Attachment 1

2005 Pleasanton Plan 2025

DRAFT

11. NOISE ELEMENT

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11. NOISE ELEMENT

PURPOSE

The purpose of the Noise Element – a required element of the General Plan – is to protect the health and welfare of the community by promoting community development that is compatible with acceptable noise standards. The Element provides information, policies, and programs directed toward retaining a quiet environment and minimizing unwanted sound.

NOISE

Fundamental Concepts of Environmental Noise

Rapid air pressure fluctuations created by a vibrating object that the ear receives and the brain perceives cause sound. Noise is defined as unwanted sound and may be considered objectionable due to its pitch or loudness. The sound of a train may be music to the engineer, but noise to a person living next to the tracks. Sound level is the amplitude of the sound pressure most often measured in decibels (dB).[1]

Pitch – or frequency [2] – is the depth of a tone or sound, with higher pitches more objectionable than lower pitches. The human ear does not perceive sound at low frequencies in the same manner as those at higher frequencies. Sounds of equal level at low frequencies do not seem as loud as those at higher frequencies. A-weighted sound levels correlate with the way the human ear "hears" sound and compensates by a weighting of frequencies. Unless otherwise noted, this Noise Element refers to all sound levels as A-weighted sound levels, expressed in decibels as dBA. Table 11-1 shows typical A-weighted sound levels measured in the environment and industry.

Loudness is the intensity of sound waves as received by the human ear.[3] A 3 decibel change in noise level is barely detectable to the human ear, a 5 decibel change is readily noticeable, and a 10 decibel change is perceived as a doubling (or halving) of loudness.

This Element focuses on two descriptors for sound levels: Leq and L_{dn}. Leq is a good overall description of average level which can be used to describe any time period but is particularly useful in describing the change in noise level of a single activity, such as noise from a nightclub. The day/night average sound level L_{dn} accounts for the difference in response of people to daytime and nighttime noises by weighting noise levels generated during the nighttime when background noise is generally

1 A decibel (dB) is the standard unit of sound loudness; decibels are measured on a logarithmic scale where each increase in 10 dB multiplies the previous value by 10 (e.g., 60 dB is 10 times louder than 50 dB, while 70 dB is 100 times louder than 50 dB).

2 The pitch or frequency of sound refers to the number of complete pressure fluctuations – or cycles per second – called Hertz (Hz). Most sounds consist of a band of frequencies audible to the human ear within a range of 20 Hz to 20,000 Hz.

3 The intensity or loudness of sound is the amount of sound pressure that the human ear feels above and below atmospheric pressure.

TABLE 11-1: TYPICAL NOISE LEVELS IN THE ENVIRONMENT

Common Outdoor Noise Source	Noise Level (dBA)	Common Indoor Noise Source
	120 dBA	
Jet fly-over at 300 meters		Rock concert
	110 dBA	
Pile driver at 20 meters	100 dBA	
		Night club with live music
	90 dBA	
Large truck pass by at 15 meters		
	80 dBA	Noisy restaurant
		Garbage disposal at 1 meter
Gas lawn mower at 30 meters	70 dBA	Vacuum cleaner at 3 meters
Commercial/Urban area daytime		Normal speech at 1 meter
Suburban expressway at 90 meters	60 dBA	
Suburban daytime		Active office environment
	50 dBA	
Urban area nighttime		Quiet office environment
	40 dBA	
Suburban nighttime		
Quiet rural areas	30 dBA	Library
		Quiet bedroom at night
Wilderness area	20 dBA	
Most quiet remote areas	10 dBA	Quiet recording studio
Threshold of human hearing	0 dBA	Threshold of human hearing

Source: Illingworth & Rodkin, "City of Pleasanton Environmental Noise Background Report," December 17, 2007.

lower and people are more sensitive to noise events. Each nighttime noise event is multiplied by a factor of ten, which is approximately equal to a doubling in perceived loudness, to compensate for people's increased sensitivity during nighttime hours. Pleasanton generally uses Leq for describing the change in noise level of a single activity while using L_{dn} to evaluate noise exposure in the city.

Lmax, a third descriptor of sound, is the instantaneous maximum noise level for a specified time period usually used for aircraft noise.

Human Response to Noise

The effects of noise on people include subjective effects – such as annoyance and nuisance – and physiological effects – such as startle and hearing loss. Annoyance includes house vibrations and interferences to sleep, speech, radio, and television. Physiological effects such as hearing loss can occur due to chronic exposure to excessive noise, but may also occur from a single event, such as an explosion. Chronic exposure to loud noises may accelerate natural hearing loss associated with aging.

People generally have the ability to distinguish one sound from a background of sounds, such as a telephone ringing over music. However, certain noise levels can render a sound inaudible, for example, when nearby trucks block conversation. Face-to-face conversation usually can proceed against a background noise level of up to 66 dBA, group conversations up to 50 or 60 dBA, and public meetings up to 45 or 55 dBA, without interruption.

Sleep interference is more difficult to quantify although studies have shown that progressively deeper levels of sleep require louder noise levels to cause a disturbance. Learning and job performance begin to be impaired with noise levels of 90 dBA and greater, although high frequency or irregular bursts of noise may cause interruption at lower levels.

Long-term exposure to levels exceeding 70 dBA can cause hearing loss. In addition, brief periods of noise that exceed a sound pressure level of 140 decibels are a health hazard. [4]

For sources such as railroad trains and aircraft, the California Department of Health Services has suggested that maximum instantaneous noise levels from individual events within sleeping areas should not exceed 50 decibels in residential areas exposed to noise levels at 60 dBA L_{dn} and greater. The City has adopted a Noise Ordinance which regulates the amount of noise which can be produced in residential and commercial areas and during which hours of the day in order to avoid sleep interference.

[4] Cynthia Yee and Gregg Fleming, US Department of Transportation, "General Health Effects of Environmental Noise," Final Report, June 2002.

EXISTING NOISE LEVELS

Traffic Noise

The major source of noise in Pleasanton is vehicular traffic including automobiles, trucks, buses, and motorcycles. The level of vehicular noise generally varies according to the volume of traffic, the percentage of trucks, the speed of traffic, and distance from the source. Noise generated by vehicular traffic is greatest along Interstate-580 (I-580), Interstate-680 (I-680), Stanley Boulevard, First Street, Stoneridge Drive, Hopyard Road, Santa Rita Road, West Las Positas Boulevard, Foothill Road, Vineyard Avenue, and Valley Avenue.

Periodically the City conducts a noise monitoring study to measure noise level changes in Pleasanton. Figure 11-1 shows the locations measured in 2006 and Table 11-2 shows the results of the measurements. The installation of berms and sound walls between residences and City arterial roads has reduced noise to acceptable levels in most locations. Some individual homes within residential areas that potentially have a 60 dBA L_{dn} and greater noise level may, in fact, have acceptable noise levels because of the noise reduction buffering effect of other homes which are located between those homes and nearby roadways. In addition, new open graded sound-attenuating asphalt pavement on Valley Avenue has reduced noise levels by 3-4 decibels since its installation and is not reflected in the 2006 noise measurements.

Noise measurements adjacent to I-580 and BART include Sites 35 and 37 where existing noise levels range from about 72 to 77 dBA L_{dn} depending on the existing noise barriers and proximity to the highway. Existing noise levels in residential areas near I-680 (Sites 8, 9, and 20) range from about 71 to 73 dBA L_{dn} in areas shielded by noise barriers. Ambient noise levels in the vicinity of Ruby Hill are about 72 dBA L_{dn} due to State Route 84 (Site 39).

Existing noise levels in residential areas near major thoroughfares typically range from about 60 to 70 dBA L_{dn}. Unshielded areas adjacent to Vineyard Avenue and Stanley Boulevard range from about 71 to 79 dBA L_{dn}.

Rail Operations

Noise is also generated by railroad operations. Measure noise levels of 76 dBA L_{dn} near St. John Street results primarily from train operations, including whistle blasts. (See Monitoring location 43 on Table 11-2 and Figure 11-1.) Appendix A of the City's 2007 noise report shows hourly monitored noise levels at this location.[5] Individual noise events generated by trains reach 90 dBA at 100 feet from the train, although the noise is of relatively short duration.

Current freight rail operations average 11-13 trains throughout each 24-hour day. The L_{dn} is 60 decibels at a distance of 190 feet from the tracks. In addition, the Altamont Commuter Express

[5] Illingworth & Rodkin, "City of Pleasanton Noise Element Update Environmental Noise Background Report," Dec.17, 2007.

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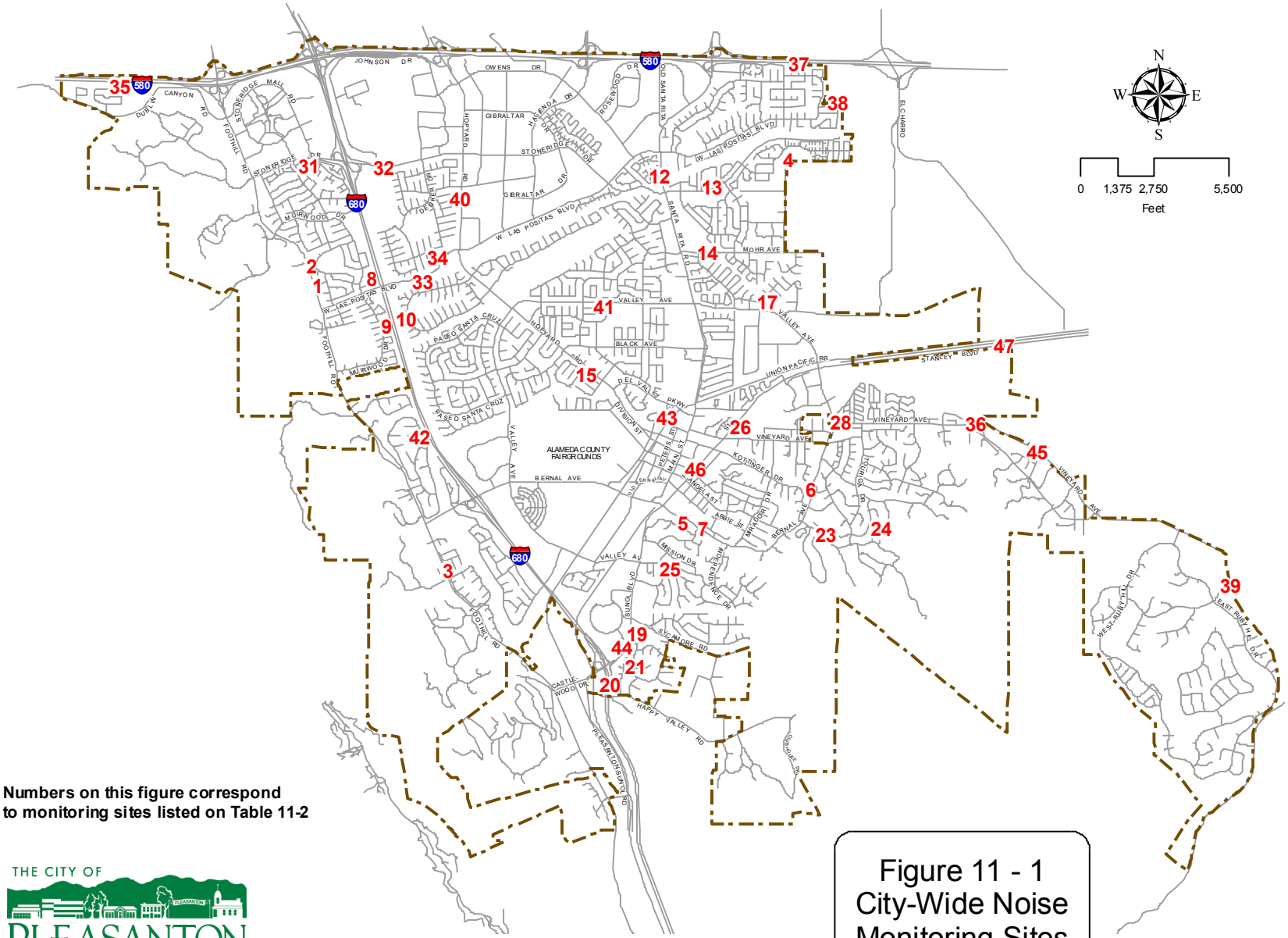

Note: Numbers on this figure correspond to monitoring sites listed on Table 11-2

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Source: Illingworth & Rodkin, Inc., 2007

Figure 11 - 1
City-Wide Noise Monitoring Sites

TABLE 11-2: 2006 MONITORING LOCATIONS AND NOISE LEVELS

Site	Location	Noise Levels (L_{dn}, dBA)	Adjacent Roadway
1	Patio of 7988 Limewood Court; 25 feet from sound wall along Foothill Road.	52-54	Foothill Road
2	Foothill Road; 36 feet to the centerline of Foothill Road.	68-69	Foothill Road
3	Front of 2329 Foothill Road in Laguna Village; 45 feet from centerline of Foothill Road.	63	Foothill Road
4	150 feet east of the end of Martin Avenue adjacent to Walnut Glen subdivision.	53	N/A
5	Pleasanton Hills Association Open Space south of Bernal Avenue, west of Puerto Vallarta; 50 feet from the centerline of Bernal Avenue.	65	Bernal Avenue
6	Park south of 3661 Bernal Avenue, 65 feet from centerline of Bernal Avenue.	63-64	Bernal Avenue
7	Rear yard of 611 Windmill Lane approximately 25 feet from sound wall.	57-60	Bernal Avenue
8	Rear property fence of 7299 Tulipwood Circle approximately 36 feet from Interstate 680 sound wall.	71-72	I-680
9	Rear yard of 7355 Elmwood Circle 20 feet from sound wall.	72	I-680
10	Rear yard of 3989 Petrified Forest Court; approximately 54 feet from I-680 sound wall.	65-67	I-680
11	Eliminated from 2006 Survey.	N/A	N/A
12	Front of 3041 Santa Rita Road; 85 feet from centerline of Santa Rita Road.	68-69	Santa Rita Road
13	75 feet from centerline of Stoneridge Drive at Gatewood Apartments.	64-66	Stoneridge Drive
14	Mohr Avenue east of Kolln Street, 40 feet from center of Mohr Avenue.	61-63	Mohr Avenue
15	Median area between Hopyard Road and frontage road, approximately 42 feet from centerline of Hopyard Road.	68-69	Hopyard Road
16	Eliminated from 2006 Survey.	N/A	N/A
17	South of Orloff Drive, 93 feet from centerline of Valley Avenue.	66-69	Valley Avenue
18	Eliminated from 2006 Survey.	N/A	N/A
19	Front yard of 6340 Arlington Drive, 88 feet from center of Sunol Boulevard.	68	Sunol Boulevard
20	Rear yard fence setback of homes on Sullivan Court.	71-73	I-680
21	Rear yard of 6607 Arlington Drive approximately 975 feet from center of I-680.	61	Distant I-1680
22	Eliminated from 2006 Survey.	N/A	N/A
23	Front yard of 1114 Hearst Drive east of Bernal Avenue, 50 feet from centerline of Hearst Drive.	54-55	Hearst Drive

