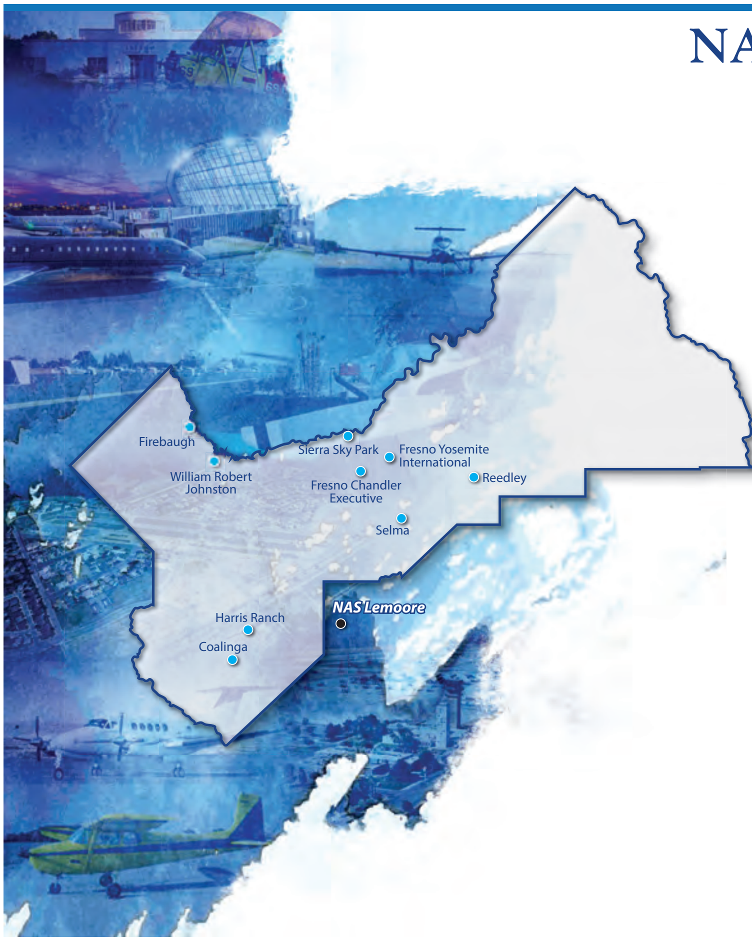
Fresno Council of Governments

Appendix K

NAVAL AIR STATION LEMOORE



Appendix K: Naval Air Station Lemoore

Appendix K includes the land use compatibility criteria and maps for Naval Air Station (NAS) Lemoore. NAS Lemoore is located within both Fresno and Kings County. This plan will focus on policies and information relevant to the components of the Airport that are influenced by Fresno County only. The NAS Lemoore was commissioned in 1961 and remains the Navy's newest, largest, and only west coast Master Jet Base. The primary purpose of the Airport is to support Strike Fighter Wing, U.S. Pacific Fleet, and man, train, and equip west coast Strike Fighter squadrons. Much of the activity at the Airport consists of training flights for pilots.

NAS Lemoore covers approximately 19,000 acres, about 10,000 acres of which are leased for agricultural uses and which act as mitigation for the Bird/Animal Aircraft Strike Program. The facility has three operational areas:

- Air Operations Area: Includes the airfield, weapons handling and storage facilities, fuels, aircraft maintenance and aviation storage
- Administration Area: Contains NAS Lemoore administrative offices, training schools, public works facilities, emergency services and a water treatment plant
- Housing Area: Contains Kindergarten through 8th grade and Kindergarten through fifth grade schools, youth center, single and multi-family homes, restaurants, enlisted and officers clubs, barracks, hospital, gymnasium, shopping mall, equestrian center, and other community support facilities.

The United States (U.S.) Department of Defense has established two types of studies to promote compatible land use near military installations. The first is the Air Installation Compatible Use Zones (AICUZ) program, which includes noise exposure contours and accident potential zones. The second is the Joint Land Use Study, which is a cooperative effort between the Department of Defense and surrounding communities to prepare land use planning documents to promote compatible land use near military installations. The following two documents were prepared for NAS Lemoore:

- *Air Installations Compatible Use Zones Report, Naval Air Station Lemoore, California*, November 2010
- *NAS Lemoore Joint Land Use Study*, August 2011

