Park falls in the jurisdiction of North Las Vegas.



At the northern end of the LOOC, lies a BLM Solar Energy Zone (SEZ). The SEZ lies on the east side of US-93 and comprises 5,000 acres which will develop with mostly low glare solar arrays. In 2015, the BLM announced approval of three solar energy projects. Due to their low glare, the Air Force sees no impact to the NTTR-Nellis complex defense mission at this time. BLM is also updating the Southern Nevada Resource Management Plan (RMP) which includes several Areas of Critical Environmental Concern (ACEC). The ACEC consists of several areas of environmental concern such as endangered animal or plant habitats and migration routes. At this time, the Air Force has not identified any land use concerns for the RMP update.

While most proposed development seems compatible with the LOOC, the future of much of the land is uncertain. Consequently, Nellis personnel will continue to work with multiple jurisdictions involved in land use under the LOOC to ensure future uses are compatible with the Nellis-NTTR defense mission.

7.0 Implementation

Implementation of the AICUZ Study must be a joint effort between Nellis AFB and adjacent communities. This AICUZ Study provides the best source of information to ensure land use planning decisions made by the local municipalities are compatible with a future installation presence. The role of Nellis AFB (Section 7.1) is to minimize noise impact on the surrounding local communities by operational activities on the base. The role of the communities, encompassed in Sections 7.2 through 7.4, is to ensure that development in the surrounding area is compatible with accepted planning, zoning, and development principles and practices to protect the base's mission.

7.1 Air Force Role

The goal of the Air Force AICUZ program is to minimize the noise and safety concerns on the surrounding communities and to advise these communities on potential effects from base operations on the safety, welfare, and quality of life of their citizens.

Nellis AFB 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 a great deal to ensure that aircraft accidents are avoided. History shows that accidents do occur despite the best aircrew training and aircraft maintenance.
- Air Force should ensure that wherever, possible flights be routed over sparsely populated areas as to reduce the exposure of lives and property to a potential accident.
- Air Force should periodically review existing traffic patterns, instrument approaches, weather conditions, and operating practices and evaluate these factors in relationship to populated areas and other local situations. This is done in order to limit, reduce and control the impact of flying operations noise on surrounding communities.
- Nellis should establish a community forum between the installation and surrounding stakeholders to discuss land use and other issues of concern; these meetings should be held on a quarterly basis.

Preparation and presentation of this Nellis AFB AICUZ Study is one phase of continuing Air Force participation in the local planning process. It is recognized that as the local community updates its land use plans, Nellis AFB must be ready to provide additional input when needed.

It is also recognized that the AICUZ program is an ongoing activity even after compatible development plans are adopted and implemented. The local communities are encouraged to use this study to update their land use plans. Nellis AFB 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, the base. Nellis AFB personnel also

are available to provide information, criteria, and guidelines to state, regional, and local planning bodies; civic associations; and similar groups to assist them in planning efforts.

7.2 Role of the Community

The community should ensure that development within the areas surrounding a military installation are compatible with the base's primary mission. It is also imperative that community leaders, developers and planners adhere to and comply with accepted planning, zoning, and developmental practices and principles.

- Schedule land use planning meetings to provide a forum for agencies to meet and discuss future developments and to address issues that may surface as a result of new proposals. In an effort to further facilitate and promote straightforward, consistent two-way discussion and information sharing, Nellis AFB provides copies of AICUZ studies to the local, county, tribal, and regional planning departments and zoning administrators to aid in the planning process.
- Ensure that new development applications or "changed use of property" are submitted to Nellis AFB to afford the opportunity to assess those applications for potential impacts on defense missions. The Nellis AFB Public Affairs Office can provide a land use planning point of contact.

7.3 State / Regional Roles

The Nevada Joint Military Affairs Committee (NJMAC) was established in the 1990s and continues to meet semi-annually. NJMAC should:

- Maintain communication and foster relationships between the State of Nevada, the Department of Defense branches, Department of Energy and the federal land management agencies charged with managing installations and lands in Nevada.
- The committee should discuss plans that have mutual interest among members, and as applicable, propose actions to address significant issues.

Nellis AFB enjoys several regional relationships including; the Civilian Military Council, consisting of the Clark County, Nye County, and Lincoln County Boards of Commissioners and the mayors of Las Vegas, North Las Vegas, Henderson, Boulder City and Mesquite; the Nellis Support Team, consists of business owners and citizens dedicated for the ongoing support of Nellis AFB. These organizations, along with the NJMAC, assist Nellis AFB with addressing encroachment concerns assuring the viability of Nellis AFB in the Las Vegas Valley.

7.4 Local Government Role

The role of the communities is to promote development in areas surrounding the installation are compatible with accepted planning, zoning, and development principles and practices to protect the base's mission. The residents of the surrounding community have a long history of working with personnel from Nellis AFB. Adoption of the following

recommendations during the revision of relevant land use planning or zoning regulations will strengthen this relationship, increase the health and safety of the public, and help protect the integrity of the installation's flying mission:

- Recommend local government planners consider AICUZ policies and guidelines when developing or revising city comprehensive plans and use AICUZ overlay maps and Air Force Land Use Compatibility Guidelines (see Appendix A) to evaluate existing and future land use proposals.
- Recommend zoning ordinances be adopted or modified to reflect the compatible land uses outlined in the AICUZ study.
- Recommend local government and county planners establish procedures to consult on land use matters within overlapping extra-territorial jurisdictions near Nellis AFB.
- Recommend local government, county, and state expenditure plans/programs be reviewed to ensure they do not encourage incompatible land use patterns near Nellis AFB, with particular emphasis on utility extension and transportation planning.
- Recommend local governments implement height and obstruction ordinances that reflect current Air Force and Title 14 of the Code of Federal Regulations Part 77 requirements.
- Recommend fair disclosure ordinances be enacted to require disclosure to the public for those AICUZ items that directly relate to aircraft operations at Nellis AFB.
- Recommend real estate disclosures be provided to individuals purchasing property within noise contours or CZs/APZs.
- Encourage building/residential codes be enacted or modified to ensure that any new construction in the vicinity of Nellis AFB has the recommended noise-level reduction measures incorporated into the design and construction of structures.
- Recommend proposals for tall structures such as wind turbines and communication towers be monitored to ensure that new construction does not pose a hazard to navigable airspace around Nellis AFB. Where appropriate coordinate with the FAA on height of structures.
- Recommend that local government land use plans and ordinances reflect AICUZ recommendations for development in APZs and noise zones.
- Encourage local governments consult early in the process with Nellis AFB on planning and zoning actions that have the potential to affect base operations.
- Encourage the development of a working group of city, county, and Nellis AFB representatives to discuss land use concerns and major development proposals that could affect aircraft operations.

7.5 Private Citizens / Real Estate Professionals / Businesses Roles

Neighboring residents and base personnel have a long-established history of working together for the mutual benefit of the Nellis AFB mission and local community. Provincial jurisdictions should take a proactive approach in incorporating land use regulations into local plans and ordinances, which take Nellis AFB operations into account when considering development proposals. Adoption of the following recommendations will strengthen this relationship, protect the health and ensure the safety of the public, and help protect the integrity of the installation's flying mission:

- Incorporate AICUZ policies and guidelines into the comprehensive plans of Clark County and local communities. Use overlay maps of the AICUZ noise contours and land use compatibility guidelines to evaluate existing and future land use proposals.
- Make recommendations regarding existing zoning ordinances and subdivision regulations to support the compatible land uses outlined in this study through implementation of a zoning overlay district based on noise contours and CZs/APZs.
- Require sellers of real estate to disclose noise impact to all prospective buyers of properties within areas greater than 65 dB DNL or within the CZs/APZs.
- Implement height and obstruction ordinances to reflect current Air Force and Federal Aviation Regulation Part 77 requirements.
- Make recommendations regarding building codes to ensure that new construction within the AICUZ area of influence has the recommended noise level reductions incorporated into design and construction codes.
- Continue to inform Nellis AFB of planning and zoning actions that have the potential to affect base operations. Develop a working group representing city planners, county planners, and base planners to meet at least quarterly to discuss AICUZ concerns and major development proposals that could affect airfield operations.

Whereas the base and community are separated by a fence, what the Air Force does affects the community and conversely what the community does, can affect the Air Force mission. Collaborative planning, forging partnerships, open communications, and close relationships help the Air Force and its neighbors achieve their mutual goals.

8.0 References

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Appendix A – Air Force Land Use Compatibility Recommendations and Generalized Land Use

Table A-1. Air Force Land Use Compatibility Recommendations in CZs and APZs

SLUCM NO.	LAND USE NAME	CLEAR ZONE Recommendation ¹	APZ-I Recommendation ¹	APZ-II Recommendation ¹	DENSITY Recommendation ¹
10	Residential				
11	Household Units				
11.11	Single units: detached	N	N	Y ²	Maximum density of 2 Du/Ac
11.12	Single units: semi-detached	N	N	N	
11.13	Single units: attached row	N	N	N	
11.21	Two units: side-by-side	N	N	N	
11.22	Two units: one above the other	N	N	N	
11.31	Apartments: walk-up	N	N	N	
11.32	Apartment: elevator	N	N	N	
12	Group quarters	N	N	N	
13	Residential hotels	N	N	N	
14	Mobile home parks or courts	N	N	N	
15	Transient lodgings	N	N	N	
16	Other residential	N	N	N	
20	Manufacturing³				
21	Food and kindred products; manufacturing	N	N	Y	Maximum FAR 0.56 IN APZ II
22	Textile mill products; manufacturing	N	N	Y	Maximum FAR 0.56 IN APZ II
23	Apparel and other finished products; products made from fabrics, leather and similar materials; manufacturing	N	N	N	
24	Lumber and wood products (except furniture); manufacturing	N	Y	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II

SLUCM NO.	LAND USE NAME	CLEAR ZONE Recommendation ¹	APZ-I Recommendation ¹	APZ-II Recommendation ¹	DENSITY Recommendation ¹
25	Furniture and fixtures; manufacturing	N	Y	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
26	Paper and allied products; manufacturing	N	Y	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
27	Printing, publishing, and allied industries	N	Y	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
28	Chemicals and allied products; manufacturing	N	N	N	
29	Petroleum refining and related industries	N	N	N	
30	Manufacturing³ (continued)				
31	Rubber and miscellaneous plastic products; manufacturing	N	N	N	
32	Stone, clay, and glass products; manufacturing	N	N	Y	Maximum FAR 0.56 in APZ II
33	Primary metal products; manufacturing	N	N	Y	Maximum FAR 0.56 in APZ II
34	Fabricated metal products; manufacturing	N	N	Y	Maximum FAR 0.56 in APZ II
35	Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks	N	N	N	
39	Miscellaneous manufacturing	N	Y	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
40	Transportation, Communication, and Utilities^{3,4}				
41	Railroad, rapid rail transit, and street railway transportation	N	Y ⁶	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II

