TEHAMA COUNTY
GENERAL PLAN UPDATE
2009 - 2029

Prepared for:

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those autos increases by about 3 dBA. However, if the speed decreases to half, the noise level from autos decreases by about 6 dBA. The engine exhaust and tire-roadway interaction also contribute prominently to overall automobile noise.

When distance is the only factor considered, sound levels from an isolated noise source will typically decrease by about 6 dB for every doubling of distance from the source. When the noise source is essentially a continuous line (e.g. vehicle traffic on a highway), noise levels decrease by about 3 dB for every doubling of distance.

Receiver parameters are those factors that affect the relationship of the receiver's position to the vehicle-roadway noise source. The distance between the observer and the highway is the most significant factor. The greater the distance, the lower the noise level. Doubling the distance from the highway (for example going from 100 to 200 feet) reduces the average traffic noise at the receiver's position by about 4 to 6 dBA.

Railroad noises may also be measured and compared using Ldn levels as a basis for evaluation. Railway noise is produced by the combination of diesel engine noise and railway car noise. Other variables include distance to the receiver, numbers of train operations, speed of trains and numbers of cars per train. Engine air horns and grade crossing warnings are treated as single event noises.

Noise from overhead aircraft around general aviation airports is evaluated based on the number of daytime and nighttime operations for jet and non-jet take-offs and landings. Ldn contours are drawn which include consideration of aircraft altitude and other surrounding noise sources.

EXISTING AND FUTURE NOISE ENVIRONMENTS

The primary noise sources in Tehama County consist of highway and local traffic on County roads, as well as commercial and industrial uses, airports and railroad operations. Each of these noise sources is discussed individually below.

Roadways

The use of the automobile is recognized in the Regional Transportation Plan (RTP) as the dominant mode of transportation in Tehama County. The RTP reported that there were approximately 43,000 licensed motor vehicles (excluding trailers) that travel an average of 2,225,000 vehicle miles daily upon public roads in the county. There are nearly 1,200 centerline miles and 2,400 lane miles of streets and roads in the county.

State Highways provide the primary routes connecting the cities and unincorporated areas in Tehama County. These highways account for nearly 70 percent of vehicle travel in the county.

- Interstate 5: A high-emphasis route of the National Highway System, I-5 passes through approximately 42 miles of Tehama County, through Red Bluff and Corning.
- SR-99: State Route 99 (also known as 99 East) is a 2-lane conventional highway/expressway with a 25-mile segment through Tehama County.

- SR-36: State Route 36 runs 104 miles through Tehama County. The road is an east-west highway with important principal arterial segments near Red Bluff (which connect I-5 and SR 99E).
- SR-89: State Route 89 is a 2-lane conventional highway that spans a total of 243 miles. In Tehama County, SR-89 runs 4.4 miles, leading to Lassen National Volcanic Park.
- SR-172: State Route 172 is a 2-lane conventional highway. It spans 8.91 miles in Tehama County, beginning in Mineral and continuing through Mill Creek.

Table 9-2 depicts County roadway distances from roadways to CNEL noise contours, as based upon Average Daily Traffic (ADT) and speed of vehicles.

Table 9-3 depicts actual roadways and roadway operating conditions based upon available ADT traffic data for the various minor collector and larger roadways within Tehama County.

TABLE 9-2
CALCULATED DISTANCE (IN FEET) FROM CENTER LINE TO CNEL NOISE CONTOUR BASED ON SPEED AND ADT

30 MPH				
ADT	CNEL			
	55	60	65	70
100				
200				
300				
400				
500				
600				
700				
800				
900				
1000				
1500	50			
2000	61			
2500	71			
3000	80			
3500	89			

45 MPH				
ADT	CNEL			
	55	60	65	70
100				
200				
300				
400				
500				
600	53			
700	59			
800	64			
900	70			
1000	75			
1500	98			
2000	118	55		
2500	137	64		
3000	155	72		
3500	171	80		
4000	187	87		
4500	203	94		
5000	217	101		
5500	232	108		
6000	245	114	53	
6500	259	120	56	
7000	272	126	59	
7500	285	132	62	
8000	297	138	64	
8500	310	144	67	
9000	322	149	70	
9500	333	155	72	
10000	345	160	75	