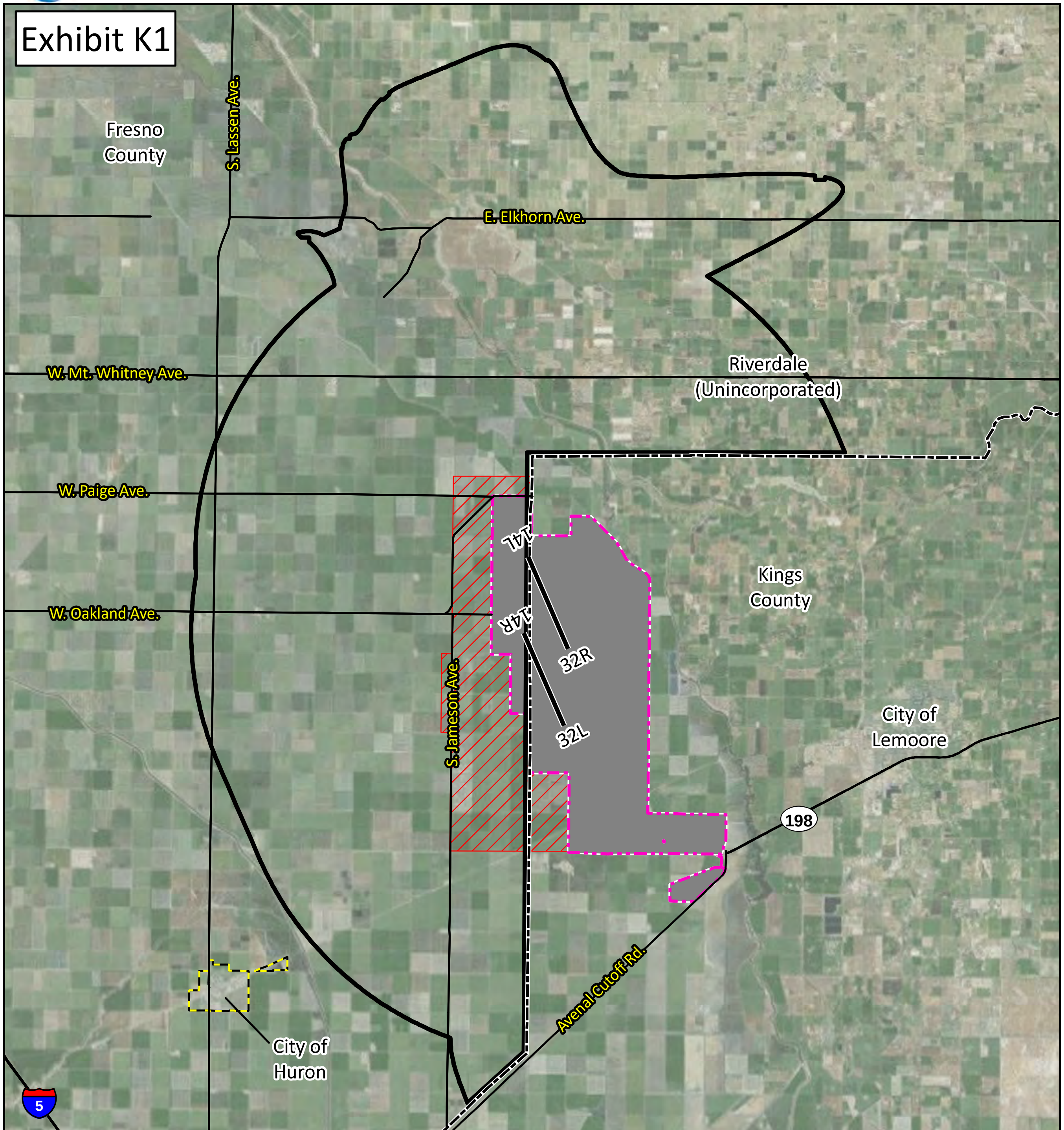
Both reports include recommended land use compatibility measures for implementation in Fresno County. **Exhibit K1** depicts the Airport Influence Area (AIA) within Fresno County for NAS Lemoore. Additionally, the Restructure Use Easement is shown on **Exhibit K1**. The Restructure Use Easement is an area of 10,639.60 acres in Fresno and Kings Counties that are taken for use by the U.S. as long as NAS Lemoore is owned and maintained by the U.S. Government. Area within this easement restricts land uses to agricultural purposes and mineral exploration, development and production. Further, structures of any kind, except for those related to farming and mining (not used for habitation), are prohibited. These structures cannot exceed 25 feet above ground level.

AIRPORT FACILITIES

Airport facilities are summarized in **Table K1**.

The Airport has two runways: Runway 14L-32R and Runway 14R-32L. Runway 14L-32R is 13,502 feet long and 200 feet wide. It is made of concrete. Both runway ends are left-handed traffic patterns. The runway is strength-rated to withstand up to 664,000 pounds. Runway edge lighting is high intensity and is equipped with an obstacle landing system. The touchdown point is unlighted and there are runway end identifier lights. There are no visual approach aids; however, there are two instrument approach aids, including tactical air navigation (TACAN) and global positioning system (GPS).

Runway 14R-32L is 13,501 feet long and 200 feet wide. It is constructed of concrete and both runways use left-handed traffic patterns. The runway can withstand up to 709,000 pounds. Runway lighting is high intensity, and there is an unlighted touchdown point as well as runway end identifier lights. Runway 14R has an obstacle landing system, while Runway 32L has a standard 2,400 foot high intensity approach lighting system with centerline sequenced flashers. There are no visual approach aids but there are two instrument approach aids, including TACAN and GPS.



LEGEND

- Runway[1]
- Airport Property[2]
- Municipal Boundary
- County Boundary
- Streets
- NAS Lemoore Safety Easement
- Airport Influence Area (AIA)[3]

[1]Federal Aviation Administration Web Data Sheet.
[2]NAS Lemoore.
[3]AIA comprised of outer edges of NAS Lemoore Noise Zone and Outer Horizontal Surface.
Sources:NAS Lemoore, Fresno County Parcels, Fresno County Streets, ESRI Basemap Imagery (2016).

