

This section discusses and analyzes the ambient noise characteristics of the City of Elk Grove. The information provided in this section is based on analysis of the proposed City of Elk Grove General Plan (2003), and technical review by Bollard & Brennan, Inc.

4.6.1 EXISTING SETTING

BACKGROUND AND TERMINOLOGY

Noise is often described as unwanted sound. Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and hence are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, called Hertz (Hz).

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals of pressure), as a point of reference, defined as 0 dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in levels (dB) correspond closely to human perception of relative loudness. **Table 4.6-1** shows examples of noise levels for several common noise sources and environments.

**TABLE 4.6-1
TYPICAL A-WEIGHTED SOUND LEVELS OF COMMON NOISE SOURCES**

Decibels	Description
130	Threshold of pain
120	Jet aircraft take-off at 100 feet
110	Riveting machine at operators position
100	Shotgun at 200 feet
90	Bulldozer at 50 feet
80	Diesel locomotive at 300 feet
70	Commercial jet aircraft interior during flight
60	Normal conversation speech at 5 - 10 feet
50	Open office background level
40	Background level within a residence
30	Soft whisper at 2 feet
20	Interior of recording studio

EFFECTS OF NOISE ON PEOPLE

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by weighing the frequency response of a sound level meter by means of the standardized A-weighting network.

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There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels in decibels.

Community noise is commonly described in terms of the “ambient” noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}) over a given time period (usually one hour). The L_{eq} is the foundation of the Day-Night Average Level noise descriptor, L_{dn} , and shows very good correlation with community response to noise.

The Day-night Average Level (L_{dn}) is based upon the average noise level over a 24-hour day, with a +10 decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment.

Noise in the community has been cited as being a health problem, not in terms of actual physiological damages such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities such as sleep, speech, recreation and tasks demanding concentration or coordination. When community noise interferes with human activities or contributes to stress, public annoyance with the noise source increases, and the acceptability of the environment for people decreases. This decrease in acceptability and the threat to public well-being are the bases for policies preventing exposures to excessive community noise levels.

To control noise from fixed sources, which have developed from processes other than zoning or land use planning, many jurisdictions have adopted community noise control ordinances. Such ordinances are intended to abate noise nuisances and to control noise from existing sources. They may also be used as performance standards to judge the creation of a potential nuisance, or potential encroachment of sensitive uses upon noise-producing facilities. Community noise control ordinances are generally designed to resolve noise problems on a short-term basis (usually by means of hourly noise level criteria), rather than on the basis of 24-hour or annual cumulative noise exposures.

In addition to the A-weighted noise level, other factors should be considered in establishing criteria for noise sensitive land uses. For example, sounds with noticeable tonal content such as whistles, horns, droning or high-pitched sounds may be more annoying than the A-weighted sound level alone suggests. Many noise standards apply a penalty, or correction, of 5 dBA to such sounds. The effects of unusual tonal content are generally more of a concern at nighttime, when residents may notice the sound in contrast to low levels of background noise.

Because many rural residential areas experience very low noise levels, residents may express concern about the loss of “peace and quiet” due to the introduction of a sound, which was not previously audible. In very quiet environments, the introduction of virtually any change in local activities will cause an increase in noise levels. A change in noise level and the loss of “peace and quiet” is the inevitable result of land use or activity changes in such areas. Audibility of a new noise source and/or increases in noise levels within recognized acceptable limits are not usually considered to be significant noise impacts, but these concerns should be addressed and considered in the planning and environmental review processes.

EXISTING NOISE CONDITIONS IN THE PLANNING AREA

The major noise sources in the City of Elk Grove consist of State Route 99 and local traffic on streets, commercial and industrial uses, active recreation of parks, outdoor play areas of schools, and railroad operations. Each of these noise sources is discussed individually below.

Transportation Noise Sources

Roadway Traffic Noise Levels

The Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA-RD-77-108) with the Calven vehicle noise emission curves was used to predict existing and cumulative traffic noise levels within the City of Elk Grove. The FHWA Model is the traffic noise prediction model currently preferred by the Federal Highway Administration, the State of California Department of Transportation (Caltrans), and most county and city governments, for use in traffic noise assessment. Although the FHWA Model is in the process of being updated by a more sophisticated traffic noise prediction model, the use of RD-77-108 is still considered acceptable for the development of General Plan traffic noise predictions.

Tables 4.6-2 through 4.6-4 show existing and future traffic volumes, noise levels and distances to traffic noise contours for the major roadways located within the City of Elk Grove (see **Figure 4.6-1**). The future scenarios represent cumulative traffic conditions under the proposed General Plan. It is recognized that vehicle speeds vary considerably on roadways in the City, particularly due to the fact that the reductions in speed are frequently necessary because of traffic signals and stop signs at roadway intersections. In order to provide a generally worst-case estimate of existing traffic noise along the roadways within the City, a normalized speed of 65 miles per hour (mph) was applied to highways and a speed of 45 mph was applied to all other roadways in the modeling effort. The contour distances should also be considered conservative in that they do not account for local topographic, wall, and structural shielding.

Railroads

According to the Railroad Atlas of North America, there are two sets of railroad tracks operated within the Planning Area. The Union Pacific Railroad (UPRR) tracks run from north to south near Franklin Boulevard and form the western boundary of the City. The California Traction Company Railroad (CTCRR) tracks run from north to south through the center of the City near Elk Grove Florin Road.

In order to quantify train activity and the associated noise levels along the CTCRR tracks, a continuous noise monitoring of railroad activity was conducted on both the UPRR and CTCRR tracks in 2002. The results were compared to similar data previously collected. Although daily train usage of these tracks varies, based upon the results of this and previous monitoring periods, it was determined that approximately twenty trains per day are operated along each set of tracks. The Sound Exposure Level (SEL) of individual trains was recorded along with the duration and maximum noise level during the monitoring program. The aggregate of the data collected indicates that at a distance of 100 feet, the average train operating on these tracks will produce an SEL of approximately 105 dB with usage of the warning horn, and approximately 100 dB without the usage of the horn. Trains are generally required to sound warning horns within 800

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**TABLE 4.6-2
FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL DATA INPUTS AND DISTANCES TO 60 AND 65 dB LDN CONTOURS
CITY OF ELK GROVE - EXISTING CONDITIONS**

Roadway	From	To	ADT	Ldn at 100 ft.	Distance to 60 dB Ldn	Distance to 65 dB Ldn
Big Horn Blvd.	Franklin Blvd.	Laguna Blvd.	17595	65.0	215	100
Big Horn Blvd.	Laguna Blvd.	Elk Grove Blvd.	30089	67.3	307	143
Big Horn Blvd.	Elk Grove Blvd.	Kammerer Rd.	N/A	0.0	0	0
Bilby Rd.	Franklin Blvd.	Bruceville Rd.	822	51.7	28	13
Bond Rd.	East Stockton Blvd	Elk Grove Florin Blvd.	46892	69.2	413	192
Bond Rd.	Elk Grove Florin Rd.	Bradshaw Rd.	11854	63.3	165	77
Bond Rd.	Bradshaw Rd.	Grant Line Rd.	6128	60.4	106	49
Bradshaw Rd.	Vintage Park Rd.	Calvine Rd.	14205	64.1	186	86
Bradshaw Rd.	Calvine Rd.	Bond Rd.	9917	62.5	147	68
Bradshaw Rd.	Bond Rd.	Grant Line Rd.	5931	60.3	104	48
Bruceville Rd.	Jacinto Rd.	Sheldon Rd.	5897	60.2	104	48
Bruceville Rd.	Sheldon Rd.	Laguna Blvd.	17158	64.9	211	98
Bruceville Rd.	Laguna Blvd.	Elk Grove Blvd.	8162	61.6	129	60
Bruceville Rd.	Elk Grove Blvd.	Bilby Rd.	1348	53.8	39	18
Bruceville Rd.	Bilby Rd.	Eschinger Rd.	640	50.6	24	11
Calvine Rd.	Power Inn Rd.	Elk Grove-Florin Rd.	28037	67.0	293	136
Calvine Rd.	Elk Grove-Florin Rd.	Bradshaw Rd.	15250	64.4	195	91
Calvine Rd.	Bradshaw Rd.	Grant Line Rd.	7137	61.1	118	55
Center Pkwy.	Sheldon Rd.	Jacinto Rd.	13901	64.0	184	85
Elk-Grove Blvd.	I-5	Franklin Blvd.	10258	62.6	150	70
Elk Grove Blvd.	Franklin Blvd.	Bruceville Rd.	18253	65.1	220	102
Elk Grove Blvd.	Bruceville Rd.	West Stockton Blvd.	19243	65.4	228	106
Elk Grove Blvd.	West Stockton Blvd.	East Stockton Blvd.	34700	67.9	338	157
Elk Grove Blvd.	East Stockton Blvd	Elk Grove-Florin Rd.	34898	68.0	339	157
Elk Grove Blvd.	Elk Grove-Florin Rd.	Waterman Rd.	12790	63.6	174	81
Elk Grove Blvd.	Waterman Rd.	Grant Line Rd.	5529	60.0	99	46
Elk-Grove Florin	Vintage Park Rd.	Calvine Rd.	30553	67.4	310	144
Elk Grove-Florin	Calvine Rd.	Bond Rd.	31829	67.6	319	148
Elk Grove-Florin	Bond Rd.	Elk Grove Blvd.	26981	66.8	286	133
Elk Grove-Florin	Elk Grove Blvd.	East Stockton Blvd.	7342	61.2	120	56
Eschinger Rd.	SR 99	Carroll Rd.	383	48.4	17	8