TABLE 11-2: 2006 MONITORING LOCATIONS AND NOISE LEVELS

Site	Location	Noise Levels (L_{dn}, dBA)	Adjacent Roadway
24	Rear yard of 3407 Brandy Court, 62 feet from fence.	45-50	N/A
25	Front yard of 276 Junipero Drive east of Sunol Boulevard, 33 feet from the centerline.	57-60	Junipero Drive
26	First Street south of Arroyo Del Valle; 89 feet from the centerline of First Street.	66	First Street
27	Eliminated from 2006 Survey.	N/A	N/A
28	40 feet from centerline of Vineyard Avenue in front of Smoketree Commons Drive.	71	Vineyard Avenue
29	Eliminated from 2006 Survey.	N/A	N/A
30	Eliminated from 2006 Survey.	N/A	N/A
31	84 feet from the centerline of Stoneridge Drive.	65-68	Stoneridge Drive
32	57 feet from centerline of Stoneridge Drive.	73-75	Stoneridge Drive
33	Rear yard of 3916 Alma Court, 12 feet from sound wall along W. Las Positas Boulevard.	61-63	West Las Positas Blvd
34	60 feet from the centerline of W. Las Positas Boulevard.	67-69	West Las Positas Blvd
35	Near 7650 Canyon Meadow Circle approximately 252 feet from the center of I-580.	74-77	I-580
36	52 feet from the center of Vineyard Avenue near Old Vineyard Avenue.	66-68	Vineyard Avenue
37	Rear yard of 3590 Brent Court, 45 feet from 12-foot sound wall.	72-73	I-580
38	Rear yard of 3013 Staples Ranch Drive.	59-60	Distant I-580
39	Easternmost edge of community park off of East Ruby Hill Drive, 114 feet from the center of SR 84.	72	SR 84
40	Rear yard of 6203 Gibson Court, 16 feet from 7-foot sound wall.	58-60	Hopyard Road
41	Front of 5119 Northway Road, 193 feet to the center of Valley Avenue.	61	Valley Avenue
42	Rear yard of 8125 Regency Drive.	57-61	I-680
43	End of St. John Street, 60 feet from the UPRR.	76	Railroad Trains
44	118 feet from the center of Sunol Boulevard at Arlington Drive.	66-67	Sunol Boulevard
45	42 feet from the center of Vineyard Avenue west of Thiesson Street.	68	Vineyard Avenue
46	Front of 4552 First Street, 30 feet to the centerline.	71	First Street
47	60 feet from Stanley Boulevard near easternmost City Limit.	75-79	Stanley Boulevard

Source: Illingworth & Rodkin, "City of Pleasanton Noise Element Update Environmental Noise Background Report," Dec.17, 2007.

(ACE) train operates four trains daily (eight trips through Pleasanton) between San Joaquin County and San Jose along the existing Union Pacific lines through Pleasanton. The addition of ACE trains along the Union Pacific line contributes to noise levels during morning and evening commute hours. The ACE train contributes morning noise between about 5:35 a.m. and 10:45 a.m., and afternoon/evening noise between about 1:00 p.m. and 6:30 p.m.

Ground-borne vibration from rail operations can concern nearby neighbors of the rail line. Vibration includes movement of the building floors, rattling windows, shaking items, and rumbling sounds. Any new land uses located adjacent to the Union Pacific Railroad tracks should be compatible with the Federal Transit Administration's vibration impact criteria (65 decibels for hospitals and other buildings that vibration would interfere with interior operations, 72 decibels for residences, and 75 decibels for institutional land uses with primarily daytime use). [1]

Trains are required to sound their warning whistle near "at-grade" vehicle crossings to warn motorists of the oncoming train. At a distance of 100 feet, a train warning whistle can generate maximum noise levels of about 100 to 105 dBA. Train engines typically generate maximum noise levels of approximately 80 to 85 dBA while train wheels generate noise levels of about 70 to 75 dBA. Noise measurements indicate that the intermittent loud sounds of trains control the average noise level over the course of a day.

Bay Area Rapid Transit

The Bay Area Rapid Transit (BART) District's line to Pleasanton along I-580 is located in the I-580 median. BART trains are a source of community noise during passby events, but do not substantially contribute to hourly average noise levels generated by the highway as traffic noise screens sound from the trains.

Aircraft Noise

A mix of small aircraft, including private jets, use the Livermore Municipal Airport, a general aviation airport located east of Pleasanton. Aircraft flying into and out of the Livermore Municipal Airport can generate annoying individual noise events. However, the Airport is located far enough from most development within Pleasanton that daily average noise levels within the Planning Area were measured at 56 dBA L_{dn}. [2] Studies have shown that aircraft noise above 55 dBA L_{dn} is more annoying than traffic noise at the same level. See the Land Use Compatibility Guidelines, below.

The potential expansion of the Livermore Municipal Airport (described in the March 2004 *Draft Livermore Municipal Airport Master Plan Update*) generated considerable controversy in Pleasanton because

[1] Office of Planning and Environment, Federal Transit Administration, *Transit Noise and Vibration Impact Assessment,* FTA-VA-90-1003-06, May 2006.

[2] This is a monitoring site measured for the background noise report. Illingworth & Rodkin, "City of Pleasanton Noise Element Update Environmental Noise Background Report," Dec.17, 2007. See Figure 11-11, above, for a map of these sites.

of anticipated noise impacts from the proposed runway expansion and increased number of flights. In 2005, Livermore ceased work on the *Master Plan Update* and thus the *1975 Master Plan* continues to control planning for the airport. Although Livermore is not currently considering runway expansions, recent consideration of increases in the number of allowed hanger spaces and aircraft tie downs has some Pleasanton residents concerned about additional flight operations and future noise impacts. The City of Pleasanton supports a position that these potential changes to airport operations should be subject to environmental review.

In 2006, Pleasanton residents lodged 1,366 noise complaints regarding aircraft at the airport, of which almost half (677) came from two households.

Industrial Operations

Noise generated by industrial operations in Pleasanton is limited primarily to the sand-and-gravel quarry areas. As shown on the General Plan Map, these sites are located at the eastern portion of the Planning Area and are generally separated from Pleasanton's residential neighborhoods. Gravel crushers and quarrying equipment can cause noise levels of 60 dBA L_{dn} and greater at distances within 1,500 feet. Quarry noise monitored at Site 45 near Vineyard Avenue at Thiesson Street measured less than 55 dBA L_{dn}, in the absence of local traffic. These sounds were predominantly the result of stationary and mobile equipment for quarry operations. The quarry was not a significant source of environmental noise at the nearest dwellings near Vineyard Avenue. Use of the asphalt batch plant located in this vicinity has generated noise complaints in the past. A recent agreement involving Cemex, the City of Pleasanton, and Alameda County will lead to the relocation of the asphalt plant to a location further from existing homes.

FUTURE NOISE LEVELS

Traffic Noise

The General Plan projects future noise levels using traffic volumes (and rail activity) expected at buildout. Please refer to the Circulation Element for a complete discussion of future traffic levels. In general, the General Plan projects noise levels to increase. As noted above, a 3 decibel increase in traffic noise levels is considered to be barely noticeable by most individuals, while a 5 decibel change is readily noticeable. An increase of 4 decibels or more is considered significant.

Table 11-3 indicates the distance to the future 60, 65, 70, and 75 dBA L_{dn} noise contours along the highways and major streets in Pleasanton. The distances in this table do not take into account shielding by berms or sound walls, intervening rows of homes, terrain changes, or the like. They represent worst-case noise levels near these streets and can be used as a basis in developing noise mitigation measures for proposed development projects. Figure 11-2 shows the approximate locations of the General Plan buildout 60, 65, and 70 dBA L_{dn} contour, which includes the noise reduction provided by Caltrans installed sound barriers along I-580 and I-680. Some areas may have lower sound

TABLE 11-3: TRAFFIC VOLUMES AND SELECTED NOISE CONTOURS, 2025

Roadway Segment	PM Peak Hr Traffic Volumes	Distance to Noise Contour from Roadway Centerline (feet) 70 dBA L_{dn}	65 dBA L_{dn}	60 dBA L_{dn}
Interstate 580				
w/o Foothill Road	15,000	1,360	2,930	6,310
w/o I-680	16,100	1,290	2,770	5,970
w/o Hopyard Road	14,800	1,220	2,620	5,650
w/o Hacienda Drive	15,700	1,270	2,730	5,870
w/o Santa Rita Road	13,800	1,160	2,500	5,390
w/o El Charro Road	14,000	1,170	2,530	5,440
w/o El Charro Road [a]	14,000	230	490	1,050
Interstate 680				
s/o I-580	12,300	760	1,640	3,530
s/o Stoneridge Drive	10,100	670	1,440	3,100
s/o Stoneridge Drive [a]	10,100	130	280	610
s/o Bernal Avenue	9,800	650	1,410	3,030
s/o Bernal Avenue [a]	9,800	140	300	650
s/o Sunol Boulevard	11,300	720	1,550	3,340
State Route 84				
e/o I-680	2,650	190	410	880
Bernal Avenue				
e/o Case Avenue	1,800	[b]	60	120
e/o First Street	2,100	–	60	140
e/o Foothill Road	1,300	–	50	100
e/o Independence Drive	2,100	–	60	140
e/o Valley Avenue	3,000	–	80	170
s/o Stanley Boulevard	2,600	–	70	160
s/o Tawny	1,900	–	60	130
s/o Vineyard Avenue	2,100	–	60	140
w/o Case Avenue	2,000	–	60	130
w/o First Street	2,200	–	60	140
w/o Valley Avenue	4,800	50	110	230
Black Avenue				
e/o Hopyard Road	750	–	–	70
w/o Santa Rita Road	790	–	–	70
Busch Road				
e/o Valley Avenue	2,100	–	60	140
California Avenue				
s/o Stanley Boulevard	1,600	–	50	110
Canyon Way				
e/o Foothill Road	1,200	–	–	90
Castlewood Drive				
w/o Sunol Boulevard	1,400	–	50	100
Del Valle Parkway				
w/o Main Street	740	–	–	60
e/o Hopyard Road	750	–	–	70
Division Street				
s/o Del Valle Parkway	1,200	–	–	90
Dorman Road				
n/o W. Las Positas Blvd	560	–	–	50
Dublin Canyon				
w/o Foothill Road	910	–	–	70
El Charro Road				
n/o Stanley Boulevard	2,800	–	80	160
n/o Stoneridge Drive	5,800	60	120	270
s/o Friesman Road	5,800	60	120	270
s/o Stoneridge Drive	2,800	–	80	160
First Street				
n/o Bernal Avenue	2,200	–	60	130
n/o Vineyard Avenue	2,400	–	70	140
s/o Neal Street	1,800	–	50	120
Foothill Road				
n/o Bernal Avenue	1,300	–	90	190
n/o Castlewood Drive	900	–	70	150
n/o W. Las Positas Blvd	1,700	50	100	220
s/o Bernal Avenue	1,200	–	80	180
s/o Castlewood Drive	1,500	–	90	200
s/o I-580	5,500	100	230	490
s/o Stoneridge Drive	1,700	50	100	220
s/o W. Las Positas Blvd	1,600	50	100	210
Hacienda Drive				
n/o Owens Drive	5,600	60	120	260
s/o Owens Drive	2,500	–	70	150
Hopyard Road				
n/o Del Valle Parkway	1,500	–	70	160
n/o Owens Drive	5,900	80	180	390
n/o Stoneridge Drive	2,700	50	110	230
s/o Black Avenue	1,500	–	70	160
s/o Owens Drive	3,700	60	130	290
s/o Stoneridge Drive	3,500	60	130	280
s/o Valley Avenue	2,400	50	100	220
s/o W. Las Positas Blvd	5,400	80	170	370

Roadway Segment	PM Peak Hr Traffic Volumes	Distance to Noise Contour from Roadway Centerline (feet) 70 dBA L_{dn}	65 dBA L_{dn}	60 dBA L_{dn}
Johnson Drive				
n/o Owens Drive	1,600	–	50	110
n/o Stoneridge Drive	1,100	–	–	80
Laurel Creek Way				
e/o Foothill Road	740	–	–	70
Main Street				
s/o Rose Ave/Neal Street	1,000	–	–	80
Mohr Avenue				
e/o Santa Rita Road	570	–	–	60
Owens Drive				
e/o Hacienda Drive	2,800	–	80	160
e/o Hopyard Road	3,800	–	90	200
n/o W. Las Positas Blvd	1,600	–	50	110
w/o Hacienda Drive	2,600	–	70	160
w/o Hopyard Road	1,900	–	60	130
Pimlico Drive				
e/o Santa Rita Road	880	–	–	70
Ray Street				
e/o Main Street	1,400	–	50	100
Santa Rita Road				
n/o Stoneridge Drive	4,400	90	190	410
n/o Valley Avenue	4,500	90	190	410
n/o W. Las Positas Blvd	4,400	90	190	410
s/o I-580 westbnd ramp	4,900	90	200	440
s/o Pimlico Drive	4,400	90	190	410
s/o Stoneridge Drive	4,900	90	200	440
s/o Valley Avenue	3,000	70	150	320
s/o W. Las Positas Blvd	3,900	80	170	380
Santa Rita Rd/Main St				
n/o Stanley Boulevard	2,900	–	70	160
s/o Stanley Boulevard	3,000	–	80	170
Saint Mary Street				
w/o Main Street	1,300	–	--	90
Stanley Boulevard				
e/o California Avenue	3,000	–	90	190
e/o Main St/Santa Rita	1,400	–	50	110
e/o Valley Avenue	5,000	260	560	1,210
w/o California Avenue	3,200	–	90	190
Stoneridge Drive				
e/o El Charro Road	3,500	70	140	300
e/o Foothill Road	2,700	60	120	260
e/o Hopyard Road	4,400	80	160	350
e/o Johnson Drive	6,300	100	210	450
e/o Santa Rita Road	3,500	70	140	300
n/o Fabian Court	1,200	–	70	150
n/o Stoneridge Drive	2,400	50	110	240
n/o W. Las Positas Blvd	2,900	60	120	270
w/o El Charro Road	3,400	60	140	300
w/o Hopyard Road	5,300	90	190	400
w/o I-680 s bound ramp	5,800	90	200	430
w/o Johnson Drive	6,400	100	210	450
w/o Santa Rita Road	2,900	60	120	270
Sunol Boulevard				
e/o I-680	4,100	90	200	430
s/o Bernal Avenue	3,600	90	180	400
s/o Castlewood Drive	1,500	50	100	220
w/o I-680	2,500	70	140	310
Valley Avenue				
e/o Hopyard Road	2,400	70	150	320
e/o Santa Rita Road	3,500	90	190	410
n/o Bernal Avenue	2,700	70	160	340
n/o Stanley Boulevard	2,500	70	150	320
w/o Hopyard Road	2,500	70	150	320
w/o Santa Rita Road	2,600	70	150	330
Vineyard Avenue				
e/o Bernal Avenue	1,600	–	90	190
e/o First Street	930	–	60	130
e/o Montevino Drive	1,200	–	70	160
W. Las Positas Boulevard				
e/o Hopyard Road	3,000	60	120	260
e/o I-680	2,500	50	110	230
e/o Muirwood Drive	2,500	50	110	230
e/o Santa Rita Road	2,000	–	90	200
e/o Stoneridge Drive	3,400	60	130	280
w/o Hopyard Road	2,900	50	120	250
w/o Santa Rita Road	3,700	60	140	300
Union Pacific Railroad		150	320	700

Notes: w/o = west of, s/o = south of, e/o = east of, n/o = north of

[a] Includes soundwalls

[b] Data not reported within 50 feet of roadway center

Source: Illingworth & Rodkin, "City of Pleasanton Noise Element Update Environmental Noise Background Report," Dec.17, 2007.