TABLE K1
Airport Facilities
Naval Air Station Lemoore

	Runway 14L-32R	Runway 14R-32L
RUNWAY(S)		
Length (feet)	13,502	13,501
Width (feet)	200	200
Threshold Displacement (feet)	0	0
Runway Pavement Surface Material	Concrete	Concrete
Runway Pavement Surface Treatment	N/A	N/A
Runway Pavement Condition	Unknown	Unknown
Traffic Pattern	Left | Right	Right | Left
Runway Pavement Load Bearing Strength (lbs.)		
Pavement Classification Number (PCN)	51	56
Single Wheel	No limit	No limit
Dual Wheel	168,000	183,000
Double Tandem	264,000	285,000
Double Dual Tandem	664,000	709,000
Runway Pavement Markings		
Type	None	None
Condition	None	None
Runway Lighting		
Runway Edge Lighting	HIRL	HIRL
Approach Lighting System (ALS)	OLS	OLS | ALSF2, SF, OLS, Wave-Off
Touchdown Point	Yes (no lights)	Yes (lighted)
Runway End Identifier Lights (REILs)	Yes	Yes
VISUAL APPROACH AIDS		
Type	None	None
Glide Path	None	None
INSTRUMENT APPROACH AIDS		
Instrument Landing System (ILS)	No	No
Global Positioning System (GPS)	Yes	Yes
TACAN	Yes	Yes
VOR/DME/	No	No

HIRL: High Intensity Runway Lights
OLS: Obstacle Landing System
ALSF2: Approach Lighting System with Sequenced Flashing Lights Category 2
TACAN: Tactical Air Navigation
VOR/DME: Very High Frequency Omnidirectional Range Distance Measuring Equipment
Source: AirNav (July 2017)

SAFETY ZONES

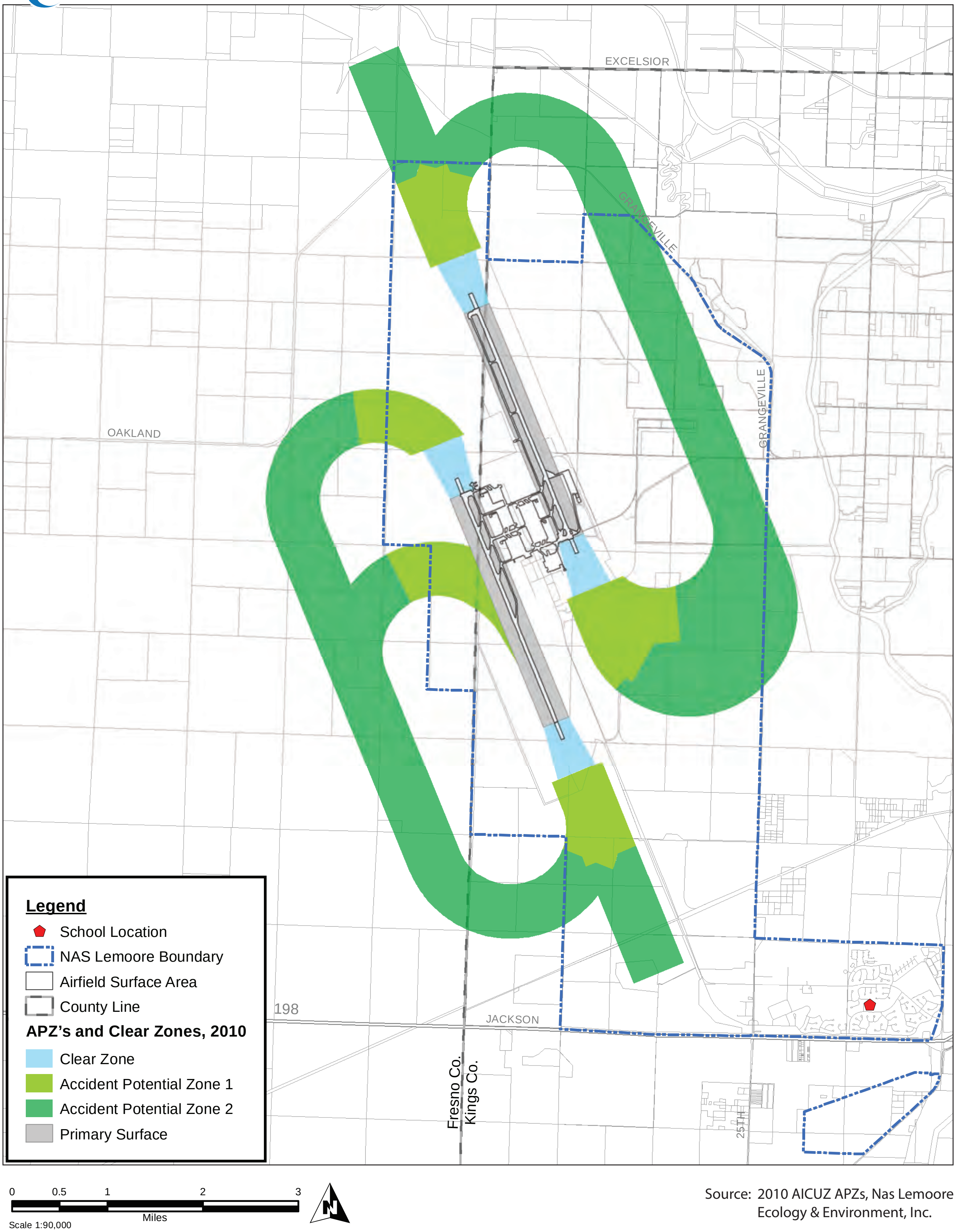
Exhibit K2 depicts the Accident Potential Zones from the *Air Installations Compatible Use Zones Report, Naval Air Station, Lemoore, California*. Compatibility criteria for these zones can be found in **Table K2**, Land Use Compatibility Recommendations, which is included at the end of this appendix.