Roadway	From	To	ADT	Ldn at 100 ft.	Distance to 60 dB Ldn	Distance to 65 dB Ldn
Excelsior Road	Gerber Rd.	Calvine Rd.	6399	60.6	109	51
Excelsior Road	Calvine Rd.	Sheldon Rd.	4705	59.3	89	41
Franklin Blvd.	Calvine Rd.	Laguna Blvd.	18699	65.2	224	104
Franklin Blvd.	Laguna Blvd.	Elk Grove Blvd.	9548	62.3	143	66
Franklin Blvd.	Elk Grove Blvd.	Hood Franklin Rd.	1547	54.4	42	20
Franklin Blvd.	Hood Franklin Rd.	South of Hood Franklin	640	50.6	24	11
Grant Line Rd.	SR99	East Stockton Blvd.	24085	66.3	265	123
Grant Line Rd.	East Stockton Blvd.	Bradshaw Rd.	11952	63.3	166	77
Grant Line Rd.	Bradshaw Rd.	Sheldon Rd.	9744	62.4	145	67
Grant Line Rd.	Sheldon Rd.	Calvine Rd.	11211	63.0	159	74
Grant Line Rd.	Calvine Rd.	Sloughhouse Rd.	14491	64.1	189	88
Harbor Point Dr.	Laguna Blvd.	Elk Grove Blvd.	4990	59.5	93	43
I-5	-	South of Hood Franklin	23583	72.7	700	325
I-5	Hood Franklin Rd.	Elk Grove Blvd.	22583	72.5	680	316
I-5	Elk Grove Blvd.	Laguna Blvd.	21025	72.2	648	301
I-5	Laguna Blvd.	Meadow View/Pocket Rd.	33975	74.3	893	414
Hood Franklin Rd.	I-5	Franklin Rd.	1878	55.3	48	22
Kammerer Rd.	Franklin Rd.	Bruceville Rd.	N/A	0	0	0
Kammerer Rd.	Bruceville Rd.	West Stockton Blvd.	2134	55.8	53	24
Laguna Blvd.	I-5	Franklin Rd.	32327	67.6	322	150
Laguna Blvd.	Franklin Blvd.	Bruceville Rd.	34606	67.9	337	157
Laguna Blvd.	Bruceville Rd.	West Stockton Blvd.	47910	69.3	419	194
Laguna Blvd.	West Stockton Blvd.	East Stockton Blvd	44581	69.0	399	185
Laguna Springs Dr.	Elk Grove Blvd.	Laguna Ridge Drive	N/A	0	0	0
Laguna Ridge Dr.	Big Horn Blvd.	Poppy Ridge Rd.	N/A	0.0	0	0
Laguna Ridge Dr.	Poppy Ridge Rd.	Kammerer Rd.	N/A	0.0	0	0
Power Inn Rd.	Calvine Rd.	Elsie Ave.	20782	65.7	240	111
Poppy Ridge Rd.	Franklin Rd.	West Stockton Blvd.	N/A	0.0	0	0
Sheldon Rd.	Center Parkway	West Stockton Blvd.	19335	65.4	229	106
Sheldon Rd.	West Stockton Blvd.	East Stockton Blvd	24513	66.4	268	124
Sheldon Rd.	East Stockton Blvd	Elk Grove-Florin Rd.	18155	65.1	219	102
Sheldon Rd.	Elk Grove-Florin Rd.	Bradshaw Rd.	15733	64.5	199	93
Sheldon Rd.	Bradshaw Rd.	Grant Line Rd.	7010	61.0	116	54
State Route 99	Eschinger Rd.	Grant Line Rd.	29802	73.0	738	342
State Route 99	Grant Line Rd.	Elk Grove Blvd.	28474	72.8	715	332

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Roadway	From	To	ADT	Ldn at 100 ft.	Distance to 60 dB Ldn	Distance to 65 dB Ldn
State Route 99	Elk Grove Blvd.	Laguna Blvd.	27755	72.7	703	326
State Route 99	Laguna Blvd.	Sheldon Rd.	37790	74.0	864	401
State Route 99	Sheldon Rd.	Calvine Rd.	40697	74.4	908	421
State Route 99	Calvine Rd.	Stockton Blvd.	39716	74.3	893	415
Waterman	Calvine Rd.	Vintage Park Rd.	502	49.5	20	9
Waterman	Calvine Rd.	Bond Rd.	6035	60.3	105	49
Waterman	Bond Rd.	Grant Line Rd.	7306	61.2	120	56
Wilton Rd.	Grant Line Road	Dillard Rd.	7277	61.1	119	55

Source: *Bollard & Brennan, Inc., 2003*

TABLE 4.6-3
FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL DATA INPUTS AND DISTANCES TO 60 AND 65 dB LDN CONTOURS
CITY OF ELK GROVE- YEAR 2025 NO PROJECT (PREVIOUS LAND USE DESIGNATIONS)

Roadway	From	To	ADT	Ldn @ 100 ft.	Distance to 60 dB Ldn	Distance to 65 dB Ldn
Big Horn Blvd.	Franklin Blvd.	Laguna Blvd.	18,902	65.3	225	105
Big Horn Blvd.	Laguna Blvd.	Elk Grove Blvd.	37,873	68.3	358	166
Big Horn Blvd.	Elk Grove Blvd.	Kammerer Rd.	24,363	66.4	267	124
Bilby Rd.	Franklin Blvd.	Bruceville Rd.	10,178	62.6	149	69
Bond Rd.	East Stockton Blvd	Elk Grove Florin Blvd.	59,651	70.3	485	225
Bond Rd.	Elk Grove Florin Rd.	Bradshaw Rd.	33,399	67.8	329	153
Bond Rd.	Bradshaw Rd.	Grant Line Rd.	11,861	63.3	165	77
Bradshaw Rd.	Vintage Park Rd.	Calvine Rd.	44,104	69.0	397	184
Bradshaw Rd.	Calvine Rd.	Bond Rd.	41,049	68.7	378	175
Bradshaw Rd.	Bond Rd.	Grant Line Rd.	30,586	67.4	311	144
Bruceville Rd.	Jacinto Rd.	Sheldon Rd.	17,726	65.0	216	100
Bruceville Rd.	Sheldon Rd.	Laguna Blvd.	35,564	68.0	344	159
Bruceville Rd.	Laguna Blvd.	Elk Grove Blvd.	40,300	68.6	373	173
Bruceville Rd.	Elk Grove Blvd.	Bilby Rd.	14,698	64.2	191	88
Bruceville Rd.	Bilby Rd.	Eschinger Rd.	912	52.1	30	14
Calvine Rd.	Power Inn Rd.	Elk Grove-Florin Rd.	45,125	69.1	403	187
Calvine Rd.	Elk Grove-Florin Rd.	Bradshaw Rd.	39,412	68.5	368	171
Calvine Rd.	Bradshaw Rd.	Grant Line Rd.	9,683	62.4	144	67
Center Pkwy.	Sheldon Rd.	Jacinto Rd.	24,671	66.5	269	125