55 MPH				
ADT	CNEL			
	55	60	65	70
5000	305	142	66	
5500	325	151	70	
6000	344	160	74	
6500	363	169	78	
7000	381	177	82	
7500	399	185	86	
8000	417	194	90	
8500	434	202	94	
9000	451	209	97	
9500	467	217	101	
10000	484	225	104	
10500	500	232	108	
11000	515	239	111	52
11500	531	246	115	53
12000	546	254	118	55
12500	561	261	121	56
13000	576	267	124	58
13500	591	274	127	59
14000	605	281	131	61
14500	619	288	134	62
15000	634	294	137	64

65 MPH				
ADT	CNEL			
	55	60	65	70
5000	405	189	89	
5500	432	201	95	
6000	458	213	100	
6500	483	225	106	
7000	507	236	111	54
7500	531	247	116	56
8000	554	258	121	58
8500	577	268	126	60
9000	599	279	130	63
9500	621	289	135	65
10000	643	299	140	67
10500	664	309	144	69
11000	685	318	149	71
11500	706	328	153	73
12000	726	337	157	75
12500	746	347	162	77
13000	766	356	166	79
13500	785	365	170	81
14000	804	374	174	83
14500	824	383	178	84
15000	842	391	182	86

70 MPH				
ADT	CNEL			
	55	60	65	70
5000	461	214	101	
5500	491	228	107	
6000	520	242	113	55
6500	548	255	120	58
7000	576	268	125	60
7500	603	281	131	63
8000	630	293	137	66
8500	656	305	142	68
9000	681	317	148	71
9500	706	328	153	73
10000	731	340	159	75
10500	755	351	164	78
11000	779	362	169	80
11500	802	373	174	82
12000	825	383	179	85
12500	848	394	184	87
13000	870	404	188	89
13500	892	415	193	91
14000	914	425	198	93
14500	936	435	203	95
15000	957	445	207	97