NOISE

Exhibit K3 depicts the noise exposure contours from the *Air Installations Compatible Use Zones Report, Naval Air Station, Lemoore, California*. Compatibility criteria for these zones can be found in **Table K2**, Land Use Compatibility Recommendations, which is included at the end of this appendix.

AIRSPACE

Exhibit K4 depicts the Imaginary Surfaces from the *Air Installations Compatible Use Zones Report, Naval Air Station, Lemoore, California*. As outlined in the report, these areas must remain free of obstructions to ensure safe flight approaches, departures, and patterns. Obstructions may include natural terrain and manmade features, such as buildings, towers, poles, and other vertical obstructions to airspace navigation.



Source: 2010 AICUZ APZs, Nas Lemoore
Ecology & Environment, Inc.

Table 6-1
Land-Use Compatibility Recommendations

Land Use		Accident Potential Zones[1]			Noise Levels			
					Noise Zone 2		Noise Zone 3	
SLUCM No.	Name	Clear Zone	APZ 1	APZ 2	65 to 70 DNL	70 to 75 DNL	75 to 80 DNL	80 to 85 DNL
10	Residential							
11	Household units	NA	NA	NA	N[28]	N[28]	N	N
11.11	Single units; detached	N	N	Y[2]	N[28]	N[28]	N	N
11.12	Single units; semidetached	N	N	N	N[28]	N[28]	N	N
11.13	Single units; attached row	N	N	N	N[28]	N[28]	N	N
11.21	Two units; side-by-side	N	N	N	N[28]	N[28]	N	N
11.22	Two units; one above the other	N	N	N	N[28]	N[28]	N	N
11.31	Apartments; walk up	N	N	N	N[28]	N[28]	N	N
11.32	Apartments; elevator	N	N	N	N[28]	N[28]	N	N
12	Group quarters	N	N	N	N[28]	N[28]	N	N
13	Residential hotels	N	N	N	N[28]	N[28]	N	N
14	Mobile home parks or courts	N	N	N	N	N	N	N
15	Transient lodgings	N	N	N	N[28]	N[28]	N[28]	N
16	Other residential	N	N	N	N[28]	N[28]	N	N
20	Manufacturing[3]							
21	Food and kindred products; manufacturing	N	N	Y[4]	Y	Y[29]	Y[30]	Y[31]
22	Textile mill products; manufacturing	N	N	Y[4]	Y	Y[29]	Y[30]	Y[31]
23	Apparel and other finished products; products made from fabrics, leather and similar materials; manufacturing	N	N	N	Y	Y[29]	Y[30]	Y[31]
24	Lumber and wood products (except furniture); manufacturing	N	Y[5]	Y[5]	Y	Y[29]	Y[30]	Y[31]
25	Furniture and fixtures; manufacturing	N	Y[5]	Y[5]	Y	Y[29]	Y[30]	Y[31]
26	Paper and allied products; manufacturing	N	Y[5]	Y[5]	Y	Y[29]	Y[30]	Y[31]
27	Printing, publishing, and allied industries	N	Y[5]	Y[5]	Y	Y[29]	Y[30]	Y[31]
28	Chemicals and allied products; manufacturing	N	N	N	Y	Y[29]	Y[30]	Y[31]
29	Petroleum refining and related industries	N	N	N	Y	Y[29]	Y[30]	Y[31]
30	Manufacturing (continued) [3]							