Roadway	From	To	ADT	Ldn @ 100 ft.	Distance to 60 dB Ldn	Distance to 65 dB Ldn
Elk-Grove Blvd.	I-5	Franklin	20,725	65.7	240	111
Elk Grove Blvd.	Franklin Blvd.	Bruceville Rd.	29,608	67.2	304	141
Elk Grove Blvd.	Bruceville Rd.	West Stockton Blvd.	31,740	67.5	318	148
Elk Grove Blvd.	West Stockton Blvd.	East Stockton Blvd.	57,960	70.2	476	221
Elk Grove Blvd.	East Stockton Blvd	Elk Grove-Florin Rd.	50,076	69.5	432	200
Elk Grove Blvd.	Elk Grove-Florin Rd.	Waterman Rd.	18,038	65.1	218	101
Elk Grove Blvd.	Waterman Rd.	Grant Line Rd.	15,564	64.5	198	92
Elk-Grove Florin Rd.	Vintage Park Rd.	Calvine Rd.	57,168	70.1	471	219
Elk Grove-Florin Rd.	Calvine Rd.	Bond Rd.	48,264	69.4	421	195
Elk Grove-Florin Rd.	Bond Rd.	Elk Grove Blvd.	37,882	68.3	358	166
Elk Grove-Florin Rd.	Elk Grove Blvd.	East Stockton Blvd.	13,714	63.9	182	84
Eschinger Rd.	SR99	Carroll Rd.	757	51.3	26	12
Excelsior Road	Gerber Rd.	Calvine Rd.	12,403	63.5	170	79
Excelsior Road	Calvine Rd.	Sheldon Rd.	15,057	64.3	194	90
Franklin Blvd.	Calvine Rd.	Laguna Blvd.	40,123	68.6	372	173
Franklin Blvd.	Laguna Blvd.	Elk Grove Blvd.	43,607	68.9	394	183
Franklin Blvd.	Elk Grove Blvd.	Hood Franklin Rd.	27,925	67.0	292	136
Franklin Blvd.	Hood Franklin Rd.	South of Hood Franklin	18,735	65.3	224	104
Grant Line Rd.	SR 99	East Stockton Blvd.	79,384	71.5	587	272
Grant Line Rd.	East Stockton Blvd.	Bradshaw Rd.	46,270	69.2	409	190
Grant Line Rd.	Bradshaw Rd.	Sheldon Rd.	32,070	67.6	321	149
Grant Line Rd.	Sheldon Rd.	Calvine Rd.	34,854	68.0	339	157
Grant Line Rd.	Calvine Rd.	Sloughhouse Rd.	39,107	68.5	366	170
Harbor Point Dr.	Laguna Blvd.	Elk Grove Blvd.	15,121	64.3	194	90
I-5	-	South of Hood Franklin	29,043	73.6	804	373
I-5	Hood Franklin Rd.	Elk Grove Blvd.	29,043	73.6	804	373
I-5	Elk Grove Blvd.	Laguna Blvd.	31,626	73.9	851	395
I-5	Laguna Blvd.	Meadow View/Pocket Rd.	44,204	75.4	1064	494
Kammerer Rd.	I-5	Franklin Rd.	17,321	64.9	213	99
Kammerer Rd.	Franklin Rd.	Bruceville Rd.	16,543	64.7	206	96
Kammerer Rd.	Bruceville Rd.	West Stockton Blvd.	41,783	68.7	382	178
Laguna Blvd.	I-5	Franklin Rd.	37,091	68.2	353	164
Laguna Blvd.	Franklin Blvd.	Bruceville Rd.	39,559	68.5	369	171
Laguna Blvd.	Bruceville Rd.	West Stockton Blvd.	55,791	70.0	464	215
Laguna Blvd.	West Stockton Blvd.	East Stockton Blvd	51,931	69.7	442	205

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Roadway	From	To	ADT	Ldn @ 100 ft.	Distance to 60 dB Ldn	Distance to 65 dB Ldn
Laguna Springs Dr.	Elk Grove Blvd.	Laguna Ridge Drive	18,986	65.3	226	105
Laguna Ridge Dr.	Big Horn Blvd.	Poppy Ridge Rd.	11,281	63.1	160	74
Laguna Ridge Dr.	Poppy Ridge Rd.	Kammerer Rd.	14,453	64.1	188	87
Power Inn Rd.	Calvine Rd.	Elsie Ave.	34,320	67.9	335	156
Poppy Ridge Rd.	Franklin Rd.	West Stockton Blvd.	23,559	66.3	261	121
Sheldon Rd.	Center Parkway	West Stockton Blvd.	28,148	67.0	294	136
Sheldon Rd.	West Stockton Blvd.	East Stockton Blvd	31,962	67.6	320	148
Sheldon Rd.	East Stockton Blvd	Elk Grove-Florin Rd.	40,226	68.6	373	173
Sheldon Rd.	Elk Grove-Florin Rd.	Bradshaw Rd.	33,268	67.7	329	153
Sheldon Rd.	Bradshaw Rd.	Grant Line Rd.	21,140	65.8	243	113
State Route 99	Eschinger Rd.	Grant Line Rd.	46,942	75.0	998	463
State Route 99	Grant Line Rd.	Elk Grove Blvd.	38,873	74.2	880	409
State Route 99	Elk Grove Blvd.	Laguna Blvd.	46,259	74.9	989	459
State Route 99	Laguna Blvd.	Sheldon Rd.	48,263	75.1	1017	472
State Route 99	Sheldon Rd.	Calvine Rd.	51,204	75.4	1058	491
State Route 99	Calvine Rd.	Stockton Blvd.	55,341	75.7	1114	517
Waterman	Calvine Rd.	Vintage Park Rd.	6,227	60.5	108	50
Waterman	Calvine Rd.	Bond Rd.	24,810	66.5	270	125
Waterman	Bond Rd.	Grant Line Rd.	23,244	66.2	259	120
Wilton Rd.	Grant Line Road	Dillard Rd.	10,640	62.8	154	71

Source: Bollard & Brennan, Inc., 2003

TABLE 4.6-4
FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL DATA INPUTS AND DISTANCES TO 60 AND 65 dB LDN CONTOURS
CITY OF ELK GROVE- YEAR 2025 PROPOSED GENERAL PLAN

Roadway	From	To	ADT	Ldn at 100 ft.	Distance to 60 dB Ldn	Distance to 65 dB Ldn
Big Horn Blvd.	Franklin Blvd.	Laguna Blvd.	19,932	65.5	234	108
Big Horn Blvd.	Laguna Blvd.	Elk Grove Blvd.	45,188	69.1	403	187
Big Horn Blvd.	Elk Grove Blvd.	Kammerer Rd.	27,850	67.0	292	135
Bilby Rd.	Franklin Blvd.	Bruceville Rd.	10,303	62.7	150	70
Bond Rd.	East Stockton Blvd	Elk Grove Florin Blvd.	59,708	70.3	485	225
Bond Rd.	Elk Grove Florin Rd.	Bradshaw Rd.	31,870	67.6	319	148
Bond Rd.	Bradshaw Rd.	Grant Line Rd.	11,541	63.2	162	75

