

**Appendix 5**  
**Land Use Compatibility Standards**

GUIDELINES FOR CONSIDERING NOISE IN LAND USE PLANNING AND CONTROL. (FICUN 1980)

	NZ I		NZ II		NZ III		
	0-55	55-65	65-70	70-75	75-80	80-85	85+
<b>RESIDENTIAL</b>							
Household Units	Yes	Yes*	25 <sup>1</sup>	30 <sup>1</sup>	No	No	No
Group Quarters	Yes	Yes*	25 <sup>1</sup>	30 <sup>1</sup>	No	No	No
Residential Hotels	Yes	Yes*	25 <sup>1</sup>	30 <sup>1</sup>	No	No	No
Manufactured Housing	Yes	Yes*	No	No	No	No	No
Other Residential	Yes	Yes*	25 <sup>1</sup>	30 <sup>1</sup>	No	No	No
<b>MANUFACTURING</b>							
Food Products	Yes	Yes	Yes	Yes <sup>2</sup>	Yes <sup>3</sup>	Yes <sup>4</sup>	No
Textile Mill Products	Yes	Yes	Yes	Yes <sup>2</sup>	Yes <sup>3</sup>	Yes <sup>4</sup>	No
Apparel	Yes	Yes	Yes	Yes <sup>2</sup>	Yes <sup>3</sup>	Yes <sup>4</sup>	No
Wood Products	Yes	Yes	Yes	Yes <sup>2</sup>	Yes <sup>3</sup>	Yes <sup>4</sup>	No
Furniture	Yes	Yes	Yes	Yes <sup>2</sup>	Yes <sup>3</sup>	Yes <sup>4</sup>	No
Paper	Yes	Yes	Yes	Yes <sup>2</sup>	Yes <sup>3</sup>	Yes <sup>4</sup>	No
Printing	Yes	Yes	Yes	Yes <sup>2</sup>	Yes <sup>3</sup>	Yes <sup>4</sup>	No
Manufacturing	Yes	Yes	Yes	Yes <sup>2</sup>	Yes <sup>3</sup>	Yes <sup>4</sup>	No
<b>TRANSPORT, COMMS &amp; UTIL</b>							
Railroad	Yes	Yes	Yes	Yes <sup>2</sup>	Yes <sup>3</sup>	Yes <sup>4</sup>	Yes <sup>4</sup>
Motor Vehicle	Yes	Yes	Yes	Yes <sup>2</sup>	Yes <sup>3</sup>	Yes <sup>4</sup>	Yes <sup>4</sup>
Aircraft	Yes	Yes	Yes	Yes <sup>2</sup>	Yes <sup>3</sup>	Yes <sup>4</sup>	Yes <sup>4</sup>
Marine Craft	Yes	Yes	Yes	Yes <sup>2</sup>	Yes <sup>3</sup>	Yes <sup>4</sup>	Yes <sup>4</sup>
Highway & Street	Yes	Yes	Yes	Yes <sup>2</sup>	Yes <sup>3</sup>	Yes <sup>4</sup>	Yes <sup>4</sup>
Parking	Yes	Yes	Yes	Yes <sup>2</sup>	Yes <sup>3</sup>	Yes <sup>4</sup>	No
Communications	Yes	Yes	Yes	25 <sup>5</sup>	30 <sup>5</sup>	No	No
Utilities	Yes	Yes	Yes	Yes <sup>2</sup>	Yes <sup>3</sup>	Yes <sup>4</sup>	Yes <sup>4</sup>
Other T, C & U	Yes	Yes	Yes	25 <sup>5</sup>	30 <sup>5</sup>	No	No
<b>TRADE</b>							
Wholesale Trade	Yes	Yes	Yes	Yes <sup>2</sup>	Yes <sup>3</sup>	Yes <sup>4</sup>	No
Retail - Building	Yes	Yes	Yes	Yes <sup>2</sup>	Yes <sup>3</sup>	Yes <sup>4</sup>	No
Retail - General	Yes	Yes	Yes	25	30	No	No
Retail - Food	Yes	Yes	Yes	25	30	No	No
Retail - Auto	Yes	Yes	Yes	25	30	No	No
Retail - Apparel	Yes	Yes	Yes	25	30	No	No
Retail - Furniture	Yes	Yes	Yes	25	30	No	No
Retail - Eating	Yes	Yes	Yes	25	30	No	No
Other Retail Trade	Yes	Yes	Yes	25	30	No	No
<b>SERVICES</b>							
Finance, Insurance	Yes	Yes	Yes	25	30	No	No
Personal Services	Yes	Yes	Yes	25	30	No	No
Cemeteries <sup>11</sup>	Yes	Yes	Yes	Yes <sup>2</sup>	Yes <sup>3</sup>	Yes <sup>4</sup>	Yes <sup>6</sup>
Repair Services	Yes	Yes	Yes	Yes <sup>2</sup>	Yes <sup>3</sup>	Yes <sup>4</sup>	No
Profess Services	Yes	Yes	Yes	25	30	No	No
Hospitals, Nursing	Yes	Yes*	25*	30*	No	No	No
Other Medical	Yes	Yes	Yes	25	30	No	No