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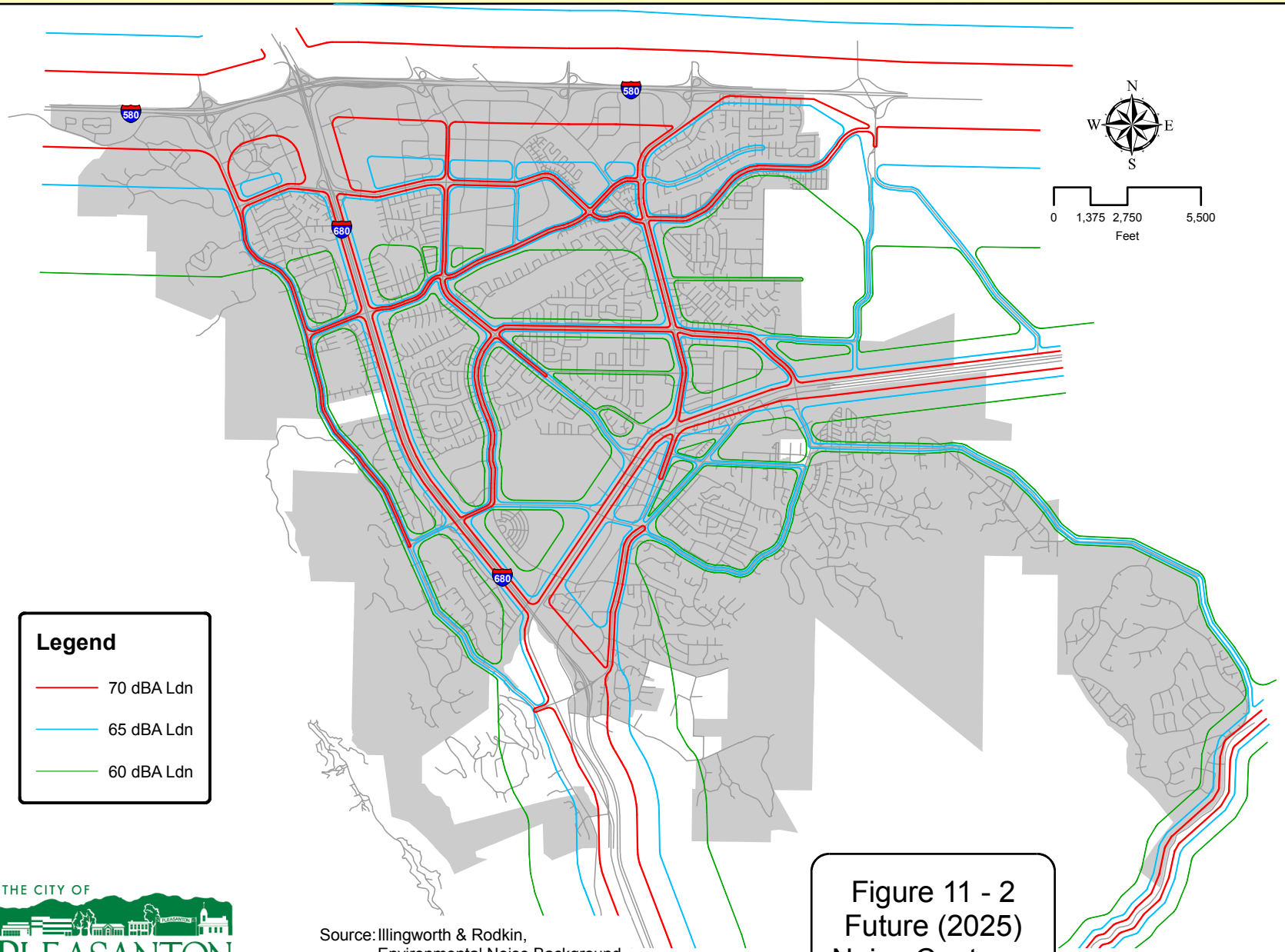

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Source: Illingworth & Rodkin, Environmental Noise Background Report, Dec 17, 2007.

Figure 11 - 2
Future (2025)
Noise Contours

levels than indicated due to potential noise reductions from intervening buildings, vegetation, or other sound barriers or berms that cannot be accurately modeled.

The proposed Stoneridge Drive extension and its potential connection to El Charro Road will result in a new roadway noise source in the city.

Bay Area Rapid Transit

Bay Area Rapid Transit is adding a new West Pleasanton/Dublin BART station between the existing Pleasanton/Dublin and Castro Valley stations. As is the case with existing BART operations along I-580, noise due to operation of the new station is not expected to be noticeable beyond I-580.

Transportation Corridors

The City of Pleasanton has purchased from Alameda County the portion of Southern Pacific Railroad right-of-way that extends from Bernal Avenue between Main and First Streets to Stanley Boulevard. The City plans parking, landscaping, and a pedestrian and bike trail for this property. Alameda County has not yet determined the use of the portion of the Southern Pacific right-of-way that extends southwest from Bernal Avenue, although the City has long-term plans to acquire it for trail use. In the past, the Niles Canyon Railroad had plans to extend a weekend train excursion service to just southwest of downtown Pleasanton. The amount of noise associated with any future rail use would depend on the number of trips. Any such use of this transportation corridor would introduce a new noise source along its periphery, and it is possible that additional sound walls would be required to shield existing noise sensitive development.

In addition, railroad operations currently impact existing residential areas in the Downtown along the Union Pacific railroad tracks. As noted above, about a dozen freight trains use these tracks and four commuter ACE trains pass through Pleasanton twice daily. If the ACE train trips continue to increase, then more noise would be expected along this corridor

Ongoing Noise Problem Areas

Some existing residential development backing onto busy streets experiences outdoor noise above the recommended levels. As a new solution, the City has started to resurface the noisiest streets – arterials – with noise-attenuating (quieter) pavements such as open graded asphalt, lowering street noise by 3-4 decibels. Valley Avenue is the first street to undergo this resurfacing and the remaining arterials will eventually be similarly resurfaced. Most of the arterials will be resurfaced by General Plan buildout.

An ongoing problem with existing soundwalls is that many are in poor condition and should be repaired and updated. Even where soundwalls continue to function, if they are deteriorating or otherwise unattractive, they should be improved.

In addition to traffic-noise impacted residential areas are homes which are currently impacted by aircraft and railroad noise. Aircraft will continue to impact homes near the airport, and will most likely

increase noise levels in east Pleasanton. Figure 11-3 shows existing (and future) noise contours for neighborhoods due to the Livermore Municipal Airport. Trains will continue to impact homes near the Union Pacific railroad, although the City may mitigate some of this noise in the future.

NOISE LEVEL PROJECTIONS IN PLEASANTON

The assumptions for future noise exposure are based on projections of traffic volumes, speed, and vehicle mix which may change in the future. As traffic projections are updated, these noise projections will be adjusted using a format which can be used in subsequent site-specific noise studies.

Noise Studies

The City will continue to require site-specific noise studies for development which is "conditionally acceptable" according to Table 11-3 and future noise contours shown in Figure 11-2, above. These studies will help determine the most effective noise attenuation measures in a particular location. The City will continue to maintain a list of qualified acoustical consultants to perform these technical studies. Recommendations from such studies will be used as project noise mitigation measures with developers required to provide such mitigation through conditions of approval.

Complaint System

A further check of the City's noise projection and monitoring procedures comes from the city's residents. Residents' noise complaints should be monitored and included, where feasible, in the City's periodic noise monitoring program. In this fashion, the subjective effects of noise which may not be detected by noise projections can be factored into the community noise environment and properly analyzed. The Livermore Municipal Airport currently dedicates a telephone line for noise complaints and provides on-line access for noise complaints.

Noise Mitigations

Noise mitigation measures recommended by site specific studies may include building orientation and setback requirements, earth berms, soundwalls, and noise insulation. Examples of sound walls can be seen along many arterial streets in Pleasanton including segments of Hopyard and Santa Rita Roads, Valley Avenue, and West Las Positas Boulevard. Due to the potentially negative visual impacts created by sound walls, however, the City has encouraged other alternatives.

Most new buildings in Pleasanton include construction materials adequate to reduce interior noise by 15 to 20 decibels below exterior levels. Special acoustical construction techniques can be added to new buildings or retrofitted to old buildings including roof and wall insulation, sound rated double pane windows and doors, and mechanical ventilation systems. Site plan review of new building projects in Pleasanton includes consideration of topography, building orientation, and setbacks to reduce noise levels. All of these noise reduction measures should be considered in locations within "conditionally acceptable" areas and should be tailored to individual site characteristics based on an acoustical report.

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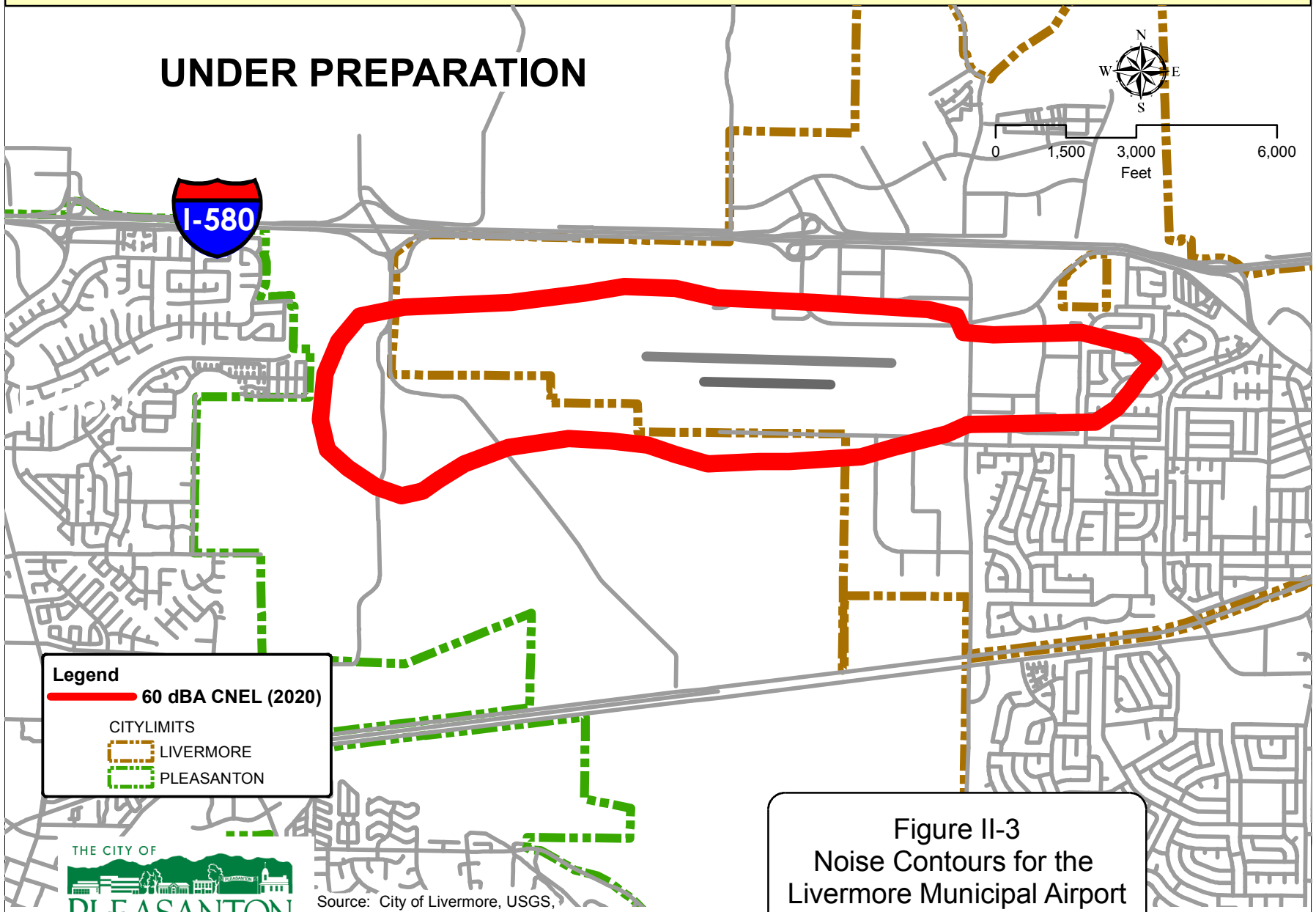
UNDER PREPARATION



THE CITY OF PLEASANTON

Source: City of Livermore, USGS, LSA Associates, Inc.

Figure II-3
Noise Contours for the
Livermore Municipal Airport

The objective in these areas is to provide outdoor noise levels at or below 60 dBA L_{dn} where people can be expected to spend time and indoor noise levels of 45 dBA L_{dn}.

Noise Ordinance and Other Regulations

Pleasanton also has adopted a *Noise Ordinance* which regulates the level of noise emanating from residential, commercial, and industrial properties.[1] The Ordinance is intended to discourage unusually noisy activities, but provides for permits in exceptional cases. In addition, the Ordinance also regulates the use and operation of skateboard ramps and power leaf blowers. The City also uses conditions of project approval to address noise issues, for example by further restricting the hours of construction.

NOISE AND LAND-USE COMPATIBILITY

Sensitive Noise Receptors

Children and medically fragile people are particularly sensitive to noise and are considered to be sensitive noise receptors. Residential uses distributed throughout Pleasanton are considered more sensitive to higher noise levels than retail, office, entertainment, and industrial uses as they are more likely to be associated with sensitive receptors. In addition, schools, childcare facilities, convalescent and medical hospitals also house sensitive noise receptors. Table 11-4 lists and Figure 11-4 shows sensitive receptor locations.

Land-Use Compatibility Guidelines

Land-use compatibility guidelines presented below in Table 11-5 compare land-use categories to noise levels. The objective of these guidelines is to ensure an acceptable community noise environment. As such the General Plan recommends use of these guidelines in conjunction with future noise-exposure levels to identify projects or activities which may require noise attenuation measures. For example, in residential areas designated as conditionally acceptable for noise near a freeway or busy roadway, developers must complete a detailed analysis of noise reduction requirements and must include needed noise insulation features in the design.

The land-use compatibility guidelines should be used in conjunction with the noise exposure levels in Figure 11-2, above, which shows areas where noise levels would be 60, 65 or 70 dBA L_{dn}. A land use or project in the "normally acceptable" category will be acceptable within the noise levels indicated, in most cases, without special noise abatement (reduction) measures. For example, a home of standard construction would be an acceptable use in any area of 60 dBA L_{dn} or less without special insulation, setback, or building design. The same house in an area projected for noise levels of 60 to 70 dBA L_{dn} should only be allowed following an acoustical study which recommends site specific noise attenuation measures such as sound control windows and doors, setbacks, and/or construction of berms or sound walls.

[1] City of Pleasanton, *Pleasanton Municipal Code,* Chapter 9.04, November 1989.