Roadway	From	To	ADT	Ldn at 100 ft.	Distance to 60 dB Ldn	Distance to 65 dB Ldn
Bradshaw Rd.	Vintage Park Rd.	Calvine Rd.	45,898	69.1	407	189
Bradshaw Rd.	Calvine Rd.	Bond Rd.	48,113	69.4	420	195
Bradshaw Rd.	Bond Rd.	Grant Line Rd.	34,134	67.9	334	155
Bruceville Rd.	Jacinto Rd.	Sheldon Rd.	18,406	65.2	221	103
Bruceville Rd.	Sheldon Rd.	Laguna Blvd.	40,121	68.6	372	173
Bruceville Rd.	Laguna Blvd.	Elk Grove Blvd.	47,779	69.3	418	194
Bruceville Rd.	Elk Grove Blvd.	Bilby Rd.	18,029	65.1	218	101
Bruceville Rd.	Bilby Rd.	Eschinger Rd.	1,445	54.1	41	19
Calvine Rd.	Power Inn Rd.	Elk Grove-Florin Rd.	39,796	68.5	370	172
Calvine Rd.	Elk Grove-Florin Rd.	Bradshaw Rd.	31,373	67.5	316	147
Calvine Rd.	Bradshaw Rd.	Grant Line Rd.	8,866	62.0	136	63
Center Pkwy.	Sheldon Rd.	Jacinto Rd.	26,846	66.8	285	132
Elk-Grove Blvd.	I-5	Franklin	24,960	66.5	271	126
Elk Grove Blvd.	Franklin Blvd.	Bruceville Rd.	34,048	67.9	334	155
Elk Grove Blvd.	Bruceville Rd.	West Stockton Blvd.	50,623	69.6	435	202
Elk Grove Blvd.	West Stockton Blvd.	East Stockton Blvd.	65,346	70.7	515	239
Elk Grove Blvd.	East Stockton Blvd	Elk Grove-Florin Rd.	52,459	69.7	445	207
Elk Grove Blvd.	Elk Grove-Florin Rd.	Waterman Rd.	18,238	65.1	220	102
Elk Grove Blvd.	Waterman Rd.	Grant Line Rd.	15,468	64.4	197	92
Elk-Grove Florin Rd.	Vintage Park Rd.	Calvine Rd.	57,177	70.1	471	219
Elk Grove-Florin Rd.	Calvine Rd.	Bond Rd.	48,756	69.4	424	197
Elk Grove-Florin Rd.	Bond Rd.	Elk Grove Blvd.	39,060	68.4	366	170
Elk Grove-Florin Rd.	Elk Grove Blvd.	East Stockton Blvd.	13,705	63.9	182	84
Eschinger Rd.	SR 99	Carroll Rd.	1,172	53.2	35	16
Excelsior Road	Gerber Rd.	Calvine Rd.	10,516	62.7	152	71
Excelsior Road	Calvine Rd.	Sheldon Rd.	11,795	63.2	165	76
Franklin Blvd.	Calvine Rd.	Laguna Blvd.	41,429	68.7	380	177
Franklin Blvd.	Laguna Blvd.	Elk Grove Blvd.	43,368	68.9	392	182
Franklin Blvd.	Elk Grove Blvd.	Hood Franklin Rd.	28,629	67.1	297	138
Franklin Blvd.	Hood Franklin Rd.	South of Hood Franklin	18,737	65.3	224	104
Grant Line Rd.	SR 99	East Stockton Blvd.	91,737	72.2	646	300
Grant Line Rd.	East Stockton Blvd.	Bradshaw Rd.	64,711	70.6	512	238
Grant Line Rd.	Bradshaw Rd.	Sheldon Rd.	34,622	67.9	337	157
Grant Line Rd.	Sheldon Rd.	Calvine Rd.	36,586	68.2	350	162
Grant Line Rd.	Calvine Rd.	Sloughhouse Rd.	40,788	68.6	376	175

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Roadway	From	To	ADT	Ldn at 100 ft.	Distance to 60 dB Ldn	Distance to 65 dB Ldn
Harbor Point Dr.	Laguna Blvd.	Elk Grove Blvd.	14,833	64.2	192	89
I-5	-	South of Hood Franklin	29,153	73.6	806	374
I-5	Hood Franklin Rd.	Elk Grove Blvd.	29,153	73.6	806	374
I-5	Elk Grove Blvd.	Laguna Blvd.	32,222	74.0	862	400
I-5	Laguna Blvd.	Meadow View/Pocket Rd.	49,419	75.9	1146	532
Kammerer Rd.	I-5	Franklin Rd.	19,191	65.4	228	106
Kammerer Rd.	Franklin Rd.	Bruceville Rd.	19,036	65.3	226	105
Kammerer Rd.	Bruceville Rd.	West Stockton Blvd.	48,006	69.3	420	195
Laguna Blvd.	I-5	Franklin Rd.	38,249	68.4	361	167
Laguna Blvd.	Franklin Blvd.	Bruceville Rd.	42,253	68.8	385	179
Laguna Blvd.	Bruceville Rd.	West Stockton Blvd.	57,709	70.1	474	220
Laguna Blvd.	West Stockton Blvd.	East Stockton Blvd	55,999	70.0	465	216
Laguna Springs Dr.	Elk Grove Blvd.	Laguna Ridge Drive	18,795	65.3	225	104
Laguna Ridge Dr.	Big Horn Blvd.	Poppy Ridge Rd.	13,971	64.0	184	86
Laguna Ridge Dr.	Poppy Ridge Rd.	Kammerer Rd.	14,630	64.2	190	88
Power Inn Rd.	Calvine Rd.	Elsie Ave.	34,514	67.9	337	156
Poppy Ridge Rd.	Franklin Rd.	West Stockton Blvd.	29,428	67.2	303	141
Sheldon Rd.	Center Parkway	West Stockton Blvd.	29,363	67.2	302	140
Sheldon Rd.	West Stockton Blvd.	East Stockton Blvd	32,070	67.6	321	149
Sheldon Rd.	East Stockton Blvd	Elk Grove-Florin Rd.	38,313	68.4	361	168
Sheldon Rd.	Elk Grove-Florin Rd.	Bradshaw Rd.	25,961	66.7	279	129
Sheldon Rd.	Bradshaw Rd.	Grant Line Rd.	14,993	64.3	193	90
State Route 99	Eschinger Rd.	Grant Line Rd.	48,530	75.1	1021	474
State Route 99	Grant Line Rd.	Elk Grove Blvd.	44,926	74.8	970	450
State Route 99	Elk Grove Blvd.	Laguna Blvd.	41,812	74.5	924	429
State Route 99	Laguna Blvd.	Sheldon Rd.	56,270	75.8	1127	523
State Route 99	Sheldon Rd.	Calvine Rd.	55,954	75.8	1122	521
State Route 99	Calvine Rd.	Stockton Blvd.	56,684	75.8	1132	526
Waterman	Calvine Rd.	Vintage Park Rd.	5,667	60.1	101	47
Waterman	Calvine Rd.	Bond Rd.	22,183	66.0	251	116
Waterman	Bond Rd.	Grant Line Rd.	23,216	66.2	259	120
Wilton Rd.	Grant Line Road	Dillard Rd.	10,473	62.7	152	71

Source: Bollard & Brennan, Inc., 2003

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feet of at-grade crossings located within the City of Elk Grove. To determine the L_{dn} value associated with railroad operations, the following formula was used:

$$L_{dn} = SEL + 10 \log N_{eq} - 49.4 \text{ dB, where:}$$

SEL is the mean measured SEL of the train events (105 with horn and 100 without), N_{eq} is the sum of the day plus 10 times the number of nighttime (10pm to 7am) train events, and 49.4 is ten times the logarithm of the number of seconds per day. Based upon this information, the L_{dn} at a distance of 100 feet due to activity on these tracks is approximately 75 dB and 70 dB with and without use of the horn, respectively. Using this information, the distances to noise level contours were calculated. The results are shown in **Table 4.6-5**.

TABLE 4.6-5
ESTIMATED DISTANCES TO RAILROAD NOISE CONTOURS (FEET), ELK GROVE, CA

UPRR & BNSF Tracks	60 dB L_{dn}	65 dB L_{dn}	70 dB L_{dn}
Without Horn	464	215	100
With Horn	1,000	464	215

Source: *Bollard & Brennan, Inc., 2002.*

Airports

There are two existing airports within the Planning Area. These airports are the Sunset Sky Ranch Airport and Franklin Field. Sunset Sky Ranch Airport is a privately owned public use airport, while Franklin Field is operated by the Sacramento County Department of Airports.

The noise impacts from these airports were analyzed in the Sunset Sky Ranch Airport Comprehensive Land Use Plan (CLUP) and the Franklin Field Comprehensive Land Use Plan (CLUP), both adopted by the Airport Land Use Commission in December 1988 and amended in December 1992. The data for these airports was obtained from these two comprehensive land use plans.

The aircraft noise generation of the airports in the Area varies. The Sunset Sky Ranch Airport CLUP, incorporated by reference, includes noise contours for the various airports. Specific locations and operational information for each of the airports discussed with the CLUPs are provided below.