SLUCM NO.	LAND USE NAME	CLEAR ZONE Recommendation ¹	APZ-I Recommendation ¹	APZ-II Recommendation ¹	DENSITY Recommendation ¹
42	Motor vehicle transportation	N	Y ⁶	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
43	Aircraft transportation	N	Y ⁶	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
44	Marine craft transportation	N	Y ⁶	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
45	Highway and street right-of-way	Y ⁵	Y ⁶	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
46	Automobile parking	N	Y ⁶	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
47	Communication	N	Y ⁶	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
48	Utilities ⁷	N	Y ⁶	Y ⁶	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
48.5	Solid waste disposal (landfills, incinerators, etc.)	N	N	N	
49	Other transportation, communication, and utilities	N	Y ⁶	Y	See Note 6 below
50	Trade				
51	Wholesale trade	N	Y	Y	Maximum FAR of 0.28 in APZ I & .56 in APZ II
52	Retail trade – building materials, hardware and farm equipment	N	Y	Y	See Note 8 below
53	Retail trade – including, discount clubs, home improvement stores, electronics superstores, etc.	N	N	Y	Maximum FAR of 0.16 in APZ II

SLUCM NO.	LAND USE NAME	CLEAR ZONE Recommendation ¹	APZ-I Recommendation ¹	APZ-II Recommendation ¹	DENSITY Recommendation ¹
53	Shopping centers-Neighborhood, Community, Regional, Super-regional ⁹	N	N	N	
54	Retail trade – food	N	N	Y	Maximum FAR of 0.24 in APZ II
55	Retail trade – automotive, marine craft, aircraft, and accessories	N	Y	Y	Maximum FAR of 0.14 in APZ I & 0.28 in APZ II
56	Retail trade – apparel and accessories	N	N	Y	Maximum FAR of 0.28 in APZ II
57	Retail trade – furniture, home, furnishings and equipment	N	N	Y	Maximum FAR of 0.28 in APZ II
58	Retail trade – eating and drinking establishments	N	N	N	
59	Other retail trade	N	N	Y	Maximum FAR of 0.16 in APZ II
60	Services¹⁰				
61	Finance, insurance and real estate services	N	N	Y	Maximum FAR of 0.22 in APZ II
62	Personal services	N	N	Y	Office uses only. Maximum FAR of 0.22 in APZ II.
62.4	Cemeteries	N	Y ¹¹	Y ¹¹	
63	Business services (credit reporting; mail, stenographic, reproduction; advertising)	N	N	Y	Maximum FAR of 0.22 in APZ II
63.7	Warehousing and storage services ¹²	N	Y	Y	Maximum FAR of 1.0 in APZ I; 2.0 in APZ II
64	Repair Services	N	Y	Y	Maximum FAR of 0.11 APZ I; 0.22 in APZ II
65	Professional services	N	N	Y	Maximum FAR of 0.22 in APZ II

SLUCM NO.	LAND USE NAME	CLEAR ZONE Recommendation ¹	APZ-I Recommendation ¹	APZ-II Recommendation ¹	DENSITY Recommendation ¹
65.1	Hospitals, nursing homes	N	N	N	
65.1	Other medical facilities	N	N	N	
66	Contract construction services	N	Y	Y	Maximum FAR of 0.11 APZ I; 0.22 in APZ II
67	Government Services	N	N	Y	Maximum FAR of 0.24 in APZ II
68	Educational services	N	N	N	
68.1	Child care services, child development centers, and nurseries	N	N	N	
69	Miscellaneous Services	N	N	Y	Maximum FAR of 0.22 in APZ II
69.1	Religious activities (including places of worship)	N	N	N	
70	Cultural, Entertainment and Recreational				
71	Cultural activities	N	N	N	
71.2	Nature exhibits	N	Y ¹³	Y ¹³	
72	Public assembly	N	N	N	
72.1	Auditoriums, concert halls	N	N	N	
72.11	Outdoor music shells, amphitheaters	N	N	N	
72.2	Outdoor sports arenas, spectator sports	N	N	N	
73	Amusements – fairgrounds, miniature golf, driving ranges; amusement parks, etc.	N	N	Y ²⁰	
74	Recreational activities (including golf courses, riding stables, water recreation)	N	Y ¹³	Y ¹³	Maximum FAR of 0.11 in APZ I; 0.22 in APZ II

SLUCM NO.	LAND USE NAME	CLEAR ZONE Recommendation ¹	APZ-I Recommendation ¹	APZ-II Recommendation ¹	DENSITY Recommendation ¹
70	Cultural, Entertainment and Recreational (continued)				
75	Resorts and group camps	N	N	N	
76	Parks	N	Y ¹³	Y ¹³	Maximum FAR of 0.11 in APZ I; 0.22 in APZ II
79	Other cultural, entertainment and recreation	N	Y ¹¹	Y ¹¹	Maximum FAR of 0.11 in APZ I; 0.22 in APZ II
80	Resource Production and Extraction				
81	Agriculture (except live- stock)	Y ⁴	Y ¹⁴	Y ¹⁴	
81.5-81.7,	Agriculture- Livestock farming, including grazing and feedlots	N	Y ¹⁴	Y ¹⁴	
82	Agriculture related activities	N	Y ¹⁵	Y ¹⁵	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II, no activity which produces smoke, glare, or involves explosives
83	Forestry activities ¹⁶	N	Y	Y	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II, no activity which produces smoke, glare, or involves explosives
84	Fishing activities ¹⁷	N ¹⁷	Y	Y	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II, no activity which produces smoke, glare, or involves explosives