TABLE 11-4: NOISE SENSITIVE RECEPTORS, 2005 PLUS FUTURE PROPOSED

Pleasanton Unified School District Schools

1. Phoebe Apperson Hearst Elementary School, 5301 Case Avenue
2. Vintage Hills Elementary School, 1125 Concord Street
3. Valley View Elementary School. 480 Adams Way
4. Alisal Elementary School, 1454 Santa Rita Road
5. Walnut Grove Elementary School, 1999 Harvest Road
6. George C. Lydicksen Elementary School, 7700 Highland Oaks Drive
7. Thomas H. Donlon Elementary School, 4150 Dorman Road
8. Henry P. Mohr Elementary School, 3300 Dennis Drive
9. Fairlands Elementary School, 4151 W. Las Positas Boulevard
10. Pleasanton Middle School, 5001 Case Avenue
11. Harvest Park Middle School, 4900 Valley Avenue
12. Thomas S. Hart Middle School, 4433 Willow Road
13. Village and Horizon High Schools, 4645 Bernal Ave. & 245 Abbie Street
14. Amador Valley High School & Adult Education, 1155 Santa Rita Road
15. Foothill High School, 4375 Foothill Road
16. Potential School Site, Busch Road
17. Potential Elementary School, Vineyard Avenue

Private Schools

18. Carden West School, 4576 Willow Road
19. Hacienda School, 3800 Stoneridge Drive
20. Lighthouse Baptist School, 118 Neal Street
21. Quarry Lane School, 3750 Boulder Street

Note: Family childcare and about 15 residential-care facilities for the elderly are provided in residential neighborhoods throughout Pleasanton. Because residences are also sensitive receptors, Figure 11-4 does not delineate childcare providers and elder residential care in these neighborhoods.

Childcare Centers Not in Schools or Residences

22. Adventures in Learning, 3200 Hopyard Road
23. Beth Emek Preschool, 3400 Nevada Street (at Bernal Avenue)
24. The Child Day School, 883 Rose Avenue
25. Children's World Learning Center, 7110 Koll Center Parkway
26. Early Years Children's Center, 1251 Hopyard Road
27. Gingerbread Preschool, 4333 Black Avenue
28. Hacienda Child Development Center, 4671 Chabot Drive
29. Kindercare Learning Center-Pleasanton, 3760 Brockton Drive
30. Kinderkirk Christian Preschool-Pleasanton, 4300 Mirador Drive
31. La Petite Academy, 5725 Valley Avenue
32. Love and Care Preschool, 7106 Johnson Drive
33. Quarry Lane School, 4444-A Black Avenue
34. Saint Clare's Day Care Center, 3350 Hopyard Road
35. Shining Light Preschool, 4455 Del Valle Parkway
36. Sonshine Enrichment Center, 1225 Hopyard Road
37. YMCA Child Development Program, 4667 Bernal Avenue

Facilities for the Medically Fragile and/or Elderly

38. Pleasanton Nursing and Rehabilitation Center, 300 Neal St.
39. Valley Care Medical Center, 5555 West Las Positas Blvd
40. Eden Villa Pleasanton Residential Care, 4115 Mohr Avenue

Future Sensitive Receptors

41. West Pleasanton/Dublin BART Station
42. Hacienda – Housing locations are not yet specifically identified.
43. Staples Ranch Senior Continuing Care
44. East Pleasanton – Housing locations are not yet identified.

Sources: California Department of Social Services – Community Care Licensing Division, http://ccl.dss.cahwnet.gov/Informatio_1768.htm; Pleasanton Unified School District, 2006; SBC Yellow Pages, 2006; Pleasanton Planning and Community Development Department, 2006.

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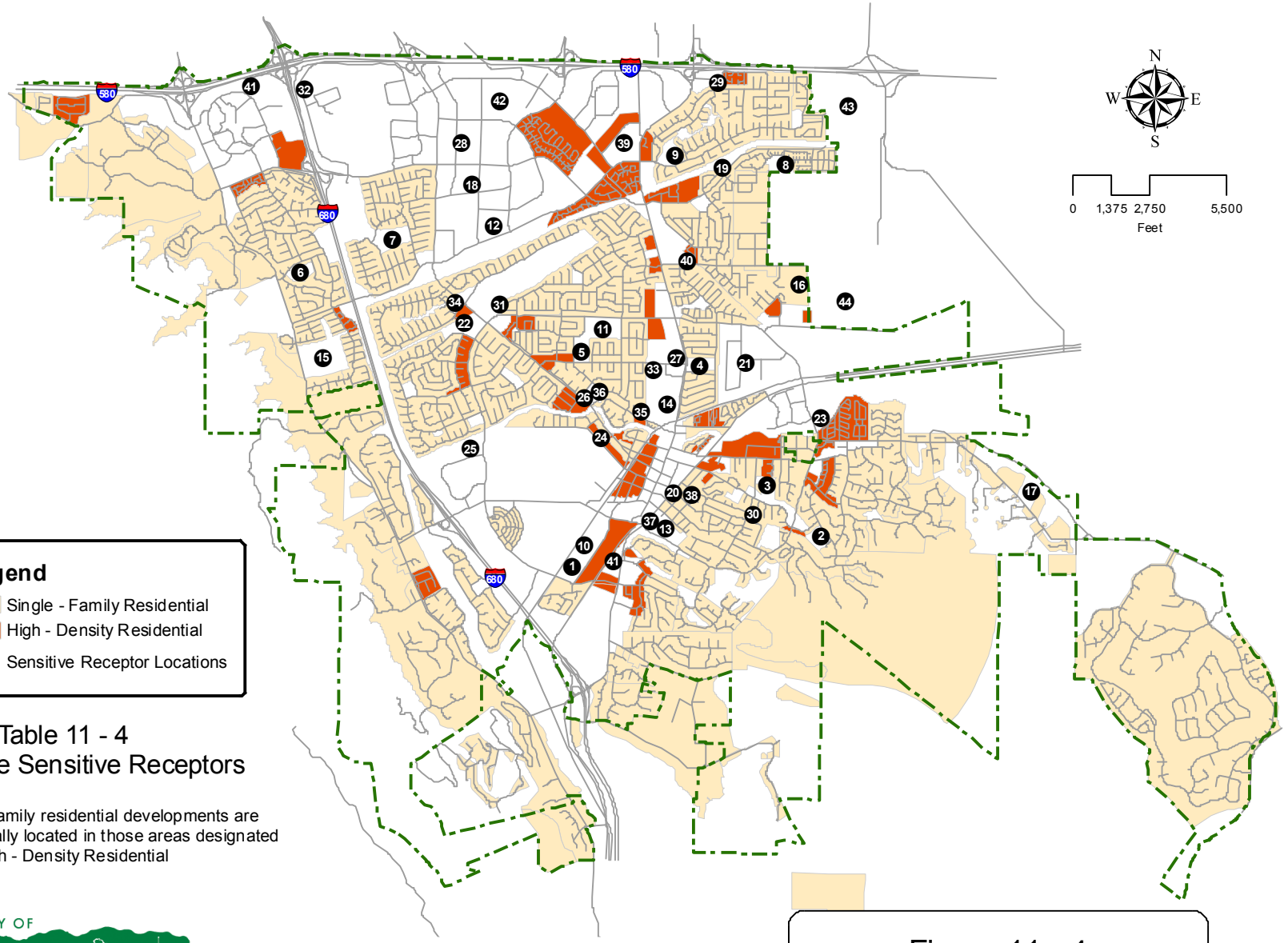

Note: Multi-family residential developments are generally located in those areas designated as High - Density Residential

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Source: California Department of Social Services - Community Care Licensing Division, http://ccl.dss.cahwnet.gov/Informatio_1768.htm; Pleasanton Unified School District, 2006; SBC Yellow Pages, 2006.

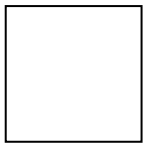
Figure 11 - 4
Noise Sensitive Receptors

TABLE 11-5: NOISE AND LAND USE COMPATIBILITY GUIDELINES

Land Use Category	Exterior Noise Exposure (L_{dn}) 55 60 65 70 75 80
Single-Family Residential [a]	
Multi-Family Residential, Hotels, and Motels [a]	
Outdoor Sports and Recreation, Neighborhood Parks and Playgrounds	
Schools, Libraries, Museums, Hospitals, Personal Care, Meeting Halls, Churches	
Office Buildings, Business, Commercial, and Professional	
Auditoriums, Concert Halls, Amphitheaters	

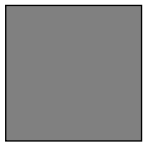
a In noise environments resulting primarily from railroad trains, exterior noise levels up to 70 dBA L_{dn} are normally acceptable recognizing that day-night average noise levels are controlled by intermittent, loud events.

b <65 dBA outdoors = < 45 dBA indoors



NORMALLY ACCEPTABLE

Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special insulation requirements



CONDITIONALLY ACCEPTABLE

Specified land use may be permitted only after detailed analysis of the noise reduction requirements and needed noise insulation features included in the design.

UNACCEPTABLE

New construction or development should generally not be undertaken because mitigation is usually not feasible to comply with noise element policies.

The following considerations should be taken into account when using the Noise and Land-Use Compatibility Guidelines:

- The goals for maximum outdoor noise levels in residential areas are an L_{dn} of 60 decibels for single-family and 65 decibels for multi-family units, levels intended to guide the design and location of future development and goals for the reduction of noise in existing development. However, all residential areas cannot necessarily reach this goal due to economic or aesthetic considerations. This goal should generally be applied where outdoor use is a major consideration (e.g., backyards in single-family housing developments and recreation areas in multi-family housing projects). People in front yards can generally tolerate an L_{dn} of up to 65 decibels. The interiors of these houses would generally not be uncomfortably loud, with proper mitigation such as sound rated windows. The outdoor standard should not normally be applied to the small decks associated with apartments and condominiums due to limited use of these decks even in quiet areas.

- State of California Noise Insulation Standards require that indoor noise levels not exceed an L_{dn} of 45 decibels in multi-family dwellings. While not applicable to single-family homes, Pleasanton considers this indoor criterion as the maximum acceptable indoor noise level for single-family homes, as well. As discussed above, the outdoor noise standard for single-family homes will result in at least an indoor single-family L_{dn} noise level of 45 dB because of the noise insulation afforded by typical residential construction.

- If the noise source is a railroad, then the outdoor noise exposure criterion is 70 dBA L_{dn} for future development. It may not be feasible to reduce noise to 70 dBA L_{dn} in existing residences adjacent to railroads. This is because train noise is usually characterized by relatively few loud events. Even though the outdoor L_{dn} may be high, during the majority of the time the noise level will be acceptable for speech communication, and people would not be highly annoyed.

- Interior noise levels in both single- and multi-family residential units exposed to railroad noise should be limited to a maximum instantaneous noise level in the bedrooms of 50 dBA. Maximum instantaneous noise levels in other rooms should not exceed 55 dBA. The requirement to reduce railroad noise indoors should be implemented if there are more than four train passbys between 7:00 a.m. and 10:00 p.m. or any trains between 10:00 p.m. and 7:00 a.m. This minimal amount of train operation is sufficient to generate outdoor noise levels of at least 70 dBA L_{dn}.

- If the noise source is aircraft, people will generally be annoyed at a lower average sound level than for the other transportation sources. Studies have shown that aircraft noise at a given L_{dn} is more annoying than traffic noise at the same L_{dn}. Residential developments are strongly discouraged where the exterior L_{dn} exceeds 55 decibels due to aircraft. If residential uses are

allowed in areas where the L_{dn} exceeds 55 decibels, then interior noise levels should be controlled so that maximum noise levels do not exceed 50 dBA in bedrooms or 55 dBA in other rooms. Residential construction should not be allowed in areas where the L_{dn} exceeds 65 decibels from aircraft.

- Appropriate interior noise levels in commercial, industrial, and office buildings are a function of the use of space. For example, the noise level in private offices should generally be quieter than for data processing rooms. Interior noise levels in offices generally should be maintained at 45 dBA Leq or less. Acoustical designs to achieve this level should be demonstrated by the project sponsor in sufficient detail to satisfy City staff and Occupational Safety and Health Administration (OSHA) requirements.

- These guidelines are not intended to be applied reciprocally. In other words, if an area is currently below the desired noise standard, an increase in noise up to the maximum should not necessarily be allowed. The impact of a proposed project on an existing land use should be evaluated in terms of the potential for adverse community response, based on a significant increase in existing noise levels, regardless of the compatibility guidelines.

Noise Goals, Policies, and Programs

The following goals, policies, and programs, in addition to those contained in other Elements, constitute an action program to implement the objectives described in this Element.

GOALS, POLICIES, AND PROGRAMS

Goal 1: Reduce noise to acceptable levels throughout the community.

Policy 1: Require new projects to meet acceptable exterior noise level standards.

Program 1.1: Use the "normally acceptable" designation and text description contained in Table 11-4 "Noise and Land-Use Compatibility Guidelines," to determine the acceptability of new development and to determine when noise studies are required. For new single-family residential development, maintain a maximum standard of 60 dBA L_{dn} (day/night average noise level) for exterior noise in private or shared outdoor use areas. For new multi-family residential development, maintain a maximum standard of 65 dBA L_{dn} in community outdoor recreation areas. Noise standards are not applied to balconies. In the Downtown, the City Council will evaluate the requirement to achieve these standards on a case-by-case basis.

Program 1.2: Where high noise levels are the result of railroad trains, an exterior noise level of up to 70 dBA L_{dn} would be considered compatible with most residential development recognizing that day-night average noise levels are controlled by intermittent, loud events. Vibration-sensitive land uses located near the Union Pacific Railroad tracks should demonstrate compatibility with the Federal Transit Administration's vibration impact criteria by completing site-specific vibration analyses.

Program 1.3: Use noise guidelines and contours to determine the need for noise studies, and require new developments to construct or pay for noise attenuation features as a condition of approving new projects.

Program 1.4: Require noise studies for future projects to use a consistent format, to include a description of the methodology and assumptions used, to analyze alternative noise mitigation measures, and to evaluate the effectiveness of the mitigation following implementation.

Program 1.5 Encourage the use of setbacks, landscaped earth berms, and frontage roads where feasible to reduce exterior noise levels. The use of soundwalls should only be used where other mitigation measures are not feasible. Where sound and frontage roads walls are needed, design and high quality materials, as well as landscaping, should be used to mitigate their visual impact.

Policy 2:	Reduce outdoor noise levels in existing residential areas where economically and aesthetically feasible.

Program 2.1: Consider Capital Improvement Program (CIP) funding for repair, landscaping, and maintenance of existing deteriorated sound walls.

Program 2.2: Project and monitor noise levels using traffic projections and periodic noise monitoring.

Program 2.3: Where traffic volumes increase by more than 50 percent from baseline 2006 noise data, verify projected noise levels with noise monitors at locations adjacent to residential and other noise sensitive areas.

Policy 3:	Ensure that noise does not exceed interior noise levels of 45 dBA L_{dn} for residential uses and those levels specified in noise studies for other uses.

Program 3.1: Require new developments to pay their fair share of mitigation measures necessary to reduce interior noise levels within existing adjacent or impacted land uses.

Program 3.2: Require noise-attenuation measures when necessary to ensure that interior noise levels for new single- and multi-family residences do not exceed 45 dBA L_{dn}. Interior noise levels shall not exceed 45 dBA L_{dn} in any new residential units (single and multi family). Development sites exposed to noise levels exceeding 60 dBA L_{dn} shall be analyzed following protocols in Appendix Chapter 12, Section 1208, A, Sound Transmission Control, 2001 (current) *California Building Code,* Section 1207.

Program 3.3: New residential development affected by noise from railroad trains and aircraft shall be designed to limit typical maximum instantaneous noise levels to 50 dBA in bedrooms and 55 dBA in other rooms.