Table 6-1 Land-Use Compatibility Recommendations								
Land Use		Accident Potential Zones[1]			Noise Levels			
					Noise Zone 2		Noise Zone 3	
SLUCM No.	Name	Clear Zone	APZ 1	APZ 2	65 to 70 DNL	70 to 75 DNL	75 to 80 DNL	80 to 85 DNL
31	Rubber and misc. plastic products; manufacturing	N	N	N	Y	Y[29]	Y[30]	Y[31]
32	Stone, clay, and glass products; manufacturing	N	N	Y[4]	Y	Y[29]	Y[30]	Y[31]
33	Primary metal products; manufacturing	N	N	Y[4]	Y	Y[29]	Y[30]	Y[31]
34	Fabricated metal products; manufacturing	N	N	Y[4]	Y	Y[29]	Y[30]	Y[31]
35	Professional, scientific, and controlling instruments; photographic and optical goods; watches and clocks	N	N	N	Y	25	30	N
39	Miscellaneous manufacturing	N	Y[5]	Y[5]	Y	Y[29]	Y[30]	Y[31]
40	Transportation, communication and utilities[6, 7]							
41	Railroad, rapid rail transit, and street railway transportation	N	Y[5, 7]	Y[5]	Y	Y[29]	Y[30]	Y[31]
42	Motor vehicle transportation	N	Y[5, 7]	Y[5]	Y	Y[29]	Y[30]	Y[31]
43	Aircraft transportation	N	Y[5, 7]	Y[5]	Y	Y[29]	Y[30]	Y[31]
44	Marine craft transportation	N	Y[5, 7]	Y[5]	Y	Y[29]	Y[30]	Y[31]
45	Highway and street right-of-way	N	Y[5, 7]	Y[5]	Y	Y[29]	Y[30]	Y[31]
46	Automobile parking	N	Y[5, 7]	Y[5]	Y	Y[29]	Y[30]	Y[31]
47	Communication	N	Y[5, 7]	Y[5]	Y	25[32]	30[32]	N
48	Utilities	N	Y[5, 7]	Y[5]	Y	Y[29]	Y[30]	Y[31]
485	Solid waste disposal (Landfills, incineration, etc.)	N	N	N	NA	NA	NA	NA
49	Other transportation, communication, and utilities	N	Y[7]	Y[7]	Y	25[32]	30[32]	N
50	Trade							
51	Wholesale trade	N	Y[5]	Y[5]	Y	Y[29]	Y[30]	Y[31]
52	Retail trade – building materials, hardware, and farm equipment	N	Y[8]	Y[8]	Y	Y[29]	Y[30]	Y[31]
53	Retail trade[10] – shopping centers, Home Improvement Store, Discount Club, Electronics Superstore	N	N	Y[9]	Y	25	30	N
54	Retail trade – food	N	N	Y[11]	Y	25	30	N

Table 6-1
Land-Use Compatibility Recommendations

Land Use		Accident Potential Zones[1]			Noise Levels			
					Noise Zone 2		Noise Zone 3	
SLUCM No.	Name	Clear Zone	APZ 1	APZ 2	65 to 70 DNL	70 to 75 DNL	75 to 80 DNL	80 to 85 DNL
55	Retail trade – automotive, marine craft, aircraft, and accessories	N	Y[12]	Y[12]	Y	25	30	N
56	Retail trade – apparel and accessories	N	N	Y[13]	Y	25	30	N
57	Retail trade – furniture, home furnishings, and equipment	N	N	Y[13]	Y	25	30	N
58	Retail trade – eating and drinking establishments	N	N	N	Y	25	30	N
59	Other retail trade	N	N	Y[9]	Y	25	30	N
60	Services[14]							
61	Finance, insurance, and real estate services	N	N	Y[15]	Y	25	30	N
62	Personal services	N	N	Y[16]	Y	25	30	N
62.4	Cemeteries	N	Y[17]	Y[17]	Y	Y[29]	Y[30]	Y[31,37]
63	Business services (credit reporting; mail, stenographic reproduction; advertising)	N	N	Y[18]	Y	25	30	N
63.7	Warehousing and storage services	N	Y[19]	Y[19]	Y	Y[29]	Y[30]	Y[31]
64	Repair services	N	Y[20]	Y[20]	Y	Y[29]	Y[30]	Y[31]
65	Professional services	N	N	Y[18]	Y	25	30	N
65.1	Hospitals, other medical facilities	N	N	N	25	30	N	N
65.16	Nursing homes	N	N	N	N[28]	N[28]	N	N
66	Contract construction services	N	Y[20]	Y[20]	Y	25	30	N
67	Governmental services	N	N	Y[11]	Y[28]	25	30	N
68	Educational services	N	N	N	25	30	N	N
69	Miscellaneous	N	N	Y[18]	Y	25	30	N
70	Cultural, entertainment and recreational							
71	Cultural activities (& churches)	N	N	N	25	30	N	N
71.2	Nature exhibits	N	Y[21]	Y[21]	Y[28]	N	N	N
72	Public assembly	N	N	N	Y	N	N	N
72.1	Auditoriums, concert halls	N	N	N	25	30	N	N