SLUCM NO.	LAND USE NAME	CLEAR ZONE Recommendation ¹	APZ-I Recommendation ¹	APZ-II Recommendation ¹	DENSITY Recommendation ¹
85	Mining activities ¹⁸	N	Y ¹⁸	Y ¹⁸	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II, no activity which produces smoke, glare, or involves explosives
89	Other resource production or extraction	N	Y	Y	Maximum FAR of 0.28 in APZ I; 0.56 in APZ II, no activity which produces smoke, glare, or involves explosives
90	Other				
91	Undeveloped land	Y	Y	Y	
93	Water areas ¹⁹	N ¹⁹	N ¹⁹	N ¹⁹	

Notes:

1. A “Yes” or a “No” designation for compatible land use is to be used only for general comparison. Within each, uses exist where further evaluation may be needed in each category as to whether it is clearly compatible, normally compatible, or not compatible due to the variation of densities of people and structures. In order to assist air installations and local governments, general suggestions as to FARs are provided as a guide to density in some categories. In general, land use restrictions that limit occupants, including employees, of commercial, service, or industrial buildings or structures to 25 an acre in APZ I and 50 an acre in APZ II are considered to be low density. Outside events should normally be limited to assemblies of not more than 25 people an acre in APZ I, and maximum assemblies of 50 people an acre in APZ II. Recommended FARs are calculated using standard parking generation rates for various land uses, vehicle occupancy rates, and desired density in APZ I and II. For APZ I, the formula is FAR = 25 people an acre/ (Average Vehicle Occupancy x Average Parking Rate x (43560/1000)). The formula for APZ II is FAR = 50/ (Average Vehicle Occupancy x Average Parking Rate x (43560/1000)).
2. The suggested maximum density for detached single-family housing is two Du/Ac. In a planned unit development (PUD) of single family detached units, where clustered housing development results in large open areas, this density could possibly be increased slightly provided the amount of surface area covered by structures does not exceed 20 percent of the PUD total area. PUD encourages clustered development that leaves large open areas.
3. Other factors to be considered: Labor intensity, structural coverage, explosive characteristics, air-pollution, electronic interference with aircraft, height of structures, and potential glare to pilots.
4. No structures (except airfield lighting and navigational aids necessary for the safe operation of the airfield when there are no other siting options), buildings, or above-ground utility and communications lines should normally be located in Clear Zone areas on or off the air installation. The Clear Zone is subject to the most severe restrictions.
5. Roads within the graded portion of the Clear Zone are prohibited. All roads within the Clear Zone are discouraged, but if required, they should not be wider than two lanes and the rights-of-way should be fenced (frangible) and not include sidewalks or bicycle trails. Nothing associated with these roads should violate obstacle clearance criteria.

6. No above ground passenger terminals and no above ground power transmission or distribution lines. Prohibited power lines include high-voltage transmission lines and distribution lines that provide power to cities, towns, or regional power for unincorporated areas.
7. Development of renewable energy resources, including solar and geothermal facilities and wind turbines, may impact military operations through hazards to flight or electromagnetic interference. Each new development should to be analyzed for compatibility issues on a case-by-case basis that considers both the proposal and potentially affected mission.
8. Within SLUCM Code 52, maximum FARs for lumberyards (SLUCM Code 521) are 0.20 in APZ-I and 0.40 in APZ-11; the maximum FARs for hardware, paint, and farm equipment stores, (SLUCM Code 525), are 0.12 in APZ I and 0.24 in APZ II.
9. A shopping center is an integrated group of commercial establishments that is planned, developed, owned, or managed as a unit. Shopping center types include strip, neighborhood, community, regional, and super-regional facilities anchored by small businesses, a supermarket or drug store, discount retailer, department store, or several department stores, respectively.
10. Ancillary uses such as meeting places, auditoriums, etc. are not recommended.
11. No chapels or houses of worship are allowed within APZ I or APZ II.
12. Big box home improvement stores are not included as part of this category.
13. Facilities must be low intensity, and provide no playgrounds, etc. Facilities such as club houses, meeting places, auditoriums, large classes, etc., are not recommended.
14. Activities that attract concentrations of birds creating a hazard to aircraft operations should be excluded.
15. Factors to be considered: labor intensity, structural coverage, explosive characteristics, and air pollution.
16. Lumber and timber products removed due to establishment, expansion, or maintenance of Clear Zone lands owned in fee will be disposed of in accordance with applicable DoD guidance.
17. Controlled hunting and fishing may be permitted for the purpose of wildlife management.
18. Surface mining operations that could create retention ponds that may attract waterfowl and present bird/wildlife aircraft strike hazards (BASH), or operations that produce dust or light emissions that could affect pilot vision are not compatible.
19. Naturally occurring water features (e.g., rivers, lakes, streams, wetlands) are pre-existing, nonconforming land uses. Naturally occurring water features that attract waterfowl present a potential BASH. Actions to expand naturally occurring water features or construction of new water features should not be encouraged. If construction of new features is necessary for storm water retention, such features should be designed so that they do not attract waterfowl.
20. Amusement centers, family entertainment centers or amusement parks designed or operated at a scale that could attract or result in concentrations of people, including employees and visitors, greater than 50 people per acre at any given time are incompatible in APZ II.