Sunset Sky Ranch Airport

The Sunset Sky Ranch Airport is located near the intersection of Grant Line Road and Bradshaw Road along the southeast portion of the City. The airport's single paved runway is 2,780 feet long by 35 feet wide, with a gross weight-bearing strength of approximately 12,000 pounds. A parallel 1,900 by 25 foot gravel ultra-light runway also exists. The airport has 53 open tie-downs, 22 T-hangars, and 7 transient parking spaces. Ultra-lights operate at the airport, with annual operations estimated to be 30,000. The theoretical runway capacity is estimated to be 130,000 annual operations. Because touch-and-go operations are restricted, the airport serves primarily as an aircraft parking facility.

Franklin Field

Franklin Field is located approximately one mile northeast of the intersection of Twin Cities Road and Franklin Boulevard near the southern portion of the Planning Area. Franklin Field is a visual

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flight rated (VFR) airport having two perpendicular runways: a north/south runway (18-36) that is 3,295 feet long and 60 feet wide, and an east/west runway (9-27) which is 31,000 feet long and 60 feet wide. A 650 feet by 250 feet run-up apron and a tie-down apron (430 feet by 120 feet) exist. A wind cone and segmented circle are maintained to assist pilots. There are a total of 42 tie-down spaces, 23 from transient aircraft. There are also four T-hangars. No fixed-base operator exists. The sole use of Franklin Field is by general aviation aircraft, both single and multi-engine types, for training and touch-and-go activity. Crop dusters also use the facility during the planting and spraying season. There are an estimated 50,000 aircraft operations and 6 based aircraft at the airport.

Non-Transportation Noise Sources

The production of noise is a result of many processes and activities, even when best available noise control technology is applied. Noise exposures within industrial facilities are controlled by Federal and State employee health and safety regulations (OSHA), but exterior noise levels may exceed locally acceptable standards. Commercial, recreational and public service facility activities can also produce noise which affects adjacent sensitive land uses.

From a land use planning perspective, fixed-source noise control issues focus upon two goals: to prevent the introduction of new noise-producing uses in noise-sensitive areas, and to prevent encroachment of noise-sensitive land uses upon existing noise facilities. The first goal can be achieved by applying noise performance standards to proposed new noise-producing uses. The second goal can be met by requiring that new noise-sensitive uses in proximity to noise-producing facilities include mitigation measures to ensure compliance with those noise performance standards.

Descriptions of representative fixed noise sources in the City of Elk Grove are provided below. Refer to **Figure 4.6-2** for the mapped locations of these sites. These uses are intended to be representative of the relative noise generation of such uses, and are intended to identify specific noise sources that should be considered in the review of development proposals. The following examples are not intended to be a comprehensive list of all noise sources within the City. Site specific noise analyses should be performed where noise sensitive land uses are proposed in proximity to these (or similar) noise sources, or where similar sources are proposed to be located near noise-sensitive land uses.

Paramount Petroleum – 10090 Waterman Road

Operations at the Paramount Petroleum facility consist of storing and transporting petroleum. According to Ron Edingfield, Terminal Manager of Paramount Petroleum, operations at this facility take place 24-hours a day, seven days a week. The most significant noise-producing equipment at this facility includes two large boilers, forklifts, air compressors, and other equipment related to this process. The plant generates approximately fifty truck trips on a typical day.

The Paramount Petroleum facility was in operation at the time this report was being prepared, and a short-term measurement of the primary noise-producing portion of the facility was collected. At a distance of approximately 150 feet, this portion of the plant caused an average measured noise level of 61 dB. Mr. Edingfield was unaware of any noise complaints associated with the operation of this facility, and there are currently no specific plans for expansion of the facility.

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Weyerhaeuser – 10628 Waterman Road

Operations at the Weyerhaeuser facility consist of manufacturing corrugated boxes. According to Paul Wimber, General Manager of Weyerhaeuser, operations at this facility are slightly seasonal. Generally two 10-hour shifts take place each day from January to October and two 8-hour shifts the remainder of the year. Most months this facility is operating from 5am one day to 1am the following day. The most significant noise-producing equipment at this facility is the cyclone located on the north end of the building. The purpose of the cyclone is to collect clippings and trim from the manufacturing process. The plant generates approximately 20-25 truck trips on a typical day.

The Weyerhaeuser facility was in operation at the time this report was being prepared, and a short-term measurement of the cyclone was collected. At a distance of approximately 100 feet from the cyclone an average measured noise level of 73 dB was measured. Mr. Wimber was unaware of any noise complaints associated with the operation of this facility, and there are currently no specific plans for expansion of this facility.

Georgia-Pacific – 10399 E. Stockton Boulevard

Operations at the Georgia-Pacific facility consist of manufacturing adhesives. According to Ronald Kellogg, Assistant Plant Manager of Georgia-Pacific, operations at this facility take place 24-hours a day, seven days a week. The most significant noise-producing equipment at this facility includes motors, agitators, forklifts, air compressors, and other equipment related to this process. The plant generates approximately 20 truck trips on a typical day.

The Georgia-Pacific facility was in operation at the time this report was being prepared, and a short-term measurement of the primary noise-producing portion of the facility was collected. At a distance of approximately 50 feet, this portion of the plant caused an average measured noise level of 59 dB. Mr. Kellogg was unaware of any noise complaints associated with the operation of this facility, and there are currently no specific plans for expansion of this facility.

Suburban Propane – 10450 Grant Line Road

Operations at the Suburban Propane facility consist of storage and distribution of propane. According to Pat Hicks of Suburban Propane, operations at this facility take place 24-hours a day, seven days a week. The most significant noise-producing equipment at this facility includes horns, whistles, and bells. The plant generates approximately 40 truck trips on a typical day.

The Suburban Propane facility was in operation at the time this report was being prepared, however, no noise measurements were obtained. At this time Mr. Hicks was unaware of any noise complaints associated with the operation of this facility, and there are currently no specific plans for expansion of this facility.

Decore-ative Specialties – 9191 CMD Court

Operations at Decore-ative Specialties facility consist of the manufacturing of cabinet doors. According to John Giroux, Company Safety/Training Manager of Decore-ative Specialties, operations at this facility take place 7am-5pm Monday through Friday, although partial operations may continue up to midnight, and occasionally on Saturday. The majority of noise-producing equipment is indoors at this facility, with the exception of the sawdust collecting bag house, located on the east end of the building. The plant generates approximately 5-10 truck trips on a typical day.

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The Decore-ative Specialties facility was in operation at the time this report was being prepared, however, no noise measurement was obtained. Mr. Girouex was unaware of any noise complaints associated with the operation of this facility, and there are currently no specific plans for expansion of this facility.

Super Pallet Recycling – 10401 Grant Line Road

Operations at the Super Pallet Recycling facility consist of manufacturing adhesives. According to Kenneth Holder, Vice President of Super Pallet Recycling, operations at this facility take place 7am – 5pm Monday through Friday and occasionally for half a day on Saturday. The most significant noise-producing equipment at this facility includes a wood grinder, front-loaders, forklifts, nail guns, and other equipment related to this process. The plant generates approximately 5 truck trips on a typical day.

The Super Pallet Recycling facility was in operation at the time this report was being prepared, and a short-term measurement of the primary noise-producing portion of the facility was collected. At a distance of approximately 20 feet, this portion of the plant caused an average measured noise level of 74 dB. Mr. Holder was unaware of any noise complaints associated with the operation of this facility, and there are currently no specific plans for expansion of this facility.

Meek's – 10547 E. Stockton Boulevard

Operations at the Meeks facility consist of cutting engineered wood and lumber distribution. According to Tami Stafford, Assistant Manager of Meeks, operations at this facility take place 7am – 5pm Monday through Friday during the winter and 7am – 12am during the summer. The most significant noise-producing equipment at this facility includes trucks, forklifts, chainsaws, and other equipment related to this process. The plant generates approximately 15-20 truck trips on a typical day.

The Meek's facility was in operation at the time this report was being prepared, however, no noise measurement was obtained. Ms. Stafford was unaware of any noise complaints associated with the operation of this facility, and there are currently no specific plans for expansion of this facility.