Program 3.4: Appropriate interior noise levels in commercial, industrial, and office buildings are a function of the use of the space. Interior noise levels in noise-sensitive spaces (e.g., offices) generally should be maintained at 45 dBA Leq or less (hourly average).

Policy 4:	Control noise at its source to maintain existing noise levels, and in no case to exceed acceptable noise levels as established in the *Noise and Land Use Compatibility Guidelines,* Table 11-3.

Program 4.1: Enforce the noise emission standards for various noise-emitting land uses established in the City's *Noise Ordinance.*

Program 4.2: Develop a mechanical drive engine ordinance that would establish noise limits for engines, such as electricity generators, used in commercial and industrial operations.

Program 4.3: Aggressively enforce the noise emissions standards for all vehicles. Enforce Section 27007 of the *California Motor Vehicle Code.* This section prohibits amplified sound which can be heard 50 or more feet from a vehicle. Control excessive exhaust noise by enforcing Section 27150 of the *California Motor Vehicle Code.*

Program 4.4: Explore opportunities to reduce noise-impacted areas through alternative street paving methods and materials.

Policy 5: Protect schools, hospitals, libraries, religious facilities, convalescent homes, and other noise-sensitive uses from noise levels exceeding those allowed in residential areas.

Program 5.1: Locate new noise-sensitive land uses away from noise sources unless development plans include appropriate mitigation measures.

Program 5.2: Locate new noise sources away from noise-sensitive land uses unless development plans include appropriate mitigation measures.

Policy 6: Limit truck traffic in residential and commercial areas to designated truck routes, as consistent with State law.

Program 6.1: Limit construction, delivery, and through-truck traffic to designated routes.

Program 6.2: Enforce the use of truck routes.

Policy 7: Design City streets to reduce noise levels in adjacent areas.

Program 7.1: As appropriate, require sound-attenuating paving on streets, earth berms, setbacks, sound walls, and other noise reduction techniques as conditions of development approval. Developers should use sound walls only where other techniques are not feasible. Where sound walls are needed, design and high quality materials, as well as landscaping, should be used to mitigate their visual impact.

Program 7.2: Attempt to maintain collector streets at 6,000-10,000 or fewer average daily trips (ADT) to ensure acceptable noise levels within adjacent residences.

Policy 8:	Encourage other agencies to reduce noise levels generated by roadways, railways, airports, rapid transit, and other facilities.

Program 8.1: Coordinate with the County Airport Land Use Commission, State Department of Health Services, and other agencies, as necessary, to reduce noise generated from sources outside the City's jurisdiction.

Program 8.2: Work with the City of Livermore to address noise impacts of the Livermore Municipal Airport, including the joint monitoring of aircraft noise on a periodic basis.

Attachment 2

2005 Pleasanton Plan 2025

DRAFT

~~8~~11. NOISE ELEMENT

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~~VIII~~11. NOISE ELEMENT

PURPOSE

The purpose of the Noise Element – a required element of the General Plan – is to protect the health and welfare of the community by promoting community development ~~which~~ that is compatible with acceptable noise standards. The Element provides information, policies, and programs directed toward retaining a quiet environment and minimizing unwanted sound.

NOISE

Fundamental Concepts of Environmental Noise

Rapid air pressure fluctuations created by a vibrating object that the ear receives and the brain perceives cause sound. Noise is defined as unwanted sound and may be considered objectionable due to its pitch or loudness. The sound of a train may be music to the engineer, but noise to a person living next to the tracks. Sound level is the amplitude of the sound pressure most often measured in decibels (dB).[1] [moved]

Pitch – or frequency [2] – is the depth of a tone or sound, with higher pitches more objectionable than lower pitches. The human ear does not perceive sound at low frequencies in the same manner as those at higher frequencies. Sounds of equal level at low frequencies do not seem as loud as those at higher frequencies. A-weighted sound levels correlate with the way the human ear "hears" sound and compensates~~, using~~ by a weighting of frequencies~~, for the fact that human hearing is less sensitive at low frequencies and extreme high frequencies than in the mid-frequency range~~. Unless otherwise noted, ~~all sound levels referred to in~~ this Noise Element refers to all sound levels as ~~are~~ A-weighted sound levels, expressed in decibels as dBA. Table 11-1 shows typical A-weighted sound levels measured in the environment and industry.

Loudness is the intensity of sound waves as received by the human ear.[3] A 3 decibel change in noise level is barely detectable to the human ear, a 5 decibel ~~dB~~ change is readily noticeable, and a 10 decibel ~~dB~~ change is perceived as a doubling (or halving) of loudness.

~~Understanding environmental noise requires a familiarity with the physical description of noise and the way humans react to different noises. The important physical characteristics of environmental noise include frequency, intensity, and temporal (time-varying) behavior.[1] The effects of noise on people can~~

1 A decibel (dB) is the standard unit of sound loudness; decibels are measured on a logarithmic scale where each increase in 10 dB multiplies the previous value by 10 (e.g., 60 dB is 10 times louder than 50 dB, while 70 dB is 100 times louder than 50 dB).

2 The pitch or frequency of sound refers to the number of complete pressure fluctuations – or cycles per second – called Hertz (Hz). Most sounds consist of a band of frequencies audible to the human ear within a range of 20 Hz to 20,000 Hz.

3 The intensity or loudness of sound is the amount of sound pressure that the human ear feels above and below atmospheric pressure.

TABLE 11-1: TYPICAL NOISE LEVELS IN THE ENVIRONMENT

Common Outdoor Noise Source	Noise Level (dBA)	Common Indoor Noise Source
	120 dBA	
Jet fly-over at 300 meters		Rock concert
	110 dBA	
Pile driver at 20 meters	100 dBA	
		Night club with live music
	90 dBA	
Large truck pass by at 15 meters		
	80 dBA	Noisy restaurant
		Garbage disposal at 1 meter
Gas lawn mower at 30 meters	70 dBA	Vacuum cleaner at 3 meters
Commercial/Urban area daytime		Normal speech at 1 meter
Suburban expressway at 90 meters	60 dBA	
Suburban daytime		Active office environment
	50 dBA	
Urban area nighttime		Quiet office environment
	40 dBA	
Suburban nighttime		
Quiet rural areas	30 dBA	Library
		Quiet bedroom at night
Wilderness area	20 dBA	
Most quiet remote areas	10 dBA	Quiet recording studio
Threshold of human hearing	0 dBA	Threshold of human hearing

Source: Illingworth & Rodkin, "City of Pleasanton Environmental Noise Background Report," December 17, 2007.

~~be grouped in three general categories: subjective effects, interference with activities, and physiological effects.~~

[moved] ~~Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure caused by a vibrating object. It is received by the ear and perceived by the brain as sound. Noise is defined as unwanted or undesired sound. The sound of a train may be music to the engineer, but noise to a person living next to the tracks.~~

~~The following definitions summarize the physical characteristics of environmental noise.~~

[moved to footnote] ~~The frequency, or pitch, of sound refers to the number of complete pressure fluctuations, or cycles, per second called Hertz (Hz). Most sounds consist of a broad band of frequencies which are audible to the human ear within a range of 20 Hz to 20,000 Hz~~.

[moved to text and footnote above] ~~The intensity, or loudness, of a sound is the amount of sound pressure which the human ear feels above and below atmospheric pressure. Intensity is measured on a logarithmic scale called the decibel (dB) which ranges from 0 dB, the threshold of human hearing, to 140 dB, the threshold of pain. A 3 dB change in noise level is barely detectable to the human ear, a 5 dB change is readily noticeable, and a 10 dB change is perceived as a doubling (or halving) of loudness.~~

This Element focuses on two ~~The time-varying character of noise can be described using the following statistical~~ descriptors for sound levels: Leq and L_{dn}.~~: (1) L10 represents that noise level which is exceeded ten percent of the time and is considered a good measure of the maximum noise averaged over a given period; (2) L50 represents the median noise level; (3) L90 is used to describe background noise levels; (4)~~ Leq is a good overall description of average level ~~noise~~ which can be used to describe any time period but is particularly useful in describing the change in noise level of a single activity, such as noise from a nightclub.~~ for example, traffic volumes.; and (5)~~ The day/night average sound level L_{dn} accounts for the difference in response of people to daytime and nighttime noises by weighting noise levels generated during the nighttime when background noise is generally ~~less~~ lower and people are more sensitive to noise events. Each nighttime noise event is multiplied by a factor of ten, which is approximately equal to a doubling in perceived loudness, to compensate for people's increased sensitivity during nighttime hours. Pleasanton generally uses Leq for describing the change in noise level of a single activity while using L_{dn} ~~The Ldn is used~~ to evaluate ~~the~~ noise exposure in ~~Pleasanton~~ the city.

Lmax, a third descriptor of sound, is the instantaneous maximum noise level for a specified time period usually used for aircraft noise.

Human Response to Noise

The effects of noise on people include subjective effects~~;~~ – such as annoyance and nuisance~~; interference with activities, such as speech and sleep;~~ – and physiological effects – ~~,~~ such as startle and hearing loss. Annoyance includes house vibrations and interferences to sleep, speech, radio, and television. Physiological effects such as hearing loss can occur due to chronic exposure to excessive noise, but may also occur from a single event, such as an explosion. Chronic exposure to loud noises may accelerate natural hearing loss associated with aging.

~~In any typical noise environment, about ten percent of the population will object to any noise not of their own making, and 25 percent will not react or complain at all, regardless of the level of noise being generated. Noise control measures, then, are most beneficial to the remaining 65 percent of the population who are neither ultrasensitive nor insensitive to noise. Negative reaction to noise generally increases with the increase in difference between background, or ambient, noise and the noise generated from a particular source such as traffic or railroad operations. In most situations, noise control measures need to reduce noise by 5 to 10 dBA in order to effectively reduce complaints.~~

People generally have the ability to distinguish one sound from a background of sounds, such as a telephone ringing over music. However, certain noise levels can render a sound inaudible, for example, when nearby trucks block conversation. Face-to-face conversation usually can proceed against a background noise level of up to 66 dBA, group conversations up to 50 or 60 dBA, and public meetings up to 45 or 55 dBA, without interruption.

Sleep interference is more difficult to quantify although studies have shown that progressively deeper levels of sleep require louder noise levels to cause a disturbance. Learning and job performance begin~~s~~ to be impaired with noise levels of 90 dBA~~,~~ and greater, although high frequency or irregular bursts of noise may cause interruption at lower levels.

Long-term exposure to levels exceeding 70 dBA can cause hearing loss. In addition, brief periods of noise that exceed a sound pressure level of 140 decibels are a health hazard.[4]

For sources such as railroad trains and aircraft, the California ~~Office of Noise Control (ONC)~~ Department of Health Services has suggested ~~recommends~~ that maximum instantaneous noise levels from individual events within sleeping areas should not exceed 50 decibels ~~dB~~ in residential areas exposed to noise levels at 60 dBA L_{dn} and greater. The City has adopted a Noise Ordinance which regulates the amount of noise which can be produced in residential and commercial areas and during which hours of the day in order to avoid sleep interference.

~~Environmental noise, in almost every case, produces effects which are subjective in nature or involve interference with human activity. However, brief sounds at levels exceeding 70 dBA can produce~~

[4] Cynthia Yee and Gregg Fleming, US Department of Transportation, "General Health Effects of Environmental Noise," Final Report, June 2002.

~~temporary physiological effects such as constriction of blood vessels, changes in breathing, and dilation of the pupils. Steady noises of 90 dBA have been shown to increase muscle tension and adversely affect simple decision-making. Long-term exposure to levels exceeding 70 dBA can cause hearing loss.[4]~~

EXISTING NOISE LEVELS

Traffic Noise

The major source of noise in Pleasanton is vehicular traffic including automobiles, trucks, buses, and motorcycles. The level of vehicular noise generally varies according to the volume of traffic, the percentage of trucks, the speed of traffic, and distance from the source. Noise generated by vehicular traffic is greatest along Interstate-580 (I-580), Interstate-680 (I-680), Stanley Boulevard, First Street, Stoneridge Drive, Hopyard Road, Santa Rita Road, ~~Stanley Boulevard,~~ West Las Positas Boulevard, Foothill Road, ~~Sunol Boulevard~~Vineyard Avenue, and Valley Avenue.

Periodically ~~T~~the City conducts a ~~biannual~~ noise monitoring study ~~measurement survey~~ to measure ~~monitor~~ noise level changes in Pleasanton. Figure 11-1~~ VIII-1~~ shows the locations measured in ~~1995~~ 2006 and Table 11-2~~ VIII-1~~ shows the results of the measurements. ~~Figure VIII-2 shows those areas currently exposed to noise levels in excess of the "normally acceptable" residential 60 Ldn level.~~ The installation of berms and sound walls between residences and City arterial roads has reduced noise to acceptable levels in most locations. ~~The location of existing sound walls is shown in Figure VIII~~11-2. Some individual homes within residential areas that potentially have a ~~shown as~~ 60 dBA L_{dn} and greater noise level may, in fact, have acceptable noise levels because of the noise reduction buffering effect of other homes which are located between those homes and nearby roadways. In addition, new open graded sound-attenuating asphalt pavement on Valley Avenue has reduced noise levels by 3-4 decibels since its installation and is not reflected in the 2006 noise measurements. ~~The noise exposure areas shown in Figure VIII-2 only take into account the screening afforded by sound walls.~~

Noise measurements adjacent to I-580 and BART include Sites 35 and 37 where existing noise levels range from about 72 to 77 dBA L_{dn} depending on the existing noise barriers and proximity to the highway. Existing noise levels in residential areas near I-680 (Sites 8, 9, and 20) range from about 71 to 73 dBA L_{dn} in areas shielded by noise barriers. Ambient noise levels in the vicinity of Ruby Hill are about 72 dBA L_{dn} due to State Route 84 (Site 39).

Existing noise levels in residential areas near major thoroughfares typically range from about 60 to 70 dBA L_{dn}. Unshielded areas adjacent to Vineyard Avenue and Stanley Boulevard range from about 71 to 79 dBA L_{dn}.