Table 6-1
Land-Use Compatibility Recommendations

Land Use		Accident Potential Zones[1]			Noise Levels			
					Noise Zone 2		Noise Zone 3	
SLUCM No.	Name	Clear Zone	APZ 1	APZ 2	65 to 70 DNL	70 to 75 DNL	75 to 80 DNL	80 to 85 DNL
72.11	Outdoor music shells, amphitheaters	N	N	N	N	N	N	N
72.2	Outdoor sports arenas, spectator sports	N	N	N	Y[33]	Y[33]	N	N
73	Amusements- fairgrounds, miniature golf, driving ranges; amusement parks, etc.	N	N	Y	Y	Y	N	N
74	Recreational activities (including golf courses, riding stables, water recreation)	N	Y[20, 21]	Y[20, 21]	Y[28]	25	30	N
75	Resorts and group camps	N	N	N	Y[28]	Y[28]	N	N
76	Parks	N	Y[20, 21]	Y[20, 21]	Y[28]	Y[28]	N	N
79	Other cultural, entertainment and recreation	N	Y[17, 20]	Y[17, 20]	Y[28]	Y[28]	N	N
80	Resource production and extraction							
81	Agriculture (except livestock)	Y[6]	Y[22]	Y[22]	Y[34]	Y[35]	Y[36]	Y[36, 37]
81.5, 81.7	Livestock farming and breeding	N	Y[22, 23]	Y[22, 23]	Y[34]	Y[35]	N	N
82	Agricultural related activities	N	Y[22, 24]	Y[22, 24]	Y[34]	Y[35]	Y[36]	Y[36, 37]
83	Forestry activities[25]	N	Y[24]	Y[24]	Y[34]	Y[35]	Y[36]	Y[36, 37]
84	Fishing activities[26]	N[26]	Y[24]	Y[24]	Y	Y	Y	Y
85	Mining activities	N	Y[24]	Y[24]	Y	Y	Y	Y
89	Other resource production and extraction	N	Y[24]	Y[24]	Y	Y	Y	Y
90	Other							
91	Undeveloped Land	Y	Y	Y	NA	NA	NA	NA
93	Water Areas	N[27]	N[27]	N[27]	NA	NA	NA	NA

Adapted from OPNAVINST 11010.36C (U.S. Department of the Navy 2008).

Key:
Y (Yes) = Land use and related structures compatible without restrictions.
N (No) = Land use and related structures are not compatible and should be prohibited.
Y[x] (Yes with restrictions) = The land use and related structures are generally compatible. However, see notes indicated by superscript.
N[x] (No with restrictions) = The land use and related structures are generally incompatible. However, see notes indicated by superscript.
SLUCM = Standard Land Use Coding Manual.
NLR (Noise Level Reduction) = Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
DNL =Day-night average sound level.
NA = Not Applicable (no data available for that category).

Table 6-1
Land-Use Compatibility Recommendations

Land Use		Accident Potential Zones[1]			Noise Levels			
					Noise Zone 2		Noise Zone 3	
SLUCM No.	Name	Clear Zone	APZ 1	APZ 2	65 to 70 DNL	70 to 75 DNL	75 to 80 DNL	80 to 85 DNL

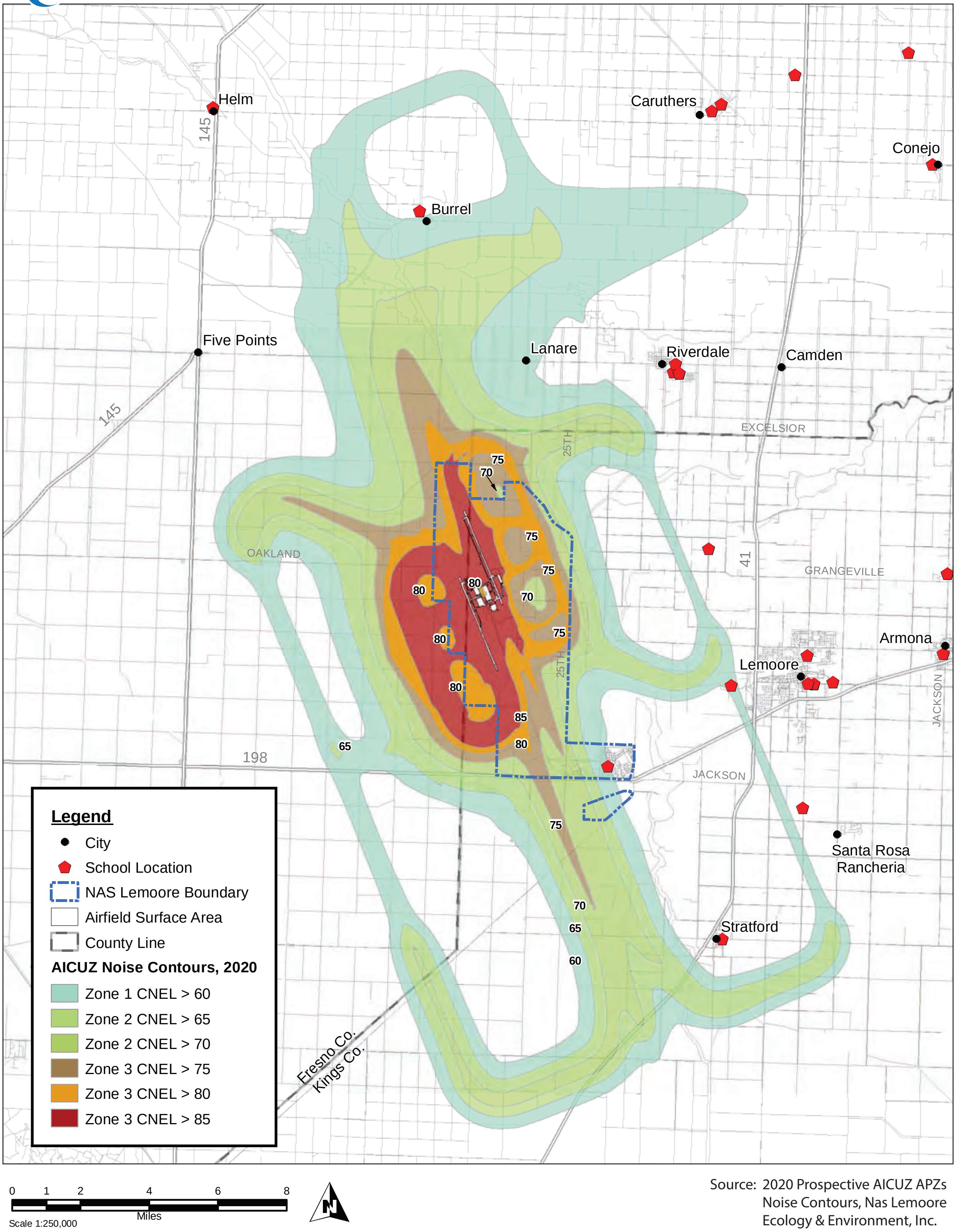
25, 30, or 35 = Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 must be incorporated into design and construction of structure.