General Service Commercial and Light Industrial Uses

Noise sources associated with service commercial uses such as automotive repair facilities, wrecking yards, tire installation centers, car washes, loading docks, etc., are found at various locations within the City of Elk Grove. The noise emissions of these types of uses are dependent on many factors, and are therefore, difficult to quantify precisely. Nonetheless, noise generated by these uses contribute to the ambient noise environment in the immediate vicinity of these uses, and should be considered where either new noise-sensitive uses are proposed nearby or where similar uses are proposed in existing residential areas.

Parks and School Playing Fields

There are several park and school uses within the City. These uses are spread throughout the City. Noise generated by these uses depends on the age and number of people utilizing the respective facility at a given time, and the types of activities they are engaged in. School playing field activities tend to generate more noise than those of neighborhood parks, as the intensity of school playground usage tends to be higher. At a distance of 100 feet from an elementary school playground being used by 100 students, average and maximum noise levels of 60 and 75 dB, respectively, can be expected. At organized events such as high school

football games with large crowds and public address systems, the noise generation is often significantly higher. As with service commercial uses, the noise generation of parks and school playing fields is variable.

COMMUNITY NOISE SURVEY

To quantify existing noise levels in the more heavily populated portions of the City of Elk Grove, a community noise survey was performed at 7 locations within predominately residential areas (see **Figure 4.6-3**). These locations were each monitored for short-term periods at various times during the day and night. The results of the community noise survey are provided in **Table 4.6-6**.

TABLE 4.6-6
COMMUNITY NOISE MEASUREMENT SURVEY RESULTS

Site	Location	Dates	Time	L _{eq}	L _{max}	L ₅₀	Estimated L _{dn}	Sources
1	Merwin F. Rose Park	5-10-02	2:18 pm	52	67	49		Local traffic, small aircraft
		8-1-02	10:42 am	49	64	47		Local traffic
		8-1-02	10:07 pm	49	57	47	55	Local traffic, wind
2	Wackman Park	5-10-02	2:55 pm	47	56	45		Local traffic, small aircraft
		8-1-02	11:05 am	45	53	45		Local traffic, small aircraft
		8-1-02	10:27 pm	49	51	49	50-55	Traffic, wind, crickets
3	Kloss Park	5-10-02	3:23 pm	52	58	51		Local traffic, small aircraft, children
		8-1-02	11:28 am	47	57	46		Local traffic, small aircraft, children
		8-1-02	10:41 pm	46	55	45	50-55	Local traffic
4	Lichenbergen Park	5-10-02	3:47 pm	49	61	48		Local traffic, birds
		8-1-02	11:45 am	50	64	47		Traffic, small aircraft
		8-1-02	10:54 pm	49	58	46		Local traffic
		8-2-02	9:18 am	55	61	54	55	Local traffic, construction
5	Foulks Park	5-10-02	4:14 pm	50	63	48		Local traffic, children
		8-1-02	11:07 pm	43	53	41		Local traffic, sprinklers
		8-2-02	8:30 am	55	66	51	55	Local traffic, children, small aircraft
6	Camden Park	5-10-02	4:46 pm	51	69	50		Local traffic, small aircraft
		8-1-02	10:08 am	58	64	58		Local traffic, wind
		8-1-02	11:28 pm	52	70	50	55	Local traffic, train horn
7	Elk Grove Park	5-10-02	5:19 pm	53	61	53		State Route 99, local traffic
		8-1-02	11:50 pm	47	52	47		State Route 99, local traffic
		8-2-02	9:38 am	55	58	55	55	State Route 99, local traffic

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4.6.2 REGULATORY FRAMEWORK

LOCAL

Sacramento County General Plan

The Sacramento County General Plan is used as the “blueprint” to guide future development in unincorporated portions of the County, including sections of the Planning Area that are outside the Elk Grove city limits. The following Sacramento County noise policies are applicable to the Planning Area outside the existing city limits of Elk Grove.

- NO-1 Noise created by new transportation noise sources should be mitigated so as not to exceed 60 dB L_{dn}/CNEL at the outdoor activity areas of any affected residential lands or land use situated in the unincorporated areas. When a practical application of the best available noise-reduction technology cannot achieve the 60 dB L_{dn} CNEL standard, then an exterior noise level of 65 dB L_{dn} CNEL may be allowed in outdoor activity areas.
- NO-2 Noise created by new nontransportation noise sources shall be mitigated so as not to exceed any of the noise level standards of Table II-1 (see **Table 4.6-7**) as measured immediately within the property line of any affected residentially designated lands or residential land use situated in the unincorporated areas,
- NO-3 Where proposed nontransportation sources are likely to produce noise levels exceeding the performance standards of Table II-1 (see **Table 4.6-7**) at existing or planned residential uses, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design. (Requirements for the content of an acoustical analysis are given by Table II-2) (see **Table 4.6-8**).
- NO-4 Where residential land uses are proposed in areas exposed to existing or projected exterior noise levels exceeding either 60 dB L_{dn}/CNEL or the performance standards of Table II-1 (see **Table 4.6-7**), an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design.
- NO-5 New residential development shall not be allowed where the noise level due to nontransportation noise sources will exceed the noise level standards of Table II-1 (Page 6) (see **Table 4.6-7**), as measured immediately within the property line of the new development.
- NO-6 The compatibility of proposed nonresidential projects with existing and future noise levels due to transportation noise sources shall be evaluated through a comparison to [Figure II-1], “Land Use Compatibility for Community Noise Environments” and Table II-3 (see **Table 4.6-9**), “Acceptable Noise Levels in Unoccupied Rooms”, and to [Figure II-4] for projects affected by aircraft noise.

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TABLE 4.6-7
(TABLE II-1 FROM SACRAMENTO COUNTY GENERAL PLAN), NOISE LEVEL PERFORMANCE STANDARDS¹,
FOR RESIDENTIAL AREAS AFFECTED BY NON-TRANSPORTATION NOISE²

Statistical Noise Level Descriptor	Exterior Noise Level Standards (dBA)	
	Daytime (7 am to 10 pm)	Nighttime (10 pm to 7 am)
L ₅₀	50	45
L _{max}	70	65

TABLE 4.6-8
(TABLE II-2 FROM SACRAMENTO COUNTY GENERAL PLAN)
REQUIREMENTS FOR AN ACOUSTICAL ANALYSIS

An acoustical analysis prepared pursuant to the Noise Element shall:	
A.	Be the responsibility of the applicant.
B.	Be prepared by qualified persons experienced in the fields of environmental noise assessment and architectural acoustics.
C.	Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.
D.	Estimate existing and projected (20 years) noise levels in terms of L _{dn} or CNEL and/or the standards of Table II-1, and compare those levels to the adopted policies of the Noise Element.
E.	Recommend appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element. Where the noise source in question consists of intermittent single events, the report must address the effects of maximum noise levels in sleeping rooms evaluating possible sleep disturbance.

TABLE 4.6-9
(TABLE II-3 FROM SACRAMENTO COUNTY GENERAL PLAN)
ACCEPTABLE NOISE LEVELS IN UNOCCUPIED ROOMS
AFFECTED BY TRANSPORTATION NOISE

Location	Average Sound Level ¹ (dBA)
Radio stations, recording studios	25-30
Concert halls, large auditoriums	30-35
Motion picture theaters	40-45
Conference rooms, small offices	40-45
Public offices (large), banks, stores	45-50
Restaurants, cafeterias	45-55
Libraries	40-45
Music Rooms	30-35
Theaters (speech)	30-35
Churches	35-40
Classrooms	35-45
Hospitals	40-45
Court Rooms	40-45

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NO-7 Proposed development of residential land uses should not be permitted: 1) in areas exposed to existing or projected levels of noise from transportation noise sources which exceed 60 dB to 65 dB L_{dn} /CNEL unless the project design includes effective mitigation measures to reduce noise to 60 dB to 65 dB L_{dn} /CNEL or less in outdoor activity areas, and 45 dB L_{dn} /CNEL or less in indoor areas; and 2) for 5 and 10 acre Agricultural –Residential land use the standard for exterior noise is also 60 dB to 65 dB L_{dn} /CNEL. The standard remains at 45 dB L_{dn} /CNEL for interior noise levels.

