AREAS OF CONCERN

GLOSSARY OF TERMS

Based on information provided by NAS Lemoore (NASL) and meetings and discussions with stakeholders and the Joint Land Use Study (JLUS) Technical Working Group (TWG), areas of concern were identified with respect to encroachment around NASL which include the following:

**Perimeter Boundary Development:** Development near the boundary of a military installation can create security concerns, promote excessive light during nighttime hours, and/or encourage other encroachments. Development around NASL perimeter over time is a concern and can be managed by recognizing and implementing necessary land use controls such as the Green Belt.

**Clear Zone:** Aviation history has shown that property along primary flight paths and immediately beyond the end of runways have a higher potential exposure to aircraft accidents than areas further out from an airfield or flight path. Several studies of aircraft accidents discovered that the majority of accidents occur either on or adjacent to airfields (USAF, 1999). In response to these and other studies, the Department of Defense developed the Air Installations Compatible Use Zone (AICUZ) program to specifically address compatible use of public and private lands in the vicinity of military airfields (DODI 4165.57 and AFI 32-7063) (DoD, 1997; U.S. Air Force, 2003a).

Created as part of the AICUZ program, Clear Zones are intended to delineate areas exposed to higher risk. Intended to serve as guidelines only, Clear Zones function to heighten the general public’s awareness to areas where higher risks occur. The Clear Zone is an area possessing a high potential for accidents and is located just past the end of a runway.

**Accident Potential Zone (APZ) I and II:** Beyond the runway Clear Zone is an area along the flight path that possesses a significant potential for accidents. Created as part of the AICUZ program, Accident Potential Zones (APZ) are intended to delineate areas exposed to higher risk. Intended to serve as guidelines only, APZs function to heighten the general public’s awareness to areas where higher risks occur. They also help local governments identify where to direct zoning regulations and land use standards designed to reduce potential conflicts between airfield operations and civilian populations.

APZs are divided into two (2) designations based on accident potential. The zone closest to the Clear Zone is referred to as APZ-I. APZ-II is typically furthest from the runway in terms of the flight path and it has a measurable potential for accidents. Approach or departure flight paths will turn into or away from a runway. Therefore, APZ I and II may curve away from the end of a clear zone as well has leading straight out. Based on designated flight paths for approach and departure, some areas in a APZ-II zone may actually be closer to a runway than portion of the APZ-I.
High Aircraft Noise: Department of Defense (DoD) Instruction for aircraft noise assessment divides noise exposure into three Noise Zones:

- Noise Zone 1, Day/Night Level (DNL) <65, is an area of minimal impact where limited noise reduction (or sound attenuation) may be recommended.
- Noise Zone 2, DNL 65-75, is an area of moderate impact where some land use controls are needed.
- Noise Zone 3, DNL>75, is the most severely affected area and requires the greatest degree of land use controls to encourage compatibility.

In addition to noise zones, areas of concern may be defined where all land uses are considered to be compatible (less than 65 DNL) but some degree of land use controls is recommended in order to protect the long term viability of the military installation and ensure public safety; such as areas subject to frequent aircraft overflight and noise exposure. These areas may align with critical ingress and egress corridors or areas under MOAs and MTRs that provide participating aircraft access to the installation.

Renewable Energy Sites: In some instances, the effects of renewable energy sites within close proximity to a military installation may disrupt mission activities. Some examples include spinning blades of wind turbines at a wind farm interfering with radar signals for flying aircraft or solar farms creating excessive glare from the reflection of the sun. Over the past two years, there have been advances in the technology behind renewable energy sites and the important aspect of this area of concern is to incorporate some of these advances into local approval procedures to avoid a conflict between a site and NASL’s mission activities.

Bird Air Strike Hazards (BASH): Bird strikes happen most often during takeoff or landing, or during low altitude flight. However, bird strikes have also been reported at high altitudes, some as high as 19,500 ft to 29,500 ft above the ground. A bird air strike hazard can exist due to the presence of resident and migratory bird populations, and the abundance of habitat including certain types of agriculture lands existing on and in the immediate vicinity. BASH can arise from agricultural operations outside the base. Different crops vary in their attractiveness to birds. Fallow fields are particularly attractive to birds, resulting in greater potential hazards. Potential loss of future water allotments could adversely affect agricultural use and result in more fallow fields. There are efforts ongoing by the United States Department of Agriculture (USDA) to assist in determining BASH from a wildlife hazard standpoint.