Notes:

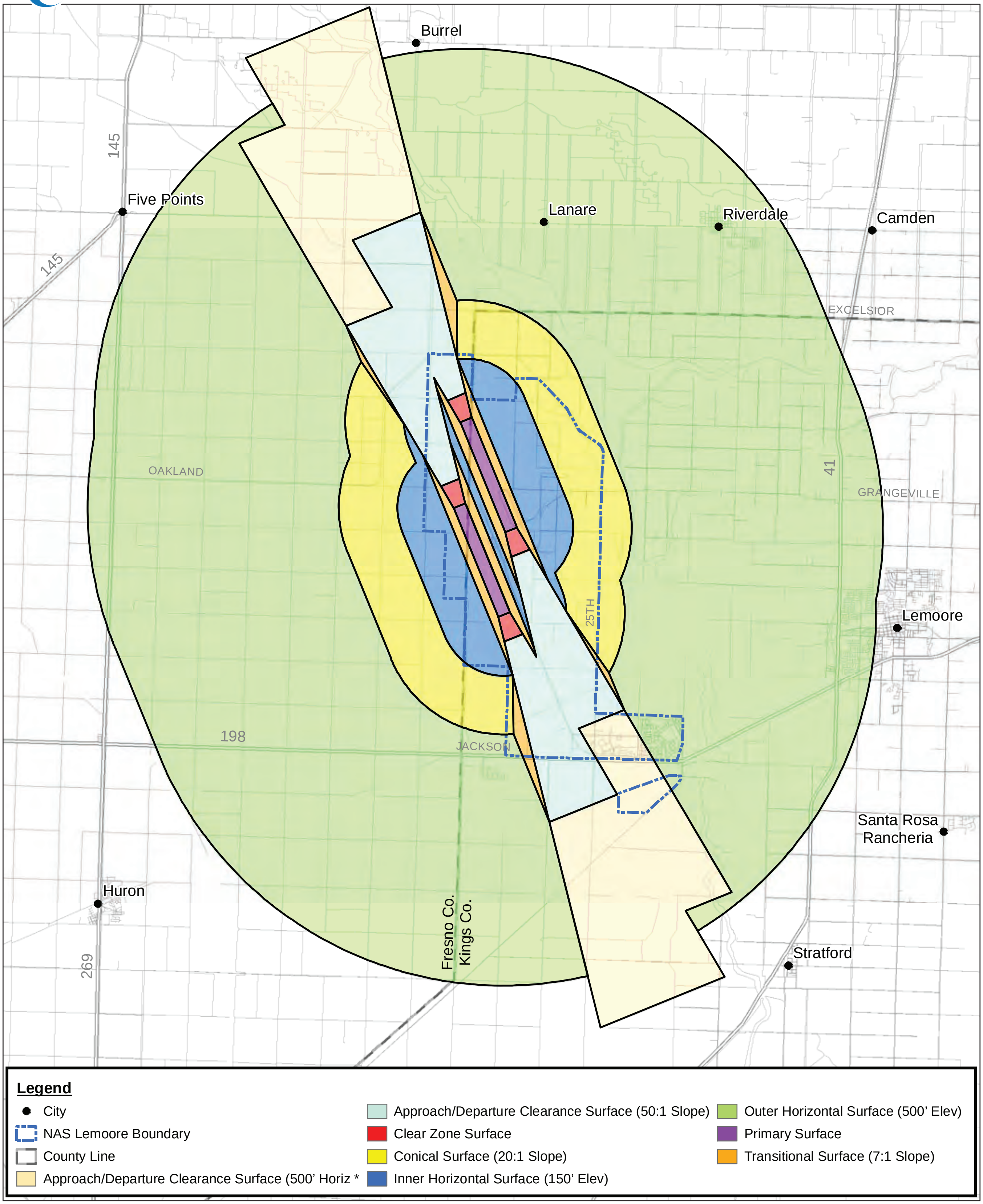
1. A “Yes” or a “No” designation for compatible land use is to be used only for general comparison. Within each, uses exist where further evaluation may be needed in each category as to whether it is clearly compatible, normally compatible, or not compatible due to the variation of densities of people and structures. In order to assist installations and local governments, general suggestions as to FARs are provided as a guide to densities in some categories. In general, land-use restrictions which limit commercial, services, or industrial buildings or structure occupants to 25 per acre in APZ 1 and 50 per acre in APZ 2 are the range of occupancy levels, including employees, considered to be low density. Outside events should normally be limited to assemblies of not more than 25 people per acre in APZ 1, and Maximum (MAX) assemblies of 50 people per acre in APZ 2.
2. The suggested maximum density for detached single-family housing is 1 to 2 dwelling units per acre (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, provided the amount of surface area covered by structures does not exceed 20 % 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. Maximum FAR of 0.56 in APZ 2.
5. Maximum FAR of 0.28 in APZ 1 and 0.56 in APZ 2.
6. No structures (except airfield lighting), buildings, or aboveground utility/communications lines should normally be located in clear zone areas on or off the installation. The clear zone is subject to severe restrictions. See UFC 3-260-01 “Airfield and Heliport Planning & Design” dated 10 November 2001 for specific design details.
7. No passenger terminals and no major aboveground transmission lines in APZ 1.
8. Within SLUCM Code 52, Max FARs for lumber yards (SLUCM Code 521) are 0.20 in APZ 1 and 0.40 in APZ 2. For hardware/paint and farm equipment stores, SLUCM Code 525, the Max FARs are 0.12 in APZ 1 and 0.24 in APZ 2.
9. Maximum FAR of 0.16 in APZ 2.
10. 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, supermarket or drug store, discount retailer, department store, or several department stores, respectively. Included in this category are such uses as big box discount and electronics superstores. The Max recommended FAR for SLUCM 53 should be applied to the gross leasable area of the shopping center rather then attempting to use other recommended FARs listed in Table 2 under “Retail” or “Trade.”
11. Maximum FAR of 0.24 in APZ 2.
12. Maximum FAR of 0.14 in APZ 1 and 0.28 in APZ 2.
13. Maximum FAR of 0.28 in APZ 2.
14. Low intensity office uses only. Accessory uses such as meeting places, auditoriums, etc., are not recommended.
15. Maximum FAR of 0.22 for “General Office/Office park” In APZ 2.
16. Office uses only. Maximum FAR of 0.22 in APZ 2.
17. No chapels are allowed within APZ 1 or APZ 2.
18. Maximum FAR of 0.22 in APZ 2.
19. Maximum FAR of 1.0 in APZ 1 and 2.0 in APZ 2.
20. Maximum FAR of 0.11 in APZ 1 and 0.22 in APZ 2.
21. Facilities must be low intensity and provide no tot lots, etc. Facilities such as clubhouses, meeting places, auditoriums, large classes, etc., are not recommended.
22. Includes livestock grazing but excludes feedlots and intensive animal husbandry. Activities that attract concentrations of birds creating a hazard to aircraft operations should be excluded.
23. Includes feedlots and intensive animal husbandry.
24. Maximum FAR of 0.28 in APZ 1 and 0.56 in APZ 2. No activity that produces smoke or glare or involves explosives.
25. Lumber and timber products removed due to establishment, expansion, or maintenance of clear zones will be disposed of in accordance with appropriate DoD Natural Resources Instructions.
26. Controlled hunting and fishing may be permitted for the purpose of wildlife management.