ADT: Average Daily Traffic
CNEL: Community Noise Equivalent Level

TABLE 9-3
ROADWAY TRANSPORTATION NOISE GENERATION

STREET	CLASSIFICATION	ADT	MPH	DISTANCE		DISTANCE, IN FEET TO CNEL	
				55 DB	60 DB	65 DB	70 DB
Interstate 5	Interstate Freeway	50,000	70	-	1,032	479	222
State Route 99	State Route	11,900	55	530.7	246.4	114.5	53.4
Baker Road	Arterial	2,760	45	137	63.8	0	0
Bowman Road	Arterial	8,029	55	416.7	193.5	90	0
Gyle Road	Arterial	1,925	45	97.6	0	0	0
Main Street	Arterial	*	55	--	--	--	--
South Avenue	Arterial	5,245	45	217.4	101.1	0	0
Adobe Road	Major Collector	2,115	45	118.1	55.1	0	0
Black Butte Road	Major Collector	208	30	0	0	0	0
Capay Road	Major Collector	728	45	58.9	0	0	0
Chestnut Avenue	Major Collector	2,836	35	0	0	0	0
Corning Road	Major Collector	977	45	69.6	0	0	0
Dusty Way	Major Collector	*	55	--	--	--	--
Flores Avenue	Major Collector	718	55	0	0	0	0
Hoag Road	Major Collector	2,351	45	118.1	55.1	0	0
Hooker Creek Road	Major Collector	1,577	45	97.6	0	0	0
Jellys Ferry Road	Major Collector	1,230	45	0	0	0	0
Lake California Drive	Major Collector	4,178	45	187.4	87.1	0	0
Live Oak Road	Major Collector	2,420	45	118.1	55.1	0	0
Manton Road	Major Collector	534	45	0	0	0	0
Mccoy Road	Major Collector	173	45	0	0	0	0
Newville Road	Major Collector	*	55	--	--	--	--
Paskenta Road	Major Collector	684	45	53.2	0	0	0
Rancho Tehama Road	Major Collector	1,226	45	74.6	0	0	0
Rawson Road	Major Collector	1,437	45	74.6	0	0	0
Red Bank Road	Major Collector	567	45	0	0	0	0
Sale Lane	Major Collector	360	45	0	0	0	0
San Benito Avenue	Major Collector	2,918	55	0	0	0	0
Walnut Street	Major Collector	4,732	45	202.7	94.2	0	0
Wilcox Road	Major Collector	673	45	53.2	0	0	0
Wilder Road	Major Collector	210	45	0	0	0	0
Bend Ferry Road	Minor Collector	350	55	0	0	0	0
Cannon Road	Minor Collector	*	55	--	--	--	--
East Chard Avenue	Minor Collector	*	55	--	--	--	--
Hall Road	Minor Collector	648	45	53.2	0	0	0
Kirkwood Road	Minor Collector	544	45	0	0	0	0
Lanes Valley Road	Minor Collector	130	45	0	0	0	0
Lowrey Road	Minor Collector	*	55	--	--	--	--
Newville Road	Minor Collector	*	55	--	--	--	--
Reeds Creek Road	Minor Collector	1,591	45	97.6	0	0	0
Round Valley Road	Minor Collector	*	55	--	--	--	--
Samson Avenue	Minor Collector	98	55	0	0	0	0
Trinity Avenue	Minor Collector	1,024	45	74.6	0	0	0
Tyler Road	Minor Collector	2,364	45	118.1	55.1	0	0
Watkins Road	Minor Collector	162	45	0	0	0	0
Willard Road	Minor Collector	192	45	0	0	0	0

(*) Data Currently Unavailable
Source: Tehama County Public Works Department, 2007

Railroads

The railroad contributes a significant source of noise locally, within areas of Tehama County adjacent to the tracks, due to warning horns and wheel noise on the tracks. The only active railroad operation within Tehama County is the Union Pacific Railroad, which runs through central Tehama County. Union Pacific's north-south main line, between Seattle and Southern California, runs through Tehama County on its route between Red Bluff and Chico. This route passes through or within 5 miles of the towns of Vina, Los Molinos, Gerber, Las Flores, Proberta and Red Bluff.

According to noise studies conducted by Union Pacific, the average Sound Exposure Levels (SEL) for freight train operations along the UPRC railroad track is approximately 100 dB at a distance of 100 feet from railroad track centerline.

According to John Bromley, Director of Public Affairs for Union Pacific, the route between Red Bluff and Chico currently averages 18 trains per day, including Amtrak passenger trains. Cargo is predominantly southbound lumber and paper products, but cargo also includes a wide variety of other consumer and industrial goods.

Operations are continuous throughout the year, although a reduction of service occurs in the off-season. The trains run 24 hours a day without any particular times favored. The numbers of trains and the times they run vary day to day depending on business levels, traffic on the railroad and weather.

Airports

There are two public airports within Tehama County: Corning Municipal Airport and Red Bluff Municipal Airport. Both airports are owned and operated by the cities of Corning and Red Bluff, respectively.

The noise impacts from these airports were analyzed in the Tehama County Airport Comprehensive Land Use Plan (TCACLUP), adopted by the Airport Land Use Commission. The following data for these airports was also obtained from the TCACLUP.

Noise contours are based on the Community Noise Equivalent Level (CNEL) as defined in Title 21 of the California Code of Regulations. The TCACLUP includes noise contours for the two airports. Specific locations and operational information for each of the airports discussed with the TCACLUP is provided below.

The history of noise complaints around general aviation airports suggests that some land use regulation measures are required under the traffic pattern and within the 55 CNEL contour. Preferred measures are those that restrict residential land use within the traffic pattern. Land use restrictions may include prohibiting residential development underneath that traffic pattern or limiting development to low density uses.