Facilities								
Contract Construction	Yes	Yes	Yes	25	30	No	No	No
Government Services	Yes	Yes*	Yes*	25*	30*	No	No	No
Educational Services	Yes	Yes*	25*	30*	No	No	No	No
Misc Services	Yes	Yes	Yes	25	30	No	No	No
<b>CULTURAL, ENTERTAINMENT &amp; REC</b>								
Churches	Yes	Yes*	25*	30*	No	No	No	No
Nature Exhibits	Yes	Yes*	Yes*	No	No	No	No	No
Public Assembly	Yes	Yes	Yes	No	No	No	No	No
Auditoriums	Yes	Yes	25	30	No	No	No	No
Amphitheaters	Yes	Yes*	No	No	No	No	No	No
Outdoor Sports	Yes	Yes	Yes <sup>7</sup>	Yes <sup>7</sup>	No	No	No	No
Amusements	Yes	Yes	Yes	Yes	No	No	No	No
Recreational	Yes	Yes*	Yes*	25*	30*	No	No	No
Resorts	Yes	Yes*	Yes*	Yes*	No	No	No	No
Parks	Yes	Yes*	Yes*	Yes*	No	No	No	No
Other	Yes	Yes*	Yes*	Yes*	No	No	No	No
<b>RESOURCE PRODUCT</b>								
Agriculture	Yes	Yes	Yes <sup>8</sup>	Yes <sup>9</sup>	Yes <sup>10</sup>	Yes <sup>10</sup>	Yes <sup>10</sup>	Yes <sup>10</sup>
Livestock	Yes	Yes	Yes <sup>8</sup>	Yes <sup>9</sup>	No	No	No	No
Forestry	Yes	Yes	Yes <sup>8</sup>	Yes <sup>9</sup>	Yes <sup>10</sup>	Yes <sup>10</sup>	Yes <sup>10</sup>	Yes <sup>10</sup>
Fishing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mining	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other Resource	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Legend:

Yes	Land use and related structures compatible without restrictions.
No	Land use and related structures are not compatible and should be prohibited.
ADNL	A-weighted day-night sound level
NZ	Noise Zone
Yes*	(Yes with restrictions) Land use and related structures generally compatible; see footnotes.
25, 30, 35	Land use and related structures generally compatible; measures to achieve noise level reduction (NLR) of 25, 30 or 35 must be incorporated into design and construction of structure.
25*, 30*, 35*	Land use generally compatible with NLR; however, measures to achieve an overall NLR do not necessarily solve noise difficulties; additional evaluation is warranted.
NLR	Noise level reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.

Footnotes:

\* The designation of these uses as "compatible" in this zone reflects individual Federal agencies' consideration of general cost and feasibility factors as well as past community experiences and program objectives. Localities, when evaluating the application of these guidelines to specific situations, may have different concerns or goals to consider.

<sup>1</sup> (a) Although local conditions may require residential use, it is discouraged in 65-70 ADNL and strongly discouraged in 70-75 ADNL. The absence of viable alternative development options should be determined and an evaluation

indicating that a demonstrated community need for residential use would not be met if development were prohibited in these zones should be conducted prior to approvals.

(b) Where the community determines that residential uses must be allowed, measures to achieve outdoor to indoor NLR of at least 25 dB (65-70 ADNL) and 30 dB (70-75 ADNL) should be incorporated into building codes and be considered in individual approvals. Normal construction can be expected to provide a NLR of 20 dB, thus the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. Additional consideration should be given to modifying NLR levels based on peak noise levels.

(c) NLR criteria will not eliminate outdoor noise problems. However, building location and site planning, design, and use of berms and barriers can help mitigate outdoor noise exposure particularly from ground level transportation 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 noise-sensitive, use indicated NLR; if not, use is compatible.

6 No buildings.

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

8 Residential buildings require a NLR of 25.

9 Residential buildings require a NLR of 30.

10 Residential buildings not permitted.

11 In areas with ADNL greater than 80, land use not recommended, but if community decides use is necessary, hearing protection devices should be worn by personnel.