Table 6-1 Land-Use Compatibility Recommendations								
Land Use		Accident Potential Zones[1]			Noise Levels			
					Noise Zone 2		Noise Zone 3	
SLUCM No.	Name	Clear Zone	APZ 1	APZ 2	65 to 70 DNL	70 to 75 DNL	75 to 80 DNL	80 to 85 DNL

27. Naturally occurring water features (e.g., rivers, lakes, streams, wetlands) are compatible.
28. 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 approvals indicating that a demonstrated community need for the residential use would not be met if development were prohibited in these zones.
    b. Where the community determines that residential uses must be allowed, measures to achieve outdoor to indoor NLR of at least 25 dB in DNL 65-69 and NLR of 30 dB DNL 70-74 should be incorporated into building codes and be in individual approvals; for transient housing a 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 and site planning, design, and use of berms and barriers can help mitigate outdoor exposure, particularly from ground level sources. Measures that reduce noise at a site should be used wherever practical in preference to measures which only protect interior spaces.
29. Measures to achieve an 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.
30. Measures to achieve an 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.
31. Measures to achieve an 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.
32. If the project or proposed development is noise sensitive, use indicated NLR; if not, land use is compatible without NLR.
33. Land use compatible provided special sound reinforcement systems are installed.
34. Residential buildings require an NLR of 25.
35. Residential buildings require an NLR of 30.
36. Residential buildings not permitted.
37. Land-use not recommended, but if the community decides use is necessary, hearing protection devices should be worn.



Source: 2020 Prospective AICUZ APZs
Noise Contours, Nas Lemoore
Ecology & Environment, Inc.



0 0.5 1 2 3 4 5 6
Miles
Scale 1:200,000

Source: Imaginary Surfaces, Nas Lemoore
Ecology & Environment, Inc.