Nighttime Light/Glare Effects: Outdoor lights can cause difficult and unsafe flying conditions when located near airfields or within Military Training Routes used during night hours and/or with night vision equipment. Ground lighting can interfere with a pilot’s vision or with night vision instrumentation or equipment. Ground lighting may also cause confusion with approach landing patterns. Examples of ground lighting that can interfere with night vision equipment are residential street lighting, stadium lighting, amusement parks, golf courses and driving ranges (if lit at night), and parking lot lighting. Mobile lights (from sources such as motor vehicles or roaming spotlights) can also cause pilot disorientation and difficulty with night vision equipment.
**Environmentally Sensitive or Critical Habitat Areas:** Jurisdictional wetlands and areas with critical vegetative habitat have been identified near NASL. Many of these areas provide conservation, water quality improvement, and flood plain protection opportunities supported by environmental regulatory agencies and environmental conservation groups. In most cases, these area are compatible to military missions.

**Agriculture Lease Program and Crop Selection:** NASL’s current agriculture lease program is an excellent opportunity to continue a win-win situation for the Base and local farmers. Generally, agriculture use is compatible with NASL’s mission and generates revenue for NASL while providing an opportunity for local farmers. For the areas adjacent to runways, it is important to select crops such as cotton and alfalfa to avoid a bird attractant in agriculture areas.

**Infrastructure Expansion:** The expansion of roadways, utilities, rail, and other infrastructure may present a problem by encouraging incompatible development in the wrong area. Care must be taken to identify the secondary effects of expanding infrastructure so subsequent developments do not encroach on NASL.

**Air Quality:** Dust emissions generated near a military base can create an encroachment to mission activities. In addition, dust generated from military activities may generate an encroachment beyond the Base’s boundary.

**Object Heights:** Airfields at which instrumented approach and departures are conducted use terminal instrument procedures (TERPS) for prescribing flight path area and vertical clearances from terrain and manmade obstructions. This required open space is defined both vertically and horizontally, and is designed above the airfield imaginary surfaces. The restrictions prescribed for standard instrument approach and departure procedures require limitations on the height of buildings and other structures in the vicinity of airfields in order to ensure the safety of pilots, aircraft, and individuals and structures on the ground (U.S. Air Force, 1999).

**Federal Aviation Administration (FAA) Coordination:** Air training operations are enhanced by overlying restricted airspace, military training routes (MTRs), and Military Operations Areas (MOAs). The DoD, in conjunction with the Federal Aviation Administration (FAA), has established Special Use Airspace (SUA) to separate military sortie operations from other non-compatible aviation activities. The designation of SUAs identifies for other users the areas where such activity occurs, provides for segregation of that activity from other users, and allows charting to keep airspace users informed of potential hazards. Special use airspace includes: Restricted airspace, Prohibited airspace, MOAs, Warning Areas, Alert Areas, and Temporary Flight Restriction (TFR).

**Emergency Response:** The local communities and NASL have an established Mutual Aid Agreement. Effective communication is required to ensure ultimate responsibility is communicated and understood. There is also a need to make sure communication related to changing mission activities are conveyed to all responding parties such as a change in type of aircraft.

**Development Entitlements:** A number of developments have been approved and have development entitlements regarding the number of units approved for their site prior to the commencement of the JLUS or any implementation steps for any JLUS Recommendations.
**Public Schools Funding:** Maintaining a high level of education in the public schools while not being allocated funding based on the number of children attending the public school system from NASL was identified by the community.

**Inter-Governmental Coordination:** Many communities have a formal policy to include military participation in the development review and planning process. This includes a formal communication process with the Base for all communities to ensure appropriate parties are engaged in reviewing information pertaining to proposed developments, redevelopments, or planning issues upon receipt of an application, or preferably as part of a pre-application meeting. This requires working with developers and community leaders from their initial contact with planning staff regarding their prospective plans through to presentations to policy makers such as the Planning Commissions and City/County Commissions. There should be ongoing opportunities for the jurisdictions and NASL to communicate amongst themselves.