Rail Operations

Noise is also generated by railroad operations. Measure noise levels of 76 dBA L_{dn} near St. John Street results primarily from train operations, including whistle blasts. (See Monitoring location 43 on Table 11-2 and Figure 11-1.) Appendix A of the City's 2007 noise report shows hourly monitored noise

TABLE 11-2: 2006 MONITORING LOCATIONS AND NOISE LEVELS

Site	Location	Noise Levels (L_{dn}, dBA)	Adjacent Roadway
1	Patio of 7988 Limewood Court; 25 feet from sound wall along Foothill Road.	52-54	Foothill Road
2	Foothill Road; 36 feet to the centerline of Foothill Road.	68-69	Foothill Road
3	Front of 2329 Foothill Road in Laguna Village; 45 feet from centerline of Foothill Road.	63	Foothill Road
4	150 feet east of the end of Martin Avenue adjacent to Walnut Glen subdivision.	53	N/A
5	Pleasanton Hills Association Open Space south of Bernal Avenue, west of Puerto Vallarta; 50 feet from the centerline of Bernal Avenue.	65	Bernal Avenue
6	Park south of 3661 Bernal Avenue, 65 feet from centerline of Bernal Avenue.	63-64	Bernal Avenue
7	Rear yard of 611 Windmill Lane approximately 25 feet from sound wall.	57-60	Bernal Avenue
8	Rear property fence of 7299 Tulipwood Circle approximately 36 feet from Interstate 680 sound wall.	71-72	I-680
9	Rear yard of 7355 Elmwood Circle 20 feet from sound wall.	72	I-680
10	Rear yard of 3989 Petrified Forest Court; approximately 54 feet from I-680 sound wall.	65-67	I-680
11	Eliminated from 2006 Survey.	N/A	N/A
12	Front of 3041 Santa Rita Road; 85 feet from centerline of Santa Rita Road.	68-69	Santa Rita Road
13	75 feet from centerline of Stoneridge Drive at Gatewood Apartments.	64-66	Stoneridge Drive
14	Mohr Avenue east of Kolln Street, 40 feet from center of Mohr Avenue.	61-63	Mohr Avenue
15	Median area between Hopyard Road and frontage road, approximately 42 feet from centerline of Hopyard Road.	68-69	Hopyard Road
16	Eliminated from 2006 Survey.	N/A	N/A
17	South of Orloff Drive, 93 feet from centerline of Valley Avenue.	66-69	Valley Avenue
18	Eliminated from 2006 Survey.	N/A	N/A
19	Front yard of 6340 Arlington Drive, 88 feet from center of Sunol Boulevard.	68	Sunol Boulevard
20	Rear yard fence setback of homes on Sullivan Court.	71-73	I-680
21	Rear yard of 6607 Arlington Drive approximately 975 feet from center of I-680.	61	Distant I-1680
22	Eliminated from 2006 Survey.	N/A	N/A
23	Front yard of 1114 Hearst Drive east of Bernal Avenue, 50 feet from centerline of Hearst Drive.	54-55	Hearst Drive

TABLE 11-2: 2006 MONITORING LOCATIONS AND NOISE LEVELS

Site	Location	Noise Levels (L_{dn}, dBA)	Adjacent Roadway
24	Rear yard of 3407 Brandy Court, 62 feet from fence.	45-50	N/A
25	Front yard of 276 Junipero Drive east of Sunol Boulevard, 33 feet from the centerline.	57-60	Junipero Drive
26	First Street south of Arroyo Del Valle; 89 feet from the centerline of First Street.	66	First Street
27	Eliminated from 2006 Survey.	N/A	N/A
28	40 feet from centerline of Vineyard Avenue in front of Smoketree Commons Drive.	71	Vineyard Avenue
29	Eliminated from 2006 Survey.	N/A	N/A
30	Eliminated from 2006 Survey.	N/A	N/A
31	84 feet from the centerline of Stoneridge Drive.	65-68	Stoneridge Drive
32	57 feet from centerline of Stoneridge Drive.	73-75	Stoneridge Drive
33	Rear yard of 3916 Alma Court, 12 feet from sound wall along W. Las Positas Boulevard.	61-63	West Las Positas Blvd
34	60 feet from the centerline of W. Las Positas Boulevard.	67-69	West Las Positas Blvd
35	Near 7650 Canyon Meadow Circle approximately 252 feet from the center of I-580.	74-77	I-580
36	52 feet from the center of Vineyard Avenue near Old Vineyard Avenue.	66-68	Vineyard Avenue
37	Rear yard of 3590 Brent Court, 45 feet from 12-foot sound wall.	72-73	I-580
38	Rear yard of 3013 Staples Ranch Drive.	59-60	Distant I-580
39	Easternmost edge of community park off of East Ruby Hill Drive, 114 feet from the center of SR 84.	72	SR 84
40	Rear yard of 6203 Gibson Court, 16 feet from 7-foot sound wall.	58-60	Hopyard Road
41	Front of 5119 Northway Road, 193 feet to the center of Valley Avenue.	61	Valley Avenue
42	Rear yard of 8125 Regency Drive.	57-61	I-680
43	End of St. John Street, 60 feet from the UPRR.	76	Railroad Trains
44	118 feet from the center of Sunol Boulevard at Arlington Drive.	66-67	Sunol Boulevard
45	42 feet from the center of Vineyard Avenue west of Thiesson Street.	68	Vineyard Avenue
46	Front of 4552 First Street, 30 feet to the centerline.	71	First Street
47	60 feet from Stanley Boulevard near easternmost City Limit.	75-79	Stanley Boulevard

Source: Illingworth & Rodkin, "City of Pleasanton Noise Element Update Environmental Noise Background Report," Dec.17, 2007.

levels at this location.[5] Individual noise events generated by trains reach 90 dBA at 100 feet from the train, although the noise is of relatively short duration.

Current freight rail operations average ~~12~~ 11-13 trains throughout each 24-hour ~~per~~ day. The Ldn is 60 decibels ~~dB~~ at a distance of 190 feet from the tracks. ~~The undercrossings at Bernal and Valley Avenues at the Union Pacific tracks and the elimination of activity on the Southern Pacific tracks have significantly reduced train noise in Pleasanton.~~ In addition, the Altamont Commuter Express (ACE) train operates four trains daily (eight trips through Pleasanton) between San Joaquin County and San Jose along the existing Union Pacific lines through Pleasanton. The addition of ACE trains along the Union Pacific line contributes to noise levels during morning and evening commute hours. The ACE train contributes morning noise between about 5:35 a.m. and 10:45 a.m., and afternoon/evening noise between about 1:00 p.m. and 6:30 p.m.

Ground-borne vibration from rail operations can concern nearby neighbors of the rail line. Vibration includes movement of the building floors, rattling windows, shaking items, and rumbling sounds. Any new land uses located adjacent to the Union Pacific Railroad tracks should be compatible with the Federal Transit Administration's vibration impact criteria (65 decibels for hospitals and other buildings that vibration would interfere with interior operations, 72 decibels for residences, and 75 decibels for institutional land uses with primarily daytime use). [6]

Trains are required to sound their warning whistle near "at-grade" vehicle crossings to warn motorists of the oncoming train. At a distance of 100 feet, a train warning whistle can generate maximum noise levels of about 100 to 105 dBA. Train engines typically generate maximum noise levels of approximately 80 to 85 dBA while train wheels generate noise levels of about 70 to 75 dBA. Noise measurements indicate that the intermittent loud sounds of trains control the average noise level over the course of a day.

Bay Area Rapid Transit

[moved here] The Bay Area Rapid Transit (BART) District's line ~~extension~~ to Pleasanton along I-580 is ~~a new noise source. However, the location of BART~~ located in the I-580 median ~~of I-580~~. BART trains are a source of community noise during passby events, but do not substantially contribute to hourly average noise levels generated by the highway ~~This essentially renders it inaudible in Pleasanton as~~ . ~~The~~ traffic noise screens sounds ~~of~~ from the trains ~~is screened by traffic noise~~.

Aircraft Noise

A mix of small aircraft, including private jets, use the Livermore Municipal Airport, a general aviation airport located east of Pleasanton. Aircraft flying into and out of the Livermore Municipal Airport can

[5] Illingworth & Rodkin, "City of Pleasanton Noise Element Update Environmental Noise Background Report," Dec.17, 2007.

[6] Office of Planning and Environment, Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, FTA-VA-90-1003-06, May 2006.

~~also~~ generate annoying individual noise events. However, the Airport is located far enough from most development within Pleasanton ~~so~~ that daily average noise levels within the Planning Area ~~are relatively low,~~ were measured at 56 dBA L_{dn} ~~as shown in Figure VIII-2~~.[7] Studies have shown that aircraft noise above 55 dBA L_{dn} is more annoying than traffic noise at the same level. See the Land Use Compatibility Guidelines, below.

The potential expansion of the Livermore Municipal Airport (described in the March 2004 *Draft Livermore Municipal Airport Master Plan Update*) generated considerable controversy in Pleasanton because of anticipated noise impacts from the proposed runway expansion and increased number of flights. In 2005, Livermore ceased work on the *Master Plan Update* and thus the *1975 Master Plan* continues to control planning for the airport. Although Livermore is not currently considering runway expansions, recent consideration of increases in the number of allowed hanger spaces and aircraft tie downs has some Pleasanton residents concerned about additional flight operations and future noise impacts. The City of Pleasanton supports a position that these potential changes to airport operations should be subject to environmental review.

In 2006, Pleasanton residents lodged 1,366 noise complaints regarding aircraft at the airport, of which almost half (677) came from two households.

Industrial Operations

Noise generated by industrial operations in Pleasanton is limited primarily to the sand-and-gravel quarry areas. As shown on the General Plan Map, these sites are located at the eastern portion of the Planning Area and are generally separated from Pleasanton's residential neighborhoods. Gravel crushers and quarrying equipment can cause noise levels of 60 dBA L_{dn} and greater at distances within 1,500 feet. Quarry noise monitored at Site 45 near Vineyard Avenue at Thiesson Street measured less than 55 dBA, in the absence of local traffic. These sounds were predominantly the result of stationary and mobile equipment for quarry operations. The quarry was not a significant source of environmental noise at the nearest dwellings near Vineyard Avenue. Use of the asphalt batch plant located in this vicinity has generated noise complaints in the past. A recent agreement involving Cemex, the City of Pleasanton, and Alameda County will lead to the relocation of the asphalt plant to a location further from existing homes.

~~the mobile homes on Vineyard Avenue which are about 1,200 feet away. These homes are also exposed to 60 Ldn noise levels from traffic on Stanley Boulevard which somewhat masks the noise from the gravel plants. In the future, new residential projects should be located at sufficient distances from sand and gravel operations to be protected from this noise source.~~

[7] This is a monitoring site measured for the background noise report. Illingworth & Rodkin, "City of Pleasanton Noise Element Update Environmental Noise Background Report," Dec.17, 2007. See Figure 11-11, above, for a map of these sites.

FUTURE NOISE LEVELS

Traffic Noise

The General Plan projects ~~F~~future noise levels ~~were projected~~ using traffic volumes (and rail activity) ~~generated~~ expected at buildout ~~of the General Plan~~. Please refer to the Circulation Element for a complete discussion of future traffic levels. In general, the General Plan projects noise levels ~~are projected~~ to increase ~~to varying degrees~~. As noted above, a~~A~~ 3 ~~dB~~ decibel increase in traffic noise levels is considered to be barely noticeable by most individuals, while a 5 decibel change is readily noticeable. An increase of 4 decibel or more ~~over 3 dB~~ is considered significant. ~~Figure VIII11-3 shows the streets where increases of 3 dB or more are expected.~~

Table 11-3 ~~VIII-2~~ ~~shows~~ indicates the distance to the future 60, 65, 70, and 75 dBA L_{dn} noise contours along the highways and major streets in Pleasanton. The distances in this table do not take into account shielding by berms or sound walls, intervening rows of homes, terrain changes, or the like~~cete~~. They represent worst-case noise levels ~~along~~ near these streets and can be used ~~for~~ as a basis in developing noise mitigation measures for proposed development projects. Figure 11-2 ~~VIII-4~~ shows the approximate locations of the General Plan buildout 60, 65, and 70 dBA L_{dn} contour, which includes the noise reduction provided by Caltrans installed sound~~-~~ ~~walls~~ barriers along I-580 and I-680. Some areas may have lower sound levels than indicated due to potential noise reductions from intervening buildings, vegetation, or other sound barriers or berms that cannot be accurately modeled.

~~The proposed E~~east/W~~w~~est Collector in the North Sycamore Specific Plan area is potentially a new roadway noise source in the C~~c~~ity. ~~When the~~During ~~roadway is planninged, traffic projections will determine the location of the 60 contour along this street. Future residential development adjacent to the East/West Corridor will be planned and programmed accordingly.~~ The proposed Stoneridge Drive extension and its potential connection to El Charro Road will result in a new roadway noise source in the city.

Bay Area Rapid Transit

~~The~~ Bay Area Rapid Transit is adding a new West Pleasanton/Dublin BART station between the existing Pleasanton/Dublin and Castro Valley stations. As is the case with existing BART operations along I-580, noise due to operation of the new station is not expected to be noticeable beyond I-580. ~~(BART) District's extension to Pleasanton on I-580 is a new noise source. However, the location of BART in the median of I-580 essentially renders it inaudible in Pleasanton. The sound of the trains is screened by traffic noise.~~

~~San Joaquin to San Jose Train Service~~

~~Plans are currently being developed to run a demonstration train from San Joaquin County to San Jose, the Altamont Pass Rail Demonstration Project, which would use the existing Union Pacific Lines through Pleasanton. This demonstration project would involve two trains in the morning and evening~~

TABLE 11-3: TRAFFIC VOLUMES AND SELECTED NOISE CONTOURS, 2025

Roadway Segment	PM Peak Hr Traffic Volumes	Distance to Noise Contour from Roadway Centerline (feet) 70 dBA L_{dn}	65 dBA L_{dn}	60 dBA L_{dn}
Interstate 580				
w/o Foothill Road	15,000	1,360	2,930	6,310
w/o I-680	16,100	1,290	2,770	5,970
w/o Hopyard Road	14,800	1,220	2,620	5,650
w/o Hacienda Drive	15,700	1,270	2,730	5,870
w/o Santa Rita Road	13,800	1,160	2,500	5,390
w/o El Charro Road	14,000	1,170	2,530	5,440
w/o El Charro Road [a]	14,000	230	490	1,050
Interstate 680				
s/o I-580	12,300	760	1,640	3,530
s/o Stoneridge Drive	10,100	670	1,440	3,100
s/o Stoneridge Drive [a]	10,100	130	280	610
s/o Bernal Avenue	9,800	650	1,410	3,030
s/o Bernal Avenue [a]	9,800	140	300	650
s/o Sunol Boulevard	11,300	720	1,550	3,340
State Route 84				
e/o I-680	2,650	190	410	880
Bernal Avenue				
e/o Case Avenue	1,800	[b]	60	120
e/o First Street	2,100	–	60	140
e/o Foothill Road	1,300	–	50	100
e/o Independence Drive	2,100	–	60	140
e/o Valley Avenue	3,000	–	80	170
s/o Stanley Boulevard	2,600	–	70	160
s/o Tawny	1,900	–	60	130
s/o Vineyard Avenue	2,100	–	60	140
w/o Case Avenue	2,000	–	60	130
w/o First Street	2,200	–	60	140
w/o Valley Avenue	4,800	50	110	230
Black Avenue				
e/o Hopyard Road	750	–	–	70
w/o Santa Rita Road	790	–	–	70
Busch Road				
e/o Valley Avenue	2,100	–	60	140
California Avenue				
s/o Stanley Boulevard	1,600	–	50	110
Canyon Way				
e/o Foothill Road	1,200	–	–	90
Castlewood Drive				
w/o Sunol Boulevard	1,400	–	50	100
Del Valle Parkway				
w/o Main Street	740	–	–	60
e/o Hopyard Road	750	–	–	70
Division Street				
s/o Del Valle Parkway	1,200	–	–	90
Dorman Road				
n/o W. Las Positas Blvd	560	–	–	50
Dublin Canyon				
w/o Foothill Road	910	–	–	70
El Charro Road				
n/o Stanley Boulevard	2,800	–	80	160
n/o Stoneridge Drive	5,800	60	120	270
s/o Friesman Road	5,800	60	120	270
s/o Stoneridge Drive	2,800	–	80	160
First Street				
n/o Bernal Avenue	2,200	–	60	130
n/o Vineyard Avenue	2,400	–	70	140
s/o Neal Street	1,800	–	50	120
Foothill Road				
n/o Bernal Avenue	1,300	–	90	190
n/o Castlewood Drive	900	–	70	150
n/o W. Las Positas Blvd	1,700	50	100	220
s/o Bernal Avenue	1,200	–	80	180
s/o Castlewood Drive	1,500	–	90	200
s/o I-580	5,500	100	230	490
s/o Stoneridge Drive	1,700	50	100	220
s/o W. Las Positas Blvd	1,600	50	100	210
Hacienda Drive				
n/o Owens Drive	5,600	60	120	260
s/o Owens Drive	2,500	–	70	150
Hopyard Road				
n/o Del Valle Parkway	1,500	–	70	160
n/o Owens Drive	5,900	80	180	390
n/o Stoneridge Drive	2,700	50	110	230
s/o Black Avenue	1,500	–	70	160
s/o Owens Drive	3,700	60	130	290
s/o Stoneridge Drive	3,500	60	130	280
s/o Valley Avenue	2,400	50	100	220
s/o W. Las Positas Blvd	5,400	80	170	370