Table A-2. Air Force Land Use Compatibility Recommendations for Noise Zones

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

SLUCM NO.	LAND USE		SUGGESTED LAND USE COMPATIBILITY				
	LAND USE NAME	DNL or CNEL 65-69	DNL or CNEL 70-74	DNL or CNEL 75-79	DNL or CNEL 80-84	DNL or CNEL 85+	
30	Manufacturing (continued)						
31	Rubber and misc. plastic products; manufacturing	Y	Y ²	Y ³	Y ⁴	N	
32	Stone, clay and glass products; manufacturing	Y	Y ²	Y ³	Y ⁴	N	
33	Primary metal products; manufacturing	Y	Y ²	Y ³	Y ⁴	N	
34	Fabricated metal products; manufacturing	Y	Y ²	Y ³	Y ⁴	N	
35	Professional scientific, and controlling instruments; photographic and optical goods; watches and clocks	Y	25	30	N	N	
39	Miscellaneous manufacturing	Y	Y ²	Y ³	Y ⁴	N	
40	Transportation, Communication and Utilities						
41	Railroad, rapid rail transit, and street railway transportation	Y	Y ²	Y ³	Y ⁴	N	
42	Motor vehicle transportation	Y	Y ²	Y ³	Y ⁴	N	
43	Aircraft transportation	Y	Y ²	Y ³	Y ⁴	N	
44	Marine craft transportation	Y	Y ²	Y ³	Y ⁴	N	
45	Highway and street right-of-way	Y	Y	Y	Y	N	
46	Automobile parking	Y	Y	Y	Y	N	
47	Communication	Y	255	305	N	N	
48	Utilities	Y	Y ²	Y ³	Y ⁴	N	
49	Other transportation, communication and utilities	Y	255	305	N	N	
50	Trade						
51	Wholesale trade	Y	Y ²	Y ³	Y ⁴	N	
52	Retail trade – building materials, hardware and farm equipment	Y	25	30	Y ⁴	N	
53	Retail trade – including shopping centers, discount clubs, home improvement stores, electronics superstores, etc.	Y	25	30	N	N	
54	Retail trade – food	Y	25	30	N	N	
55	Retail trade – automotive, marine craft, aircraft and accessories	Y	25	30	N	N	

SLUCM NO.	LAND USE		SUGGESTED LAND USE COMPATIBILITY			
	LAND USE NAME	DNL or CNEL 65-69	DNL or CNEL 70-74	DNL or CNEL 75-79	DNL or CNEL 80-84	DNL or CNEL 85+
56	Retail trade – apparel and accessories	Y	25	30	N	N
57	Retail trade – furniture, home, furnishings and equipment	Y	25	30	N	N
58	Retail trade – eating and drinking establishments	Y	25	30	N	N
59	Other retail trade	Y	25	30	N	N
60	Services					
61	Finance, insurance and real estate services	Y	25	30	N	N
62	Personal services	Y	25	30	N	N
62.4	Cemeteries	Y	Y ²	Y ³	Y ^{4,11}	Y ^{6,11}
63	Business services	Y	25	30	N	N
63.7	Warehousing and storage	Y	Y ²	Y ³	Y ⁴	N
64	Repair services	Y	Y ²	Y ³	Y ⁴	N
65	Professional services	Y	25	30	N	N
65.1	Hospitals, other medical facilities	25	30	N	N	N
65.16	Nursing homes	N ¹	N ¹	N	N	N
66	Contract construction services	Y	25	30	N	N
67	Government services	Y ¹	25	30	N	N
68	Educational services	25	30	N	N	N
68.1	Child care services, child development centers, and nurseries	25	30	N	N	N
69	Miscellaneous Services	Y	25	30	N	N
69.1	Religious activities (including places of worship)	Y	25	30	N	N
70	Cultural, Entertainment and Recreational					
71	Cultural activities	25	30	N	N	N
71.2	Nature exhibits	Y ¹	N	N	N	N
72	Public assembly	Y	N	N	N	N
72.1	Auditoriums, concert halls	25	30	N	N	N
72.11	Outdoor music shells, amphitheaters	N	N	N	N	N
72.2	Outdoor sports arenas, spectator sports	Y ⁷	Y ⁷	N	N	N
73	Amusements	Y	Y	N	N	N

SLUCM NO.	LAND USE		SUGGESTED LAND USE COMPATIBILITY			
	LAND USE NAME	DNL or CNEL 65-69	DNL or CNEL 70-74	DNL or CNEL 75-79	DNL or CNEL 80-84	DNL or CNEL 85+
74	Recreational activities (including golf courses, riding stables, water recreation)	Y	25	30	N	N
75	Resorts and group camps	Y	25	N	N	N
76	Parks	Y	25	N	N	N
79	Other cultural, entertainment and recreation	Y	25	N	N	N
80	Resource Production and Extraction					
81	Agriculture (except live-stock)	Y ⁸	Y ⁹	Y ¹⁰	Y ^{10,11}	Y ^{10,11}
81.5-81.7	Agriculture-Livestock farming including grazing and feedlots	Y ⁸	Y ⁹	N	N	N
82	Agriculture related activities	Y ⁸	Y ⁹	Y ¹⁰	Y ^{10,11}	Y ^{10,11}
83	Forestry activities	Y ⁸	Y ⁹	Y ¹⁰	Y ^{10,11}	Y ^{10,11}
84	Fishing activities	Y	Y	Y	Y	Y
85	Mining activities	Y	Y	Y	Y	Y
89	Other resource production or extraction	Y	Y	Y	Y	Y

KEY:

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

Y (Yes) – Land use and related structures compatible without restrictions.

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

Yx – Yes with restrictions. The land use and related structures generally are compatible. However, see note(s) indicated by the superscript.

Nx – No with exceptions. The land use and related structures are generally incompatible. However, see note(s) indicated by the superscript.