4.6.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

CEQA Guidelines (Appendix G) state that implementation of a project would result in significant noise impacts if the project would result in any of the following:

1. Exposure of persons to, or generation of, noise levels in excess of standards established in the local plans or ordinances.
2. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
3. A substantial permanent increase in ambient noise levels in the project vicinity above levels without the project.
4. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
5. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, where the project would expose people residing or working in the area to excessive noise levels.
6. For a project within the vicinity of a private airstrip, where the project would expose people residing or working in the project area to excessive noise levels.

METHODOLOGY

A combination of use of existing literature, and application of accepted noise prediction and sound propagation algorithms, were used to predict changes in ambient noise levels resulting from implementation of the proposed General Plan. Specific noise sources evaluated in this section include traffic, construction, aircraft, and common noise sources associated with the land use types of land use designations proposed within the City. Potential noise impacts of each of these major noise sources are described below.

Traffic Noise Impact Assessment Methodology

Traffic noise impacts are assessed by comparing both the existing traffic noise levels and standards of significance to the predicted traffic noise levels of the proposed General Plan.

Traffic Noise Prediction Model

To describe future noise levels due to traffic, the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA-RD-77-108) was used. The FHWA model is the analytical method currently favored for highway traffic noise prediction by most state and local agencies, including the California Department of Transportation (Caltrans).

The FHWA model is based upon the Calveno reference noise factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site.

The FHWA model was developed to predict hourly L_{eq} values for free-flowing traffic conditions (see **Appendix 4.6**). To predict L_{dn} /CNEL values, it is necessary to determine the day/night distribution of traffic and adjust the traffic volume input data to yield an equivalent hourly traffic volume.

Noise Impact Assessment Methodology for Noise-Producing Uses Within the City

There are a variety of noise sources associated with implementation of the proposed General Plan which have the potential to create noise levels in excess of the proposed City of Elk Grove General Plan noise standards or result in annoyance at existing and future noise-sensitive developments in the City. Such uses/noise sources include, but are not limited to, commercial loading docks associated with grocery stores and other stores/shops, and neighborhood parks.

At the General Plan level, detailed site and grading plans associated with these types of noise sources have not yet been developed. As a result, it is not feasible to identify specific noise impacts associated with these sources. Rather, potential for these sources to generate excessive or annoying noise levels is identified.

Aircraft Noise Impact Assessment Methodology

Noise impacts associated with operations at the Sunset Sky ranch Airport (see **Figure 4.6-4**) and Franklin Field Airport (see **Figure 4.6-5**) could result if noise-sensitive land uses are proposed within the airport's noise impact boundaries (noise contours). Development proposals within the 65 dB CNEL contours of each airport would be reviewed with respect to noise. A more detailed description of the noise contours can be found in the respective CLUPs. The Franklin Field airport's noise contour would not affect the City, and therefore is not discussed in this section. The Sunset Sky ranch Airport noise contour could affect the City, and is discussed under Impact 4.6.2.

Construction Noise Impact Assessment Methodology

Implementation of the proposed General Plan would result in subsequent development projects with associated construction noise impacts. These noise impacts would add to the noise environment in the City and could exceed normally acceptable sound levels at neighboring receptor locations.

Noise would be generated by increased truck traffic on area roadways. A significant noise source would be truck traffic associated with transport of heavy materials and equipment to and from construction sites. This noise increase would be short in duration, and would most likely occur during daytime hours.

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4.6-5

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4.6 NOISE

Activities involved in construction would generate maximum noise levels, as indicated in **Table 4.6-10**, ranging from 85 to 90 dB at a distance of 50 feet.

**TABLE 4.6-10
CONSTRUCTION EQUIPMENT NOISE**

Type of Equipment	Maximum Level, dB at 50 feet
Bulldozers	87
Heavy Trucks	88
Backhoe	85
Pneumatic Tools	85

PROJECT IMPACTS AND MITIGATION MEASURES

Construction Noise Impacts

Impact 4.6.1 Implementation of the proposed General Plan would result in subsequent development projects and cause an increase in construction noise levels that would exceed City of Elk Grove noise standards. This is considered a **potentially significant** impact.

Construction activities associated with the buildout of the proposed General Plan would typically generate maximum noise levels ranging from 85 to 95 dB at a distance of 50 feet. Depending on the timing of the buildout of the proposed General Plan, existing and future residents may be exposed to these excessive noise levels.

General Plan Policies and Action Items

NO-1 *New development of the uses listed in Table NO-C (see Table 4.6-11) shall conform with the noise levels contained in that Table. All indoor and outdoor areas shall be located, constructed, and/or shielded from noise sources in order to achieve compliance with the City's noise standards.*

**TABLE 4.6-11
(TABLE NO-C FROM CITY OF ELK GROVE DRAFT GENERAL PLAN)
MAXIMUM ALLOWABLE NOISE EXPOSURE,
TRANSPORTATION NOISE SOURCES**

Land Use	Outdoor Activity Areas ¹	Interior Spaces	
	L _{dn} /CNEL, dB	L _{dn} /CNEL, dB	L _{eq} , dB ²
Residential	60 ³	45	–
Residential subject to noise from railroad tracks, aircraft overflights, or similar noise sources which produce clearly identifiable, discrete noise events (the passing of a single train, as opposed to relatively steady noise sources such as roadways)	60 ³	40 ⁵	–

Land Use	Outdoor Activity Areas ¹	Interior Spaces	
	L _{dn} /CNEL, dB	L _{dn} /CNEL, dB	L _{eq} , dB ²
Transient Lodging	60 ⁴	45	–
Hospitals, Nursing Homes	60 ³	45	–
Theaters, Auditoriums, Music Halls	–	–	35
Churches, Meeting Halls	60 ³	–	40
Office Buildings	–	–	45
Schools, Libraries, Museums	–	–	45
Playgrounds, Neighborhood Parks	70	–	–

- 1) Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use.
- 2) Where it is not practical to mitigate exterior noise levels at patio or balconies of apartment complexes, a common area such as a pool or recreation area may be designated as the outdoor activity area.
- 3) As determined for a typical worst-case hour during periods of use.
- 4) Where it is not possible to reduce noise in outdoor activity areas to 60 dB L_{dn}/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB L_{dn}/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.
- 5) In the case of hotel/motel facilities or other transient lodging, outdoor activity areas such as pool areas may not be included in the project design. In these cases, only the interior noise level criterion will apply.
- 6) The intent of this noise standard is to provide increased protection against sleep disturbance for residences located near railroad tracks.

NO-2 Where noise-sensitive land uses are proposed in areas exposed to existing or projected exterior noise levels exceeding the levels specified in Table NO-C (see Table 4.6-11) or the performance standards of Table NO-A (see Table 4.6-12), an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design.

NO-3 Noise created by new proposed non-transportation noise sources shall be mitigated so as not to exceed the noise level standards of Table NO-A (see Table 4.6-12) as measured immediately within the property line of lands designated for noise-sensitive uses.

NO-3-Action 1 Limit construction activity to the hours of 7 a.m. and 7 p.m. whenever such activity is adjacent to residential uses.

Mitigation Measure

The following mitigation measure shall be incorporated into the City of Elk Grove General Plan as an action item under Goal 1 in the Noise Element.

MM 4.6.1 The City shall require that stationary construction equipment and construction staging areas be setback from existing noise-sensitive land uses. The setback distance will be considered on a case-by-case basis approved by the City of Elk Grove Planning Director.

4.6 NOISE

While implementation of the above policies and mitigation measure MM 4.6.1 would reduce construction noise, construction noise impacts are considered temporary, but **significant and unavoidable**.

TABLE 4.6-12
(TABLE NO-A FROM CITY OF ELK GROVE DRAFT GENERAL PLAN)
NOISE LEVEL PERFORMANCE STANDARDS FOR NEW PROJECTS AFFECTED BY OR INCLUDING NON-TRANSPORTATION
NOISE SOURCES

Part 1: Performance Standards for Typical Stationary Noise Sources		
Noise Level Descriptor	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly L_{eq} , dB	55	45
Part 2: Performance Standards for Stationary Noise Sources Which Are Tonal, Impulsive, Repetitive, or Consist Primarily of Speech or Music		
Hourly L_{eq} , dB	50	40

The standards in Part 1 will apply generally to noise sources that are not tonal, impulsive, or repetitive in nature. Typical noise sources in this category would include HVAC systems, cooling towers, fans, blowers, etc.