The local standard for noise levels near existing airports in Tehama County is 60 dBA Ldn for residential areas or other sensitive receptors. **Table 9-4**, taken from the Tehama County Comprehensive Airport Land Use Plan (CLUP), shows detailed Airport/Land Use Noise Compatibility Criteria.

TABLE 9-4
IMPACT OF AIRPORT NOISE ON LAND USE

Land Use Category	CNEL or LDN, dBA 1				
	50-55	55-60	60-65	65-70	70-75
Residential					
Single family detached and duplexes	+	0	♦	♦♦	♦♦
Multi-family and transient lodging	++	+	0	♦	♦
Mobile homes	+	♦	♦	♦♦	♦♦
Public					
School, libraries, hospitals, nursing homes	+	0	♦	♦	♦♦
Churches, auditoriums, concert halls	+	0	0	♦	♦♦
Transportation, parking, cemeteries	++	++	++	+	0
Commercial and Industrial					
Offices, retail	++	+	0	0	♦
Service commercial, wholesale trade warehousing light industrial	++	++	+	0	0
General manufacturing, utilities, extractive industry	++	++	++	+	+
Agricultural and Recreational					
Cropland	++	++	++	++	+
Livestock breeding	++	+	0	0	♦
Parks, playgrounds, zoos	++	+	+	0	0
Golf courses, riding stables, water recreation	++	++	+	0	0
Outdoor spectator sports	++	+	+	0	♦
Amphitheaters	+	0	♦	♦♦	♦♦

Land Use Acceptability	Interpretations Conditions
++ Clearly Acceptable	The activities associated with the specified land use can be carried out with essentially no interference from the noise exposure.
+ Normally Acceptable	Noise is a factor to be considered in that slight interference with outdoor activities may occur. Normal Construction methods will eliminate most noise intrusions upon indoor activities.
0 Marginally Acceptable	The indicated noise exposure will cause moderate interference with outdoor activities and indoor activities with windows open. This is acceptable upon the conditions that outdoor activities are minimal and construction features which provide for sufficient noise attenuation are used. Under other circumstances, the land use should be discouraged.
♦ Normally Unacceptable	Noise will create substantial interference with both outdoor and indoor activities. Noise intrusion upon indoor activities can be mitigated by requiring special noise insulation construction. Land uses which have conventionally constructed structures and/or involve outdoor activities which would be disrupted by noise should generally be avoided.
♦♦ Clearly Unacceptable	Unacceptable noise intrusion upon land use activities will occur. Adequate structural noise insulation is not practical under most circumstances. This land use should be avoided unless strong overriding factors prevail.

Corning Municipal Airport

The Corning Municipal Airport consists of one runway on 77 acres of land. It is located within the City Limits of Corning at the intersection of Neva Ave. and Marguerite Ave. in the northeast quadrant of the City. According to the TCACLUP, there are currently 21 airplanes and 1 helicopter based at the Corning Municipal Airport.

Runway 16-34 spans 2,700 ft., with single-wheel weight limitations of 12,000 lbs. Aircraft that generally use the airport are single-engine fixed wing general aviation aircraft, but twin-engine aircraft also occasionally utilize the airport. On an annual average basis, there are approximately 24 operations per day.

The Corning Municipal Airport Master Plan includes a planned relocation and extension of Runway 16-34. These actions are proposed to better separate aircraft operations from urban uses to the south. As a result, the threshold for the runway will shift 900 feet to the north. Additionally, a 1,500-foot northerly extension will be completed, resulting in a net lengthening of 600 feet for an overall runway length of 3,300 feet.

Wadell Engineering Corporation developed an identification of noise contours for the Corning Municipal Airport on behalf of the TCACLUP. On the contour maps for both the 2,700-foot and the potential future 3,300-foot versions of the runway, three contours were identified (55 CNEL, 60 CNEL and 65 CNEL) which extend approximately 500 feet to the east and west of the center of the runway and 1,500 feet to the north and south of the respective ends of the runway.