25, 30, or 35 – The numbers refer to noise level reduction (NLR) levels. NLR (outdoor to indoor) is achieved through the incorporation of noise attenuation into the design and construction of a structure. Land use and related structures are generally compatible; however, measures to achieve NLR of 25, 30, or 35 must be incorporated into design and construction of structures. However, measures to achieve an overall noise reduction do not necessarily solve noise difficulties outside the structure and additional evaluation is warranted. Also, see notes indicated by superscripts where they appear with one of these numbers.

DNL – Day-Night Average Sound Level.

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

Ldn – Mathematical symbol for DNL.

NOTES:

1. General

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

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

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

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

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

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

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

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

6. Buildings are not permitted.

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

8. Residential buildings require an NLR of 25

9. Residential buildings require an NLR of 30.

10. Residential buildings are not permitted.

11. Land use that involves outdoor activities is not recommended, but if the community allows such activities, hearing protection devices should be worn when noise sources are present. Long-term exposure (multiple hours per day over many years) to high noise levels can cause hearing loss in some unprotected individuals.

Table A-3. Consolidation of Clark County Existing Land Use Data (within map extents) into Generalized Categories

Code	Description	Generalized Category for AICUZ
0	Vacant	Open/Agriculture/Low Density
110	Single Family Residence	Residential
120	Duplex	Residential
130	Triplex	Residential
140	Four-Plex	Residential
150	Apartments	Residential
160	Townhouses	Residential
170	Multi-Family Structures	Residential
180	Manufactured Home Parks	Residential
185	Manufactured Home Estates	Residential
188	Manufactured Homes	Residential
195	Common Area – Parcels of land developed in conjunction with P.U.Ds, townhouses and manufactured home estates	Residential
210	Manufacturing	Industrial
220	Mining	Industrial
230	Heavy Equipment	Industrial
240	Storage Facilities	Industrial
250	Mini-Warehouse	Industrial
260	Industrial Condominiums - NOT RESIDENTIAL	Industrial
310	Hotels	Commercial
311	Hotels - Class 2	Commercial
312	Hotels - Class 3	Commercial
321	Motels	Commercial
325	Casinos	Commercial
330	General Services	Commercial
335	Professional and Business Services	Commercial
338	Financial	Commercial
340	Entertainment	Commercial
345	Recreational - target ranges, ice skating, etc.	Commercial
346	Golf Course - Public	Commercial
349	Golf Course - Resort	Commercial
350	Regional Shopping Center	Commercial
355	Neighborhood Shopping Center	Commercial
358	Retail Shops	Commercial
359	Misc. Wholesale	Commercial
360	Restaurants	Commercial
365	Food Beverage Business	Commercial
370	Automotive	Commercial
375	Service Stations	Commercial

Code	Description	Generalized Category for AICUZ
378	Building/Construction	Commercial
385	Commercial Condominiums - NOT RESIDENTIAL	Commercial
399	Other - Commercial activities that don't fit any of the above categories	Commercial
410	Schools	Public/Quasi-Public
420	Religious	Public/Quasi-Public
430	Library and Museums	Public/Quasi-Public
440	Parks	Recreation
450	Labor, Fraternal and Social Organizations	Public/Quasi-Public
460	Government Facilities	Public/Quasi-Public
470	Non-Profit Entertainment	Public/Quasi-Public
510	Agriculture	Open/Agriculture/Low Density
520	Ranching	Open/Agriculture/Low Density
610	Communications	Industrial
620	Transportation	Industrial
630	Utilities	Industrial
710	Use for all minor improvements with a residential use	Residential
720	Salvage Values	Industrial
730	Use for all minor improvements with a commercial use	Commercial

Table A-4. Consolidation of Unincorporated Clark County Future Land Use Data (within map extents) into Generalized Categories

Code	Description	Generalized Category for AICUZ
PF	Public Facility	Public/Quasi-Public
IL	Institutional	Public/Quasi-Public
CG	Commercial General	Commercial
OP	Office Professional	Commercial
RN	Rural Neighborhood	Residential
OL	Open Lands	Open/Agriculture/Low Density
HI	Heavy Industrial	Industrial
IND	Industrial	Industrial
BDRP	Business Design and Research Park	Commercial
RUC	Residential Urban Center	Residential
RS	Residential Suburban	Residential
RH	Residential High	Residential
RM	Residential Medium	Residential
RNP	Rural Neighborhood Preservation	Residential
CN	Commercial Neighborhood	Commercial
RL	Residential Low	Residential

Table A-5. Consolidation of City of Las Vegas Future Land Use Data (within map extents) into Generalized Categories

Code	Description	Generalized Category for AICUZ
C	Commercial (O,SC,GC)	Commercial
GC	Office	Commercial
H	High - 25+ du/ac	Residential
L	Low - up to 5.49	Residential
LI/R	Light Industrial / Research	Industrial
M	Medium - up to 25.49 du/ac	Residential
ML	Medium - Low - up to 8.49 du/ac	Residential
MLA	Medium - Low Attached - up to 12.49 du/ac	Residential
MXU	Mixed Use (L,ML,M,H,O,SC,GC,PF)	Residential
O	Office	Commercial
PF	Public Facility	Public/Quasi-Public
PR-OS	Park / Recreation / Open Space	Recreation
R	Rural - up to 3.59 du/ac	Residential
RNP	Rural Neighborhood Preservation - up to 2 du/ac	Residential
ROW	Right Of Way	Industrial
SC	Service Commercial	Commercial