TABLE 11-3: TRAFFIC VOLUMES AND SELECTED NOISE CONTOURS, 2025 – Continued

Roadway Segment	PM Peak Hr Traffic Volumes	Distance to Noise Contour from Roadway Centerline (feet) 70 dBA L_{dn}	65 dBA L_{dn}	60 dBA L_{dn}
Johnson Drive				
n/o Owens Drive	1,600	–	50	110
n/o Stoneridge Drive	1,100	–	–	80
Laurel Creek Way				
e/o Foothill Road	740	–	–	70
Main Street				
s/o Rose Ave/Neal Street	1,000	–	–	80
Mohr Avenue				
e/o Santa Rita Road	570	–	–	60
Owens Drive				
e/o Hacienda Drive	2,800	–	80	160
e/o Hopyard Road	3,800	–	90	200
n/o W. Las Positas Blvd	1,600	–	50	110
w/o Hacienda Drive	2,600	–	70	160
w/o Hopyard Road	1,900	–	60	130
Pimlico Drive				
e/o Santa Rita Road	880	–	–	70
Ray Street				
e/o Main Street	1,400	–	50	100
Santa Rita Road				
n/o Stoneridge Drive	4,400	90	190	410
n/o Valley Avenue	4,500	90	190	410
n/o W. Las Positas Blvd	4,400	90	190	410
s/o I-580 westbnd ramp	4,900	90	200	440
s/o Pimlico Drive	4,400	90	190	410
s/o Stoneridge Drive	4,900	90	200	440
s/o Valley Avenue	3,000	70	150	320
s/o W. Las Positas Blvd	3,900	80	170	380
Santa Rita Rd/Main St				
n/o Stanley Boulevard	2,900	–	70	160
s/o Stanley Boulevard	3,000	–	80	170
Saint Mary Street				
w/o Main Street	1,300	–	--	90
Stanley Boulevard				
e/o California Avenue	3,000	–	90	190
e/o Main St/Santa Rita	1,400	–	50	110
e/o Valley Avenue	5,000	260	560	1,210
w/o California Avenue	3,200	–	90	190
Stoneridge Drive				
e/o El Charro Road	3,500	70	140	300
e/o Foothill Road	2,700	60	120	260
e/o Hopyard Road	4,400	80	160	350
e/o Johnson Drive	6,300	100	210	450
e/o Santa Rita Road	3,500	70	140	300
n/o Fabian Court	1,200	–	70	150
n/o Stoneridge Drive	2,400	50	110	240
n/o W. Las Positas Blvd	2,900	60	120	270
w/o El Charro Road	3,400	60	140	300
w/o Hopyard Road	5,300	90	190	400
w/o I-680 s bound ramp	5,800	90	200	430
w/o Johnson Drive	6,400	100	210	450
w/o Santa Rita Road	2,900	60	120	270
Sunol Boulevard				
e/o I-680	4,100	90	200	430
s/o Bernal Avenue	3,600	90	180	400
s/o Castlewood Drive	1,500	50	100	220
w/o I-680	2,500	70	140	310
Valley Avenue				
e/o Hopyard Road	2,400	70	150	320
e/o Santa Rita Road	3,500	90	190	410
n/o Bernal Avenue	2,700	70	160	340
n/o Stanley Boulevard	2,500	70	150	320
w/o Hopyard Road	2,500	70	150	320
w/o Santa Rita Road	2,600	70	150	330
Vineyard Avenue				
e/o Bernal Avenue	1,600	–	90	190
e/o First Street	930	–	60	130
e/o Montevino Drive	1,200	–	70	160
W. Las Positas Boulevard				
e/o Hopyard Road	3,000	60	120	260
e/o I-680	2,500	50	110	230
e/o Muirwood Drive	2,500	50	110	230
e/o Santa Rita Road	2,000	–	90	200
e/o Stoneridge Drive	3,400	60	130	280
w/o Hopyard Road	2,900	50	120	250
w/o Santa Rita Road	3,700	60	140	300
Union Pacific Railroad		150	320	700

Notes: w/o = west of, s/o = south of, e/o = east of, n/o = north of

[a] Includes soundwalls

[b] Data not reported within 50 feet of roadway center

Source: Illingworth & Rodkin, "City of Pleasanton Noise Element Update Environmental Noise Background Report," Dec.17, 2007.

~~for a total of four trains per day. This would increase the L_{dn} along the train line by 1 dB, an insignificant amount. If this train service is popular and additional trains are added, it is possible that noise levels could increase by a noticeable amount.~~

Transportation Corridors

~~Alameda County currently owns the former Southern Pacific Railroad right-of-way and has designated this land as a future transportation corridor.~~ The City of Pleasanton has purchased from Alameda County the portion of Southern Pacific Railroad right-of-way that extends from Bernal Avenue between Main and First Streets to Stanley Boulevard. The City plans parking, landscaping, and a pedestrian and bike trail for this property. Alameda County has not yet determined the use of the portion of the Southern Pacific right-of-way that ~~his corridor~~ extends southwest from Bernal Avenue, ~~could be used for some sort of in the future.~~ although the City has long-term plans to acquire it for trail use. In the past, the Niles Canyon Railroad had plans to extend a weekend train excursion service to just southwest of downtown Pleasanton. The amount of noise associated with any future rail ~~this~~ use would depend on the number of ~~transit~~ trips ~~and the mode of transportation~~. ~~The~~ Any such use of thi~~s~~e transportation corridor would introduce a new noise source along its periphery, and it is possible that additional sound walls would be required to shield existing noise sensitive development ~~from noise emanating from the transportation corridor~~.

[moved here] In addition, railroad operations currently impact existing residential areas in the Downtown along the Union Pacific railroad tracks. As noted above, about a dozen freight trains use these tracks and four commuter ACE trains pass through Pleasanton twice daily. If the ACE train trips continue to increase, then more noise would be expected along this corridor

Ongoing Noise Problem Areas

~~A problem which exists with no simple solution is noise mitigation for existing neighborhoods where sound-wall installation is infeasible due to front-yard orientations. This occurs along frontage roads adjoining major thoroughfares (e.g., Hopyard Road south of Valley Avenue, and Santa Rita Road south of Francisco Street) and along "parkway" streets (e.g., West Las Positas Boulevard in Fairlands, and Del Valle Parkway).[5] Relief for these neighborhoods will require both creative solutions where feasible and attention to minimizing traffic increases so that front yard noise levels remain below 65 dBA L_{dn}, a level at which interior and rear yard noise levels will still meet acceptable levels.~~ Some existing residential development backing onto busy streets experiences outdoor noise above the recommended levels. As a new solution, the City has started to resurface the noisiest streets – arterials – with noise-attenuating (quieter) pavements such as open graded asphalt, lowering street noise by 3-4 decibels. Valley Avenue is the first street to undergo this resurfacing and the remaining arterials will eventually be similarly resurfaced. Most of the arterials will be resurfaced by General Plan buildout.

An ongoing problem with existing soundwalls is that many are in poor condition and should be repaired and updated. Even where soundwalls continue to function, if they are deteriorating or otherwise unattractive, they should be improved.

In addition to traffic-noise impacted ~~to existing~~ residential areas ~~that are either being impacted presently, or will be in the future by vehicular traffic, there are existing~~ are homes which are currently ~~being~~ impacted by aircraft and railroad noise. Aircraft will continue to impact homes near the airport, and will most likely increase noise levels in east Pleasanton. Figure 11-3 shows existing (and future) noise contours for neighborhoods due to the Livermore Municipal Airport. Trains will continue to impact homes near the Union Pacific railroad, although the City may mitigate some of this noise in the future. ~~The aircraft noise contour developed as part of the California Somerset project within the Stoneridge Drive Specific Plan area shows that mitigation measures may be desirable for a number of existing homes in the future.[6]~~ [moved above] ~~In addition, railroad operations currently impact existing residential areas in the Downtown along the Union Pacific railroad tracks.~~

~~MONITORING OF~~ NOISE LEVEL PROJECTIONS IN PLEASANTON

The assumptions for future noise exposure are based on projections of traffic volumes, speed, and vehicle mix which may change in the future. As traffic projections are updated, these noise projections will be adjusted using a format which can be used in subsequent site-specific noise studies.

[moved to programs] ~~Periodic monitoring should be undertaken by the City to evaluate projected noise levels in problem areas. Such spot-monitoring can verify noise projections and can measure the effectiveness of mitigation measures. Noise monitoring will also be used to test the effectiveness of individual project mitigation measures, such as earth berms and building insulation. The results of this monitoring will be useful in satisfying residents' concerns, in verifying noise contours, and in recommending effective mitigation measures in future projects.~~

Noise Studies

The City will continue to require ~~S~~site-specific noise studies ~~will be required~~ for development which is "conditionally acceptable" according to Table 11-3 and future noise contours shown in Figure 11-2. These studies will help ~~to~~ determine the most effective noise attenuation measures in a particular location. The City will continue to maintain~~s~~ a list of qualified acoustical consultants ~~who are qualified~~ to perform these technical studies. Recommendations from such studies will be used as project noise mitigation measures with developers required to provide such mitigation through conditions of approval. [moved and combined with programs] ~~Noise Sstudies should include a description of the methodology and assumptions used, an evaluation of the effectiveness of various noise attenuation measures, a recommendation of the most cost-effective measure, a program to test the effectiveness of the measure after it has been installed, and recommendations to revise study assumptions in the case of ineffective mitigations. The aesthetic quality of potential outdoor sound mitigation measures such as building setbacks, berms, soundwalls, etc., should also be carefully studied by the City at this time.~~

Complaint System

A further check of the City's noise projection and monitoring procedures comes from the ~~C~~city's residents. Residents' noise complaints should be monitored and included, where feasible, in the City's periodic noise monitoring program. In this fashion, the subjective effects of noise which may not be detected by noise projections can be factored into the community noise environment and properly analyzed~~ and understood~~. The Livermore Municipal Airport currently dedicates a telephone line for noise complaints and provides on-line access for noise complaints.

Noise Mitigations

Noise mitigation measures recommended by site specific studies may include building orientation and setback requirements, earth berms, soundwalls, and noise insulation. Examples of sound walls can be seen along many arterial streets in Pleasanton including segments of Hopyard and Santa Rita Roads, Valley Avenue, and West Las Positas Boulevard. Due to the potentially negative visual impacts created by sound walls, however, the City has encouraged other alternatives~~ should be explored first~~.

Most new buildings in Pleasanton include construction materials adequate to reduce interior noise by 15 to 20 ~~dB~~ decibels below exterior levels. Special acoustical construction techniques can be added to new buildings or retrofitted to old buildings including roof and wall insulation, sound rated double pane windows and doors, and mechanical ventilation systems. Site plan review of new building projects in Pleasanton includes consideration of topography, building orientation, and setbacks to reduce noise levels. All of these noise reduction measures should be considered in locations ~~shown on Table VIII-2 as being~~ within "conditionally acceptable" areas and should be tailored to individual site characteristics based on an acoustical report. ~~-~~The objective in these areas is to provide outdoor noise levels at or below 60 dBA L_{dn} where people can be expected to spend time and indoor noise levels of 45 dBA L_{dn}.

Noise Ordinance and Other Regulations

Pleasanton also has adopted a *Noise Ordinance* which regulates the level of noise emanating from residential, commercial, and industrial properties.[8] The Ordinance is intended to discourage unusually noisy activities, but provides for permits in exceptional cases. In addition, the Ordinance also regulates ~~T~~the use and operation of skateboard ramps and power leaf blowers~~ are also regulated~~. The City also uses conditions of project approval to address noise issues, for example by further restricting the hours of construction.

[8] City of Pleasanton, *Pleasanton Municipal Code,* Chapter 9.04, November 1989.

NOISE AND LAND-USE COMPATIBILITY ~~GUIDELINES~~

Sensitive Noise Receptors

Children and medically fragile people are particularly sensitive to noise and are considered to be sensitive noise receptors. Residential uses distributed throughout Pleasanton are considered more sensitive to higher noise levels than retail, office, entertainment, and industrial uses as they are more likely to be associated with sensitive receptors. In addition, schools, childcare facilities, convalescent and medical hospitals also house sensitive noise receptors. Table 11-4 lists and Figure 11-4 shows sensitive receptor locations.

Land-Use Compatibility Guidelines

Land-use compatibility guidelines ~~are~~ presented below ~~which~~ in Table 11-5 compare land-use categories to noise levels. The objective of these guidelines is to ensure an acceptable community noise environment. As such the General Plan recommends use of ~~T~~these guidelines ~~should be used~~ in conjunction with ~~the~~ future noise-exposure levels ~~in Table VIII-2~~ to identify projects or activities which may require noise attenuation measures ~~special treatment noise exposure~~. For example, ~~Homes should not be allowed~~ in residential areas designated as conditionally acceptable for noise near a freeway or busy roadway, developers must complete a detailed analysis of noise reduction requirements and must include needed noise insulation features in the design ~~after detailed analysis of the noise reduction requirements and needed noise insulation features included in the design, for example, unless mitigation measures can effectively reduce noise exposure~~.

~~Table VIII-3 contains guidelines which the City uses to evaluate the compatibility between land uses and future noise levels in Pleasanton~~. The land-use compatibility guidelines should be used in conjunction with the noise exposure levels in Figure 11-2, above, ~~Table VIII-2~~ which shows areas where noise levels would be 60, 65 or 70 dBA L_{dn} ~~refer to the outdoor day/night average noise level (L_{dn}) in general locations~~. A land use or project in the "normally acceptable" category will be acceptable within the noise levels indicated, in most cases, without special noise abatement (reduction) measures. For example, a home of standard construction would be an acceptable use in any area of 60 dBA L_{dn} or less without special insulation, setback, or building design. The same house in an area projected for noise levels of 60 to 70 dBA L_{dn} should only be allowed following an acoustical study which recommends site specific noise attenuation measures such as ~~double pane~~ sound control windows and doors, setbacks, and/or construction of berms or sound walls.