Figure 9.0-1 depicts the Airport Noise Contour Lines for the Corning Municipal Airport, as found in the City of Corning General Plan. It should be noted that, according to the Corning General Plan, this Figure only provides contour lines for the 55 CNEL level due to the airport's small size and lack of commercial air traffic. Noise levels are not considered significant within the contour lines of the runway.

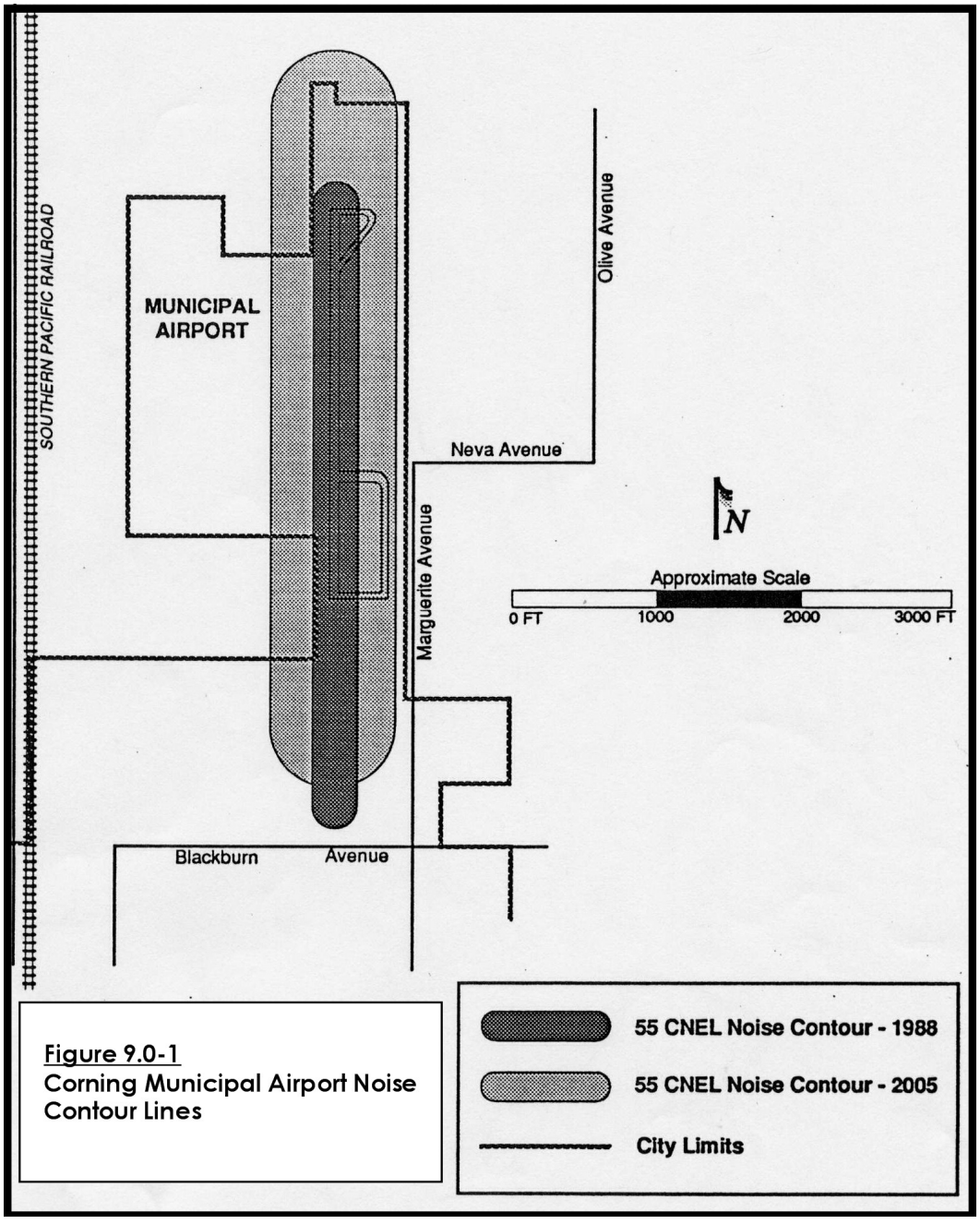


Figure 9.0-1
Corning Municipal Airport Noise Contour Lines