**Table A-6. Consolidation of City of North Las Vegas Future Land Use Data
(within map extents) into Generalized Categories**

Code	Description	Generalized Category for AICUZ
CC	Community Commercial	Commercial
DT_AOI	Downtown Area Of Influence	Residential
DT_BD	Downtown Business District	Residential
EMP	Employment	Commercial
HI	Heavy Industrial	Industrial
MFR	Multi-Family Residential	Residential
MPC	Master Planned Community	Residential
MUC	Mixed-Use Commercial	Commercial
MUE	Mixed-Use Employment	Commercial
MUN	Mixed-Use Neighborhood	Residential
NC	Neighborhood Commercial	Commercial
OS	Open Space	Open/Agriculture/Low Density
P/SP	Public/Semi-Public	Public/Quasi-Public
RC	Resort Commercial	Commercial
SFL	Single Family Low (up to 6 du/ac)	Residential
SFM	Single Family Medium (up to 13 du/ac)	Residential

**Table A-7. Consolidation of Unincorporated Clark County Zoning Data
(within map extents) into Generalized Categories**

Code	Description	Generalized Category for AICUZ
C-1	Local Business	Commercial
C-2	General Commercial District	Commercial
C-P	Office and Professional District	Commercial
H-1	Limited Resort and Apartment District	Residential
H-2	General Highway Frontage District	Residential
M-1	Light Manufacturing District	Industrial
M-2	Industrial	Industrial
M-D	Designed Manufacturing District	Industrial
P-F	Public Facility District	Public/Quasi-Public
R-1	Single Family Residential District	Residential
R-2	Medium Density Residential District	Residential
R-3	Multiple-Family Residential District	Residential
R-4	Multiple-Family Residential District (High Density)	Residential
R-D	Suburban Estates Residential District	Residential
R-E	Rural Estates Residential District	Residential
R-T	Manufactured Home Residential	Residential
R-U	Rural Open Land District	Open/Agriculture/Low Density
RUD	Residential Urban Density	Residential
O-S	Open Space District	Open/Agriculture/Low Density

**Table A-8. Consolidation of City of Las Vegas Zoning Data
(within map extents) into Generalized Categories**

Code	Description	Generalized Category for AICUZ
Blank	Blank	Undesignated
C-1	Limited Commercial	Commercial
C-2	General Commercial	Commercial
C-M	Commercial/Industrial	Commercial
C-PB	Planned Business Park	Commercial
C-V	Civic	Public/Quasi-Public
M	Industrial	Industrial
N-S	Neighborhood Service	Commercial
O	Office	Commercial
P-R	Professional Office	Commercial
R-1	Single Family Residential	Residential
R-2	Medium-Low Density Residential	Residential
R-3	Medium Density Residential	Residential
R-4	High Density Residential	Residential
R-5	Apartment	Residential
R-CL	Single Family Compact-Lot	Residential
R-E	Residential Estates	Residential
R-MHP	Residential Mobile/Manufactured Home Park	Residential
R-PD11	Residential Planned Development 11 Unit Per Gross Acre	Residential
R-PD12	Residential Planned Development 12 Unit Per Gross Acre	Residential
R-PD13	Residential Planned Development 13 Unit Per Gross Acre	Residential
R-PD15	Residential Planned Development 15 Unit Per Gross Acre	Residential
R-PD16	Residential Planned Development 16 Unit Per Gross Acre	Residential
R-PD17	Residential Planned Development 17 Unit Per Gross Acre	Residential
R-PD18	Residential Planned Development 18 Unit Per Gross Acre	Residential
R-PD19	Residential Planned Development 19 Unit Per Gross Acre	Residential
R-PD6	Residential Planned Development 46 Unit Per Gross Acre	Residential
R-PD8	Residential Planned Development 8 Unit Per Gross Acre	Residential
R-PD9	Residential Planned Development 9 Unit Per Gross Acre	Residential
U(M)	Undeveloped	Open/Agriculture/Low Density
U(ML)	Undeveloped	Open/Agriculture/Low Density

Table A-9. Consolidation of City of North Las Vegas Zoning Data (within map extents) into Generalized Categories