The following considerations should be taken into account when using the Noise and Land-Use Compatibility Guidelines:

TABLE 11-4: NOISE SENSITIVE RECEPTORS, 2005 PLUS FUTURE PROPOSED

Pleasanton Unified School District Schools

1. Phoebe Apperson Hearst Elementary School, 5301 Case Avenue
2. Vintage Hills Elementary School, 1125 Concord Street
3. Valley View Elementary School. 480 Adams Way
4. Alisal Elementary School, 1454 Santa Rita Road
5. Walnut Grove Elementary School, 1999 Harvest Road
6. George C. Lydicksen Elementary School, 7700 Highland Oaks Drive
7. Thomas H. Donlon Elementary School, 4150 Dorman Road
8. Henry P. Mohr Elementary School, 3300 Dennis Drive
9. Fairlands Elementary School, 4151 W. Las Positas Boulevard
10. Pleasanton Middle School, 5001 Case Avenue
11. Harvest Park Middle School, 4900 Valley Avenue
12. Thomas S. Hart Middle School, 4433 Willow Road
13. Village and Horizon High Schools, 4645 Bernal Ave. & 245 Abbie Street
14. Amador Valley High School & Adult Education, 1155 Santa Rita Road
15. Foothill High School, 4375 Foothill Road
16. Potential School Site, Busch Road
17. Potential Elementary School, Vineyard Avenue

Private Schools

18. Carden West School, 4576 Willow Road
19. Hacienda School, 3800 Stoneridge Drive
20. Lighthouse Baptist School, 118 Neal Street
21. Quarry Lane School, 3750 Boulder Street

Note: Family childcare and about 15 residential-care facilities for the elderly are provided in residential neighborhoods throughout Pleasanton. Because residences are also sensitive receptors, Figure 11-4 does not delineate childcare providers and elder residential care in these neighborhoods.

Childcare Centers Not in Schools or Residences

22. Adventures in Learning, 3200 Hopyard Road
23. Beth Emek Preschool, 3400 Nevada Street (at Bernal Avenue)
24. The Child Day School, 883 Rose Avenue
25. Children's World Learning Center, 7110 Koll Center Parkway
26. Early Years Children's Center, 1251 Hopyard Road
27. Gingerbread Preschool, 4333 Black Avenue
28. Hacienda Child Development Center, 4671 Chabot Drive
29. Kindercare Learning Center-Pleasanton, 3760 Brockton Drive
30. Kinderkirk Christian Preschool-Pleasanton, 4300 Mirador Drive
31. La Petite Academy, 5725 Valley Avenue
32. Love and Care Preschool, 7106 Johnson Drive
33. Quarry Lane School, 4444-A Black Avenue
34. Saint Clare's Day Care Center, 3350 Hopyard Road
35. Shining Light Preschool, 4455 Del Valle Parkway
36. Sonshine Enrichment Center, 1225 Hopyard Road
37. YMCA Child Development Program, 4667 Bernal Avenue

Facilities for the Medically Fragile and/or Elderly

38. Pleasanton Nursing and Rehabilitation Center, 300 Neal St.
39. Valley Care Medical Center, 5555 West Las Positas Blvd
40. Eden Villa Pleasanton Residential Care, 4115 Mohr Avenue

Future Sensitive Receptors

41. West Pleasanton/Dublin BART Station
42. Hacienda – Housing locations are not yet specifically identified.
43. Staples Ranch Senior Continuing Care
44. East Pleasanton – Housing locations are not yet identified.

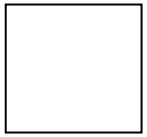
Sources: California Department of Social Services – Community Care Licensing Division, http://ccl.dss.cahwnet.gov/Informatio_1768.htm; Pleasanton Unified School District, 2006; SBC Yellow Pages, 2006; Pleasanton Planning and Community Development Department, 2006.

TABLE 11-5: NOISE AND LAND USE COMPATIBILITY GUIDELINES ~~FOR COMMUNITY NOISE ENVIRONMENT~~

Land Use Category	Exterior Noise Exposure (L_{dn}) 55 60 65 70 75 80
Single-Family Residential [a]	
Multi-Family Residential, Hotels, and Motels [a]	
Outdoor Sports and Recreation, Neighborhood Parks and Playgrounds	
Schools, Libraries, Museums, Hospitals, Personal Care, Meeting Halls, Churches	
Office Buildings, Business, Commercial, and Professional	
Auditoriums, Concert Halls, Amphitheaters	

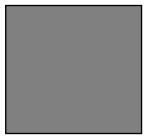
a In noise environments resulting primarily from railroad trains, exterior noise levels up to 70 dBA L_{dn} are normally acceptable recognizing that day-night average noise levels are controlled by intermittent, loud events.

b <65 dBA outdoors = < 45 dBA indoors



NORMALLY ACCEPTABLE

Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special insulation requirements



CONDITIONALLY ACCEPTABLE

Specified land use may be permitted only after detailed analysis of the noise reduction requirements and needed noise insulation features included in the design.

UNACCEPTABLE

New construction or development should generally not be undertaken because mitigation is usually not feasible to comply with noise element policies.

- The goals for maximum outdoor noise levels in residential areas ~~is~~ are an L_{dn} of 60 ~~dB~~decibels for single-family and 65 decibels for multi-family units~~., a This~~ levels ~~is~~ intended to guide the design and location of future development and ~~a~~ goals for the reduction of noise in existing development. However, all residential areas ~~60 Ldn is a goal which~~ cannot necessarily ~~be~~ reach~~ed~~ this goal ~~in all residential areas within the realm of~~due to economic or aesthetic considerations~~feasibility~~. This goal should generally be applied where outdoor use is a major consideration (e.g., backyards in single-family housing developments and recreation areas in multi-family housing projects). ~~I~~People in front yards can generally tolerate an L_{dn} of up to 65 ~~dB~~ decibels. The interiors of these houses would generally not be uncomfortably loud, with proper mitigation such as sound rated windows~~. If the front yard noise level is higher than this, then interior noise levels become a concern~~. The outdoor standard should not normally be applied to the small decks associated with apartments and condominiums due to ~~the lack of~~ limited use of these decks even in quiet areas.

- ~~The indoor noise level as required by the~~ State of California Noise Insulation Standards require that indoor noise levels ~~, must~~ not exceed an Ldn of 45 ~~dB~~ decibels in multi-family dwellings. While ~~the State's indoor noise level does~~ not applicable~~y~~ to single-family homes, ~~areas~~ Pleasanton considers this indoor criterion ~~should also be considered~~ as the maximum acceptable indoor noise level for single-family homes, as well. As discussed above, the outdoor noise standard for single-family homes will result in at least an indoor single-family Ldn noise level of 45 dB because of the noise insulation afforded by typical residential construction.

- If the noise source is a railroad, then the outdoor noise exposure criterion ~~should be~~is 70 dBA L_{dn} for future development. It may not be feasible to reduce noise to 70 dBA L_{dn} in existing residences ~~tial~~ adjacent to railroads. This is because train noise is usually characterized by relatively few loud events. Even though the outdoor L_{dn} may be high, during the majority of the time the noise level will be acceptable for speech communication, and people would not be highly annoyed.

- Interior noise levels in both single-~~family~~ and multi-family residential units exposed to railroad noise should be limited to a maximum instantaneous noise level in the bedrooms of 50 dBA. Maximum instantaneous noise levels in other rooms should not exceed 55 dBA. The requirement to reduce railroad noise indoors should be implemented if there are more than four train passbys between 7:00 a.m. and 10:00 p.m. or any trains between 10:00 p.m. and 7:00 a.m. This minimal amount of train operation is sufficient to generate outdoor noise levels of at least 70 dBA L_{dn}.

- If the noise source is aircraft, people will generally be annoyed at a lower average sound level than for the other transportation sources. Studies have shown that aircraft noise at a given L_{dn} is

more annoying than traffic noise at the same L_{dn}. Residential developments ~~should be~~ are strongly discouraged where the exterior L_{dn} exceeds 55 ~~dB~~ decibels due to aircraft. If residential uses are allowed in areas where the L_{dn} exceeds 55 ~~dB~~decibels, then interior noise levels should be controlled so that maximum noise levels do not exceed 50 dBA in bedrooms or 55 dBA in other rooms. Residential construction should not be allowed in areas where the L_{dn} exceeds 65 ~~dB~~ decibels from aircraft.

- Appropriate interior noise levels in commercial, industrial, and office buildings are a function of the use of space. For example, the noise level in private offices should generally be quieter than for data processing rooms. Interior noise levels in offices generally should be maintained at 45 dBA Leq or less. Acoustical designs to achieve this level should be demonstrated by the project sponsor in sufficient detail to satisfy City staff and Occupational Safety and Health Administration (OSHA) requirements.

- These guidelines are not intended to be applied reciprocally. In other words, if an area is currently below the desired noise standard, an increase in noise up to the maximum should not necessarily be allowed. The impact of a proposed project on an existing land use should be evaluated in terms of the potential for adverse community response, based on a significant increase in existing noise levels, regardless of the compatibility guidelines.

Noise Goals, Policies, and Programs

The following goals, policies, and programs, in addition to those contained in other Elements, constitute an action program to implement the objectives described in this Element.

~~VIII. NOISE~~ GOALS, POLICIES, AND PROGRAMS

Goal 1: ~~To r~~Reduce noise to acceptable levels throughout the community.

Policy 1: Require new projects to meet acceptable exterior noise level standards.

Program 1.1: Use the "normally acceptable" designation and text description contained in Table 11-4 ~~noise levels for new land uses as established in the~~ "Noise and Land-Use Compatibility Guidelines," ~~contained in Table VIII-3, including the descriptions in the text.~~ to determine the acceptability of new development and to determine when noise studies are required. For new single-family residential development, maintain a maximum standard of 60 dBA L_{dn} (day/night average noise level) for exterior noise in private or shared outdoor use areas. For new multi-family residential development, maintain a maximum standard of 65 dBA L_{dn} in community outdoor recreation areas. Noise standards are not applied to balconies. In the Downtown, the City Council will evaluate the requirement to achieve these standards on a case-by-case basis.

Program 1.2: Where high noise levels are the result of railroad trains, an exterior noise level of up to 70 dBA L_{dn} would be considered compatible with most residential development recognizing that day-night average noise levels are controlled by intermittent, loud events. Vibration-sensitive land uses located near the Union Pacific Railroad tracks should demonstrate compatibility with the Federal Transit Administration's vibration impact criteria by completing site-specific vibration analyses.

Program 1.3~~2~~: Use noise guidelines and contours to determine the need for noise studies, and require new developments to construct or pay for noise attenuation features as a condition of approving new projects.

Program 1.4~~3~~: Require noise studies for future projects to use a consistent format, to include a description of the methodology and assumptions used, to analyze alternative noise mitigation measures, and to evaluate the effectiveness of the mitigation~~s~~ following ~~their~~ implementation.

Program 1.5 Encourage the use of setbacks, landscaped earth berms, and frontage roads where feasible to reduce exterior noise levels. The use of soundwalls should only be used where other mitigation measures are not feasible. Where sound and frontage roads walls are needed, design and high quality materials, as well as landscaping, should be used to mitigate their visual impact.

Policy 2:	Reduce outdoor noise levels in existing residential areas where economically and aesthetically feasible.

Moved up

~~Program 2.1:~~ ~~Encourage the use of greater setbacks and landscaped earth berms to reduce noise levels. The use of soundwalls should only be used where other mitigation measures are not feasible and should be only used in conjunction with attractive landscaping.~~

Program 2.1: Consider Capital Improvement Program (CIP) funding for repair, landscaping, and maintenance of existing deteriorated sound walls.

Program 2.2: Project and monitor noise levels using traffic projections and periodic noise monitoring.

Program 2.3: Where traffic volumes increase by more than 50 percent from baseline 2006 noise data, ~~V~~verify projected noise levels with noise monitors at locations adjacent to residential and other noise sensitive areas ~~where traffic volumes increase by more than 50 percent from baseline noise data~~.

Policy 3:	Ensure that noise does not exceed interior noise levels of 45 dBA L_{dn} for residential uses and those levels specified in noise studies for other uses.

Program 3.1: Require new developments to pay their fair share of mitigation measures necessary to reduce interior noise levels within existing adjacent or impacted land uses.

Program 3.2: Require noise-attenuation measures when necessary to ensure that interior noise levels for new single- and multi-family residences do not exceed 45 dBA L_{dn}. Interior noise levels shall not exceed 45 dBA L_{dn} in any new residential units (single and multi family). Development sites exposed to noise levels exceeding 60 dBA L_{dn} shall be analyzed following protocols in Appendix Chapter 12, Section 1208, A, Sound Transmission Control, 2001 (current) *California Building Code,* Section 1207.

Program 3.3: New residential development affected by noise from railroad trains and aircraft shall be designed to limit typical maximum instantaneous noise levels to 50 dBA in bedrooms and 55 dBA in other rooms.

Program 3.4: Appropriate interior noise levels in commercial, industrial, and office buildings are a function of the use of the space. Interior noise levels in noise-sensitive spaces (e.g., offices) generally should be maintained at 45 dBA Leq or less (hourly average).

Policy 4: Control noise at its source to maintain existing noise levels, and in no case to exceed acceptable noise levels as established in the *Noise and Land Use Compatibility Guidelines*, Table 11-3.

Program 4.1: Enforce the noise emission standards for various noise-emitting land uses established in the City's *Noise Ordinance.*

Moved from Energy Element

Program ~~8.3~~4.2: Develop a mechanical drive engine ordinance that would establish noise limits for engines, such as electricity generators, used in commercial and industrial operations.

Program 4.~~3~~2: Aggressively enforce the noise emissions standards for all vehicles. Enforce Section 27007 of the *California Motor Vehicle Code.* This section prohibits amplified sound which can be heard 50 or more feet from a vehicle. Control excessive exhaust noise by enforcing Section 27150 of the *California Motor Vehicle Code.*

Program 4.~~4~~3: Explore opportunities to reduce ~~vehicular speed limit reductions on streets in~~ noise-impacted areas through alternative street paving methods and materials.

Policy 5: Protect schools, hospitals, libraries, religious facilities, convalescent homes, and other noise-sensitive uses from noise levels exceeding those allowed in residential areas.

Program 5.1: Locate new noise-sensitive land uses away from noise sources unless development plans include appropriate mitigation measures ~~are included in development plans~~.

Program 5.2: Locate new noise sources away from noise-sensitive land uses unless development plans include appropriate mitigation measures.

Policy 6: Limit truck traffic in residential and commercial areas to designated truck routes, as consistent with State law.

Program 6.1: Limit construction, delivery, and through-truck traffic to designated routes.

Program 6.2: ~~Distribute maps~~ Enforce the use of ~~approved~~ truck routes ~~to City traffic officers~~.

Policy 7: Design City streets to reduce noise levels in adjacent areas.

Program 7.1: As appropriate, ~~R~~require sound-attenuating paving on streets, earth berms, setbacks, sound walls, and other noise reduction techniques as conditions of development approval. Developers should use ~~S~~sound walls only ~~should be used only in cases~~ where other techniques are not feasible. Where sound walls are needed, design and high quality materials, as well as landscaping, should be used to mitigate their visual impact.

Program 7.2: Attempt to maintain ~~local and~~ collector streets at 6,000-~~9~~10,000 or fewer average daily trips (ADT) ~~or less~~ to ensure acceptable noise levels within adjacent residences.

Policy 8: Encourage other agencies to reduce noise levels generated by roadways, railways, airports, rapid transit, and other facilities.

Program 8.1: ~~Work~~ Coordinate with the County Airport Land Use Commission, State ~~Control~~Department of Health Services, and other agencies, as necessary, to reduce noise generated from sources outside the City's jurisdiction.

Program 8.2: Work with the City of Livermore to address noise impacts of the Livermore Municipal Airport, including the joint monitoring of aircraft noise on a periodic basis. ~~Update aircraft noise projections as operations at the Livermore Municipal Airport change.~~