Source: City of Corning General Plan Noise Element 1994

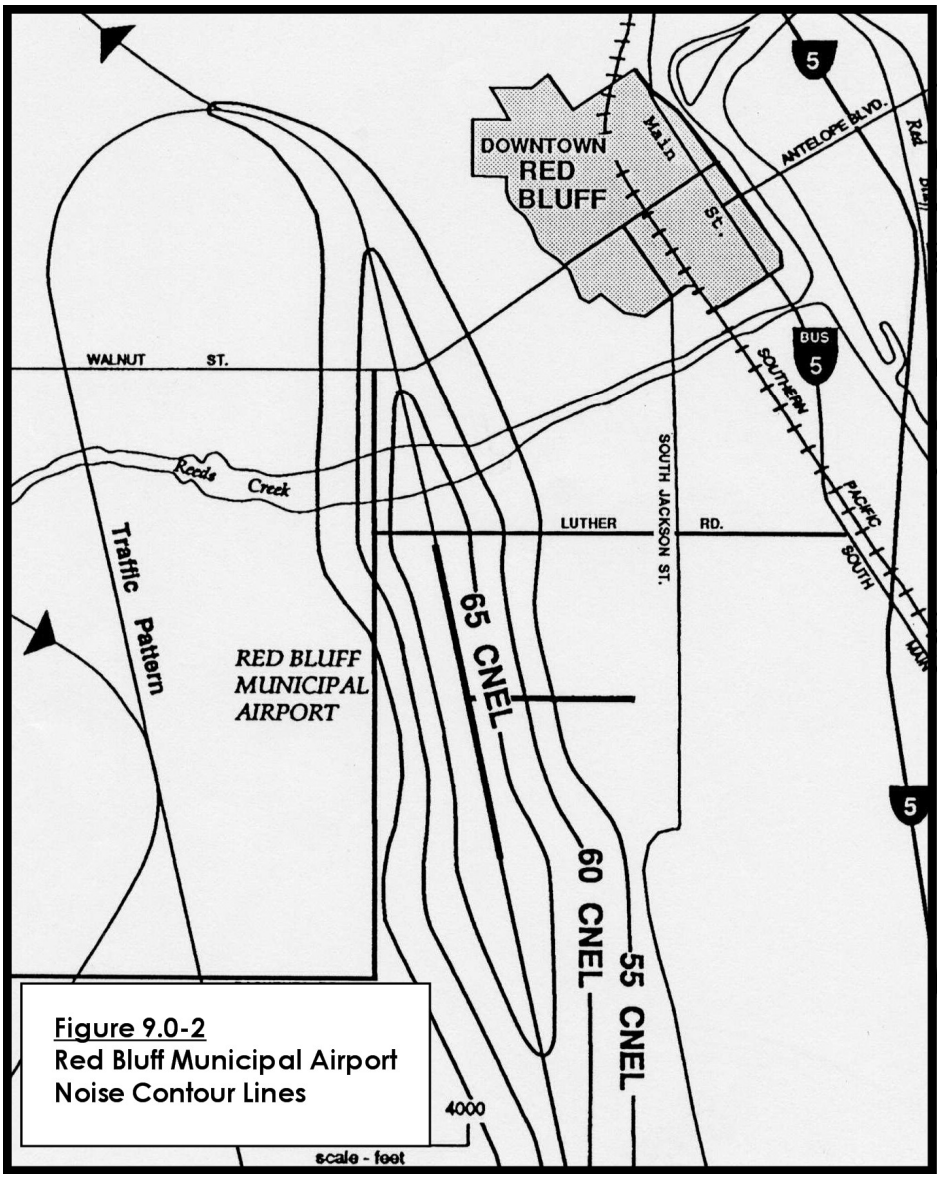
Red Bluff Municipal Airport

The Red Bluff Municipal Airport has 602 acres of land and a 5,984-foot runway system. It is located entirely within the Red Bluff City Limits and is served by Luther Rd. to Airport Blvd. or South Jackson St. to Airport Blvd. It is bounded on the west by Paskenta Rd. The primary runway, 15-33, is 150 feet wide and 5,984 feet long with single-wheel weight limitations of 30,000 lbs. and double-wheel weight limitations of 65,000 lbs.