DoD COMPATIBLE LAND USE GUIDELINES FOR CLEAR ZONES AND ACCIDENT POTENTIAL ZONES (APZ). (U.S. Army 1981)

LAND USE	CLEAR ZONE	APZ I	APZ II
<b>A. RESIDENTIAL</b>			
Single Family Unit	No	No	Yes <sup>2</sup>
2-4 Family Units	No	No	No
Multifamily Dwellings (Apartments)	No	No	No
Group Quarters	No	No	No
Residential Hotels	No	No	No
Mobile Home Parks or Courts	No	No	No
Other Residential	No	No	No
<b>B. INDUSTRIAL &amp; MANUFACTURING<sup>3</sup></b>			
Food and Kindred Products	No	No	Yes
Apparel	No	No	No
Lumber and Wood Products	No	Yes	Yes
Furniture and Fixtures	No	Yes	Yes
Printing, Publishing	No	Yes	Yes
Miscellaneous Manufacturing	No	Yes	Yes
<b>C. TRANSPORTATION, COMMUNICATIONS &amp; UTILITIES<sup>4</sup></b>			
Railroad, Rapid Rail Transit (on-grade)	No	Yes <sup>4</sup>	Yes
Highway and Street Rights-of-Way	Yes <sup>5</sup>	Yes	Yes
Auto Parking	No	Yes	Yes
Communications	Yes <sup>5</sup>	Yes	Yes
Utilities	Yes <sup>5</sup>	Yes <sup>4</sup>	Yes
Other Transportation, Communications and Utilities	Yes <sup>5</sup>	Yes	Yes
<b>D. COMMERCIAL &amp; RETAIL TRADE</b>			
Wholesale Trade	No	Yes	Yes
Building Materials (Retail)	No	Yes	Yes
General Merchandise (Retail)	No	No	Yes
Food (Retail)	No	No	Yes
Automotive, Marine, and Aviation	No	Yes	Yes
Apparel and Accessories (Retail)	No	No	Yes
Furniture, Home Furnishings (Retail)	No	No	Yes
Eating and Drinking Facilities	No	No	No
Other Retail Trade	No	No	Yes
<b>E. PERSONAL &amp; BUSINESS SERVICES<sup>6</sup></b>			
Finance, Insurance, and Real Estate	No	No	Yes
Personal Services	No	No	Yes
Business Services	No	No	Yes
Repair Services	No	Yes	Yes
Professional Services	No	No	Yes
Contract Construction Services	No	Yes	Yes
Indoor Recreation Services	No	No	Yes
Other Services	No	No	Yes
<b>F. PUBLIC AND QUASI-PUBLIC SERVICES</b>			
Government Services	No	No	Yes <sup>6</sup>

Educational Services	No	No	No
Cultural Activities	No	No	No
Medical and Other Health Services	No	No	No
Cemeteries	No	Yes <sup>7</sup>	Yes <sup>7</sup>
Non-profit Organizations including Churches	No	No	No
Other Public and Quasi-Public Services	No	No	Yes
<b>G. OUTDOOR RECREATION</b>			
Playgrounds and Neighborhood Parks	No	No	Yes
Community and Regional Parks	No	Yes <sup>8</sup>	Yes <sup>8</sup>
Nature Exhibits	No	Yes	Yes
Spectator Sports Including Arenas	No	No	No
Golf Courses <sup>9</sup> , Riding Stables <sup>10</sup>	No	Yes	Yes
Water Based Recreational Areas	No	Yes	Yes
Resort and Group Camps	No	No	No
Entertainment Assembly Areas	No	No	No
Other Outdoor Recreation	No	Yes <sup>8</sup>	Yes
<b>H. RESOURCE PRODUCTION &amp; EXTRACTION&amp; OPEN LAND</b>			
Agriculture <sup>11</sup>	Yes	Yes	Yes
Livestock Farming, Animal Breeding <sup>12</sup>	No	Yes	Yes
Forestry Activities	No	Yes	Yes
Fishing Activities and Related Services <sup>13</sup>	No <sup>14</sup>	Yes <sup>13</sup>	Yes
Mining Activities	No	Yes	Yes
Permanent Open Space	Yes	Yes	Yes
Water Areas <sup>13</sup>	Yes	Yes	Yes

Footnotes:

- 1 A "Yes" or "No" designation for compatible land use is to be used only for gross comparison. Within each, uses exist where further definition may be needed as to whether it is clear or usually acceptable/unacceptable owing to variations in densities of people and structures. For heliports and stagefields, the takeoff safety zone is equivalent to the clear zone and the approach-departure zone is equivalent to APZ I for these land use guidelines.
- 2 Suggested maximum density 1-2 dwelling units per acre, possibly increased under a Planned Unit Development where maximum lot coverage is less than 20 percent.
- 3 Factors to be considered: Labor intensity, structural coverage, explosive characteristics, and air pollution.
- 4 No passenger terminals and no major above ground transmission lines in APZ I.
- 5 Not permitted in graded area.
- 6 Low intensity office uses only. Meeting places, auditoriums, etc., not recommended.
- 7 Excludes chapels.
- 8 Facilities must be low intensity.
- 9 Clubhouse not recommended.
- 10 Concentrated rings with large classes not recommended.
- 11 Includes livestock grazing but excludes feedlots and intensive animal husbandry.
- 12 Includes feedlots and intensive animal husbandry.
- 13 Includes hunting and fishing.
- 14 Controlled hunting and fishing may be permitted for the purpose of wildlife control.