Code	Description	Generalized Category for AICUZ
Blank	Blank	Undesignated
C-1	NEIGHBORHOOD COMMERCIAL	Commercial
C-2	GENERAL COMMERCIAL	Commercial
C-3	GENERAL COMMERCIAL DISTRICT	Commercial
C-P	GENERAL SERVICE COMMERCIAL	Commercial
FWY	NOT A ZONING CATEGORY	Undesignated
M-1	BUSINESS PARK INDUSTRIAL	Industrial
M-2	GENERAL INDUSTRIAL	Industrial
M-3	HEAVY INDUSTRIAL	Industrial
MPC	MASTER PLAN COMMUNITY	Residential
MPC C-1	SEE ZONING DESIGNATIONS IN THE APPROPRIATE DEVELOPMENT AGREEMENT	Commercial
MPC C-2	SEE ZONING DESIGNATIONS IN THE APPROPRIATE DEVELOPMENT AGREEMENT	Commercial
MPC C-P	SEE ZONING DESIGNATIONS IN THE APPROPRIATE DEVELOPMENT AGREEMENT	Commercial
MPC MUZ	SEE ZONING DESIGNATIONS IN THE APPROPRIATE DEVELOPMENT AGREEMENT	Residential
MPC PSP	MASTER PLAN COMMUNITY PUBLIC / SEMI-PUBLIC	Public/Quasi-Public
MPC PUD	SEE ZONING DESIGNATIONS IN THE APPROPRIATE DEVELOPMENT AGREEMENT	Residential
MPC R-1	SEE ZONING DESIGNATIONS IN THE APPROPRIATE DEVELOPMENT AGREEMENT	Residential
MPC R-3	SEE ZONING DESIGNATIONS IN THE APPROPRIATE DEVELOPMENT AGREEMENT	Residential
MPC RZ10	SEE ZONING DESIGNATIONS IN THE APPROPRIATE DEVELOPMENT AGREEMENT	Residential
MPC RZ13	SEE ZONING DESIGNATIONS IN THE APPROPRIATE DEVELOPMENT AGREEMENT	Residential
MPC RZ25	SEE ZONING DESIGNATIONS IN THE APPROPRIATE DEVELOPMENT AGREEMENT	Residential
MPC RZ50	SEE ZONING DESIGNATIONS IN THE APPROPRIATE DEVELOPMENT AGREEMENT	Residential
MPC RZ6	SEE ZONING DESIGNATIONS IN THE APPROPRIATE DEVELOPMENT AGREEMENT	Residential
MUD MX-2	COMMUNITY CENTER MIXED USE	Residential
MUD MX-3	REGIONAL CENTER MIXED USE	Commercial
O-L	OPEN LAND	Open/Agriculture/Low Density
O-L/DA	OPEN LAND / DEVELOPMENT AGREEMENT	Open/Agriculture/Low Density
PID	PLANNED INFILL DEVELOPMENT	Residential
PSP	PUBLIC / SEMI-PUBLIC	Public/Quasi-Public

Code	Description	Generalized Category for AICUZ
PUBLIC ROW	NOT A ZONING CATEGORY	Undesignated
PUD	PLANNED UNIT DEVELOPMENT	Residential
R-1	SINGLE FAMILY LOW DENSITY	Residential
R-2	RESIDENTIAL MEDIUM DENSITY	Residential
R-3	MULTIFAMILY RESIDENTIAL	Residential
R-4	HIGH DENSITY RESIDENTIAL	Residential
R-A/CHE	REDEVELOPMENT AREA CASINO / HOTEL / ENTERTAINMENT SUBDISTRICT	Commercial
R-A/CR	REDEVELOPMENT AREA COMMERCIAL / RETAIL SUBDISTRICT	Commercial
R-A/FA	REDEVELOPMENT AREA FOCUS AREA SUBDISTRICT	Residential
R-A/OFFICE	REDEVELOPMENT AREA OFFICE SUBDISTRICT	Commercial
R-A/PSP	REDEVELOPMENT AREA PUBLIC / SEMI-PUBLIC SUBDISTRICT	Public/Quasi-Public
R-A/R-2	REDEVELOPMENT AREA MEDIUM HIGH DENSITY RESIDENTIAL SUBDISTRICT	Residential
R-A/R-3	REDEVELOPMENT AREA HIGH DENSITY RESIDENTIAL SUBDISTRICT	Residential
R-CL	SINGLE FAMILY COMPACT LOT RESIDENTIAL	Residential
R-E	RANCH ESTATES	Residential
R-EL	RANCH ESTATES LIMITED	Residential



Appendix B – Abbreviations and Acronyms

AAD-	Average Annual Day
AFB-	Air Force Base
AFCEC-	Air Force Civil Engineer Center
AFCEC-	Air Force Civil Engineer Center
AFH-	Air Force Handbook
AFI-	Air Force Instruction
AFRES-	Air Force Reserve
AGL-	Above Ground Level
AICUZ-	Air Installations Compatible Use Zones
AICUZ PM-	AICUZ Program Manager
APZ-	Accident Potential Zones
ATC-	Air Traffic Control
BASH-	Bird/Animal Aircraft Strike Hazard
CZ-	Clear Zone
dB-	Decibel
dBA-	A-weighted Decibel
DNL-	Day-Night Average Sound Level
DoD-	Department of Defense
DoDI-	Department of Defense Instruction
EMI-	Electromagnetic Interference
EO-	Executive Order
EPA-	Environmental Protection Agency
FAA-	Federal Aviation Administration
FAR-	Federal Aviation Regulation
FHA-	Federal Home Administration
FICAN-	Federal Interagency Committee on Aviation Noise
FMC-	Federal Management Circular
GIS-	Geographic Information System
GSA-	General Services Administration
HAFZ-	Hazards to Aircraft Flight Zone
HUD-	Department of Housing and Urban Development
HZ-	Hertz
IEMT-	Installation Encroachment Management Team
IFR-	Instrument Flight Rule
JLUS-	Joint Land Use Study
kts-	Knots – Nautical miles per hour
LOOC-	Live Ordnance Overflight Corridor
MAJCOM-	Major Command
MF-	Mission Footprint
MSL-	Mean Sea Level
NEPA-	National Environmental Policy Act of 1969
NLR-	Noise Level Reduction
NM-	Nautical Mile
NMMOD-	Noise Model Operational Data Documentation
NZ-	Noise Zone
OEA-	Office of Economic Adjustment
OSD-	Office of the Secretary of Defense
PA-	Public Affairs



POC-	Point of Contact
REPI-	Readiness and Environmental Protection Integration
ROI-	Region of Influence
Rwy-	Runway
SEL-	Sound Exposure Level
SLUCM-	Standard Land Use Coding Manual
T&G-	Touch and Go
TACAN-	Tactical Area Navigation
TERPS-	Terminal Instrument Procedures
USAF-	United States Air Force
VA-	Veterans Affairs
VFR-	Visual Flight Rules
WWII-	World War Two