Aircraft that generally use the airport are single-engine fixed-wing general aviation aircraft and twin-engine aircraft, but jets and helicopters also occasionally utilize the airport. On an average annual basis, there are approximately 72 operations per day.

The noise contours for the Red Bluff Airport were developed as part of the Red Bluff Airport Master Plan. The contours identified are 55 CNEL, 60 CNEL and 65 CNEL, extending in decreasing order approximately 1,000 feet to the north and 1,000 feet south of the runway. Although the majority of the identified noise contours are located southwest of the City, the northwest extensions of the 55 CNEL and 60 CNEL contour lines stretch between approximately 400-800 feet past Paskenta Road in the southwestern corner of Red Bluff. The southern points of the contours extend into unoccupied land, approximately 500 feet north of Red Bank Creek.

Figure 9.0-2 depicts the Airport Noise Contour Lines for the Red Bluff Municipal Airport, as found in the City of Red Bluff General Plan.



Source: City of Red Bluff General Plan, Comprehensive Airport Land Use Plan, 2001

TCACLUP NOISE POLICIES

The following noise policies were adopted by both airports in the TCACLUP:

1) Impact of Airport Noise on Land Use shall be evaluated in terms of the Community Noise Equivalent Level (CNEL), as defined in Title 21 of the California Administration Code.

2) The maximum noise exposure that shall be considered normally acceptable for residential areas is 60 dBA CNEL.

3) The relative acceptability or unacceptability of particular land uses with respect to the noise levels to which they would be exposed as indicated in the "Impact of Airport Noise on Land Use" matrix, Table 2. These criteria shall be the principal determinants of whether a proposed land use is compatible with the noise impact from a nearby airport, but special circumstances, which would affect the specific proposal's noise sensitivity (e.g., the extent or lack of outdoor activity), also shall be taken into account.

4) One of the conditions for approval of a land use which is "marginally acceptable" or "normally unacceptable" (see **Table 9-4**, *Land Use Acceptability Definitions*) for the given noise environment is that the building must provide a satisfactory degree of noise attenuation. If the structure can reduce the noise exposure to the indicated level, the use may be acceptable. It should be noted that the interior noise criteria are measured in terms of maximum noise levels of individual events and not average noise levels as represented by CNEL values. Since maximum exterior individual even noise levels are greater than the CNEL value at a given location, the required noise reduction of the structure thus will be greater than the difference between the interior noise level criterion and the CNEL value.

5) In applying the interior noise level criteria, engine run-up noise shall be considered as a source of commonly occurring exterior noise.

6) When applying the noise compatibility criteria to a given location, the basis for evaluation shall be the maximum Community Noise Equivalent Level to which the location is or is forecast to be exposed.

7) If a noise analyses, including noise monitoring, is conducted for a particular location and the results indicate that the maximum CNEL will be less than shown herein, the lower exposure level may be used for the land use evaluation at the discretion of the Airport Land Use Commission.

NON-TRANSPORTATION NOISE SOURCES

Non-transportation noise sources can be characterized as stationary noise sources that may last a period of several hours, or be ongoing through a 24-hour period. Some of these noise sources include, but are not limited to, industrial facilities, trucking operations, tire shops, auto maintenance shops, shopping centers, drive-up windows, car washes, recycling centers, parks and other recreational areas, and agricultural activities. Noise standards for new uses affected by non-transportation noise have been included as **Table 9-7**.