The types of uses which may typically produce the noise sources addressed in Part 1 include, but are not limited to: industrial facilities including pump stations, trucking operations, tire shops, auto maintenance shops, metal fabricating shops, shopping centers, drive-up windows, car washes, loading docks, public works projects, batch plants, bottling and canning plants, recycling centers, electric generating stations, race tracks, landfills, sand and gravel operations, and athletic fields.

The standards in Part 2 apply to noises which are tonal in nature, impulsive or repetitive, or which consist primarily of speech or music (e.g., humming sounds, outdoor speaker systems, etc.). Typical noise sources in this category include: pile drivers, drive-through speaker boxes, punch presses, steam valves, and transformer stations.

*These noise level standards in Parts 1 and 2 above **do not** apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).*

The City may impose noise level standards which are more or less restrictive than those specified above based upon determination of existing low or high ambient noise levels.

Traffic Noise Impacts

Impact 4.6.2 Implementation of the proposed General Plan would result in increases in traffic noise levels that would be in excess of City of Elk Grove noise standards. This is considered a **significant** impact.

Implementation of the proposed General Plan would result in increased traffic noise levels from roadway improvements, resulting from additional vehicle traffic. **Table 4.6-13** compares existing traffic noise levels with noise levels after General Plan implementation, and shows a significant increase between existing L_{dn} and L_{dn} after implementation. Residential and other noise-sensitive uses adjacent to area roadways would be affected by increased traffic noise, especially those areas with no soundwalls adjacent to the roadway. Increased noise impacts to area roadways would also result in traffic noise impacts outside the City, specifically the City and County of Sacramento. Additionally, any development adjacent to State Route 99 would be impacted by highway noise.

General Plan Policies and Action Items

NO-2 *Where noise-sensitive land uses are proposed in areas exposed to existing or project exterior noise levels exceeding the levels specified in Table NO-C (see **Table 4.6-11**) or the performance standards of Table NO-A (see **Table 4.6-12**),*

an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project.

- NO-5 *Noise created by the construction of new transportation noise sources (such as new roadways or light rail service) shall be mitigated so as not to exceed the levels specified in Table NO-C (see **Table 4.6-11**) at outdoor activity areas or interior spaces of existing noise-sensitive land uses. Please see Policy NO-6 for discussion of improvements to existing roadways.*
- NO-6 *It is anticipated that roadway improvement projects (such as widening of existing roadways) will be needed to accommodate build-out of the General Plan. Therefore, existing noise-sensitive uses may be exposed to increased noise levels due to roadway improvement projects as a result of increased roadway capacity, increases in travel speeds, etc. It may not be practical to reduce increased traffic noise levels consistent with those contained in Table NO-C (see **Table 4.6-11**). Therefore, the following criteria shall be used as a test of significance for roadway improvement projects which are not directly tied to a development project:*
- Where existing traffic noise levels are less than 60 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +5 L_{dn} increase in noise levels due to roadway improvement projects will be considered significant; and*
 - Where existing traffic noise levels range between 60 and 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +3 dB L_{dn} increase in noise levels due to roadway improvement projects will be considered significant; and*
 - Where existing traffic noise levels are greater than 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +1.5 dB L_{dn} increase in noise levels due to roadway improvement projects will be considered significant.*
- NO-7 *The City shall not require the installation of soundwalls in front yard areas to reduce noise to acceptable levels in residential areas which were originally constructed without soundwalls. The City shall emphasize other methods to reduce noise levels in these situations.*
- NO-7-Action 1 *Consider adopting a citywide noise reduction program to reduce traffic and other noise levels citywide.*

4.6 NOISE

**TABLE 4.6-13
COMPARISON OF EXISTING AND FUTURE (CUMULATIVE) TRAFFIC NOISE LEVELS WITH BUILDOUT OF THE PROPOSED GENERAL PLAN
CITY OF ELK GROVE**

Roadway	From	To	Existing Ldn at 100 ft.	Ldn with Buildout of Proposed G.P.	Difference
Big Horn Blvd.	Franklin Blvd.	Laguna Blvd.	65.0	65.5	0.5
Big Horn Blvd.	Laguna Blvd.	Elk Grove Blvd.	67.3	69.1	1.8
Big Horn Blvd.	Elk Grove Blvd.	Kammerer Rd.	0.0	67.0	N/A
Bilby Rd.	Franklin Blvd.	Bruceville Rd.	51.7	62.7	11.0
Bond Rd.	East Stockton Blvd	Elk Grove Florin Blvd.	69.2	70.3	1.0
Bond Rd.	Elk Grove Florin Rd.	Bradshaw Rd.	63.3	67.6	4.3
Bond Rd.	Bradshaw Rd.	Grant Line Rd.	60.4	63.2	2.7
Bradshaw Rd.	Vintage Park Rd.	Calvine Rd.	64.1	69.1	5.1
Bradshaw Rd.	Calvine Rd.	Bond Rd.	62.5	69.4	6.9
Bradshaw Rd.	Bond Rd.	Grant Line Rd.	60.3	67.9	7.6
Bruceville Rd.	Jacinto Rd.	Sheldon Rd.	60.2	65.2	4.9
Bruceville Rd.	Sheldon Rd.	Laguna Blvd.	64.9	68.6	3.7
Bruceville Rd.	Laguna Blvd.	Elk Grove Blvd.	61.6	69.3	7.7
Bruceville Rd.	Elk Grove Blvd.	Bilby Rd.	53.8	65.1	11.3
Bruceville Rd.	Bilby Rd.	Eschinger Rd.	50.6	54.1	3.5
Calvine Rd.	Power Inn Rd.	Elk Grove-Florin Rd.	67.0	68.5	1.5
Calvine Rd.	Elk Grove-Florin Rd.	Bradshaw Rd.	64.4	67.5	3.1
Calvine Rd.	Bradshaw Rd.	Grant Line Rd.	61.1	62.0	0.9
Center Pkwy.	Sheldon Rd.	Jacinto Rd.	64.0	66.8	2.9
Elk-Grove Blvd.	I-5	Franklin Blvd.	62.6	66.5	3.9
Elk Grove Blvd.	Franklin Blvd.	Bruceville Rd.	65.1	67.9	2.7
Elk Grove Blvd.	Bruceville Rd.	West Stockton Blvd.	65.4	69.6	4.2
Elk Grove Blvd.	West Stockton Blvd.	East Stockton Blvd.	67.9	70.7	2.7
Elk Grove Blvd.	East Stockton Blvd	Elk Grove-Florin Rd.	68.0	69.7	1.8
Elk Grove Blvd.	Elk Grove-Florin Rd.	Waterman Rd.	63.6	65.1	1.5
Elk Grove Blvd.	Waterman Rd.	Grant Line Rd.	60.0	64.4	4.5
Elk-Grove Florin	Vintage Park Rd.	Calvine Rd.	67.4	70.1	2.7
Elk Grove-Florin	Calvine Rd.	Bond Rd.	67.6	69.4	1.9
Elk Grove-Florin	Bond Rd.	Elk Grove Blvd.	66.8	68.4	1.6
Elk Grove-Florin	Elk Grove Blvd.	East Stockton Blvd.	61.2	63.9	2.7

Roadway	From	To	Existing Ldn at 100 ft.	Ldn with Buildout of Proposed G.P.	Difference
Eschinger Rd.	SR99	Carroll Rd.	48.4	53.2	4.9
Excelsior Road	Gerber Rd.	Calvine Rd.	60.6	62.7	2.2
Excelsior Road	Calvine Rd.	Sheldon Rd.	59.3	63.2	4.0
Franklin Blvd.	Calvine Rd.	Laguna Blvd.	65.2	68.7	3.5
Franklin Blvd.	Laguna Blvd.	Elk Grove Blvd.	62.3	68.9	6.6
Franklin Blvd.	Elk Grove Blvd.	Hood Franklin Rd.	54.4	67.1	12.7
Franklin Blvd.	Hood Franklin Rd.	S. of Hood Franklin	50.6	65.3	14.7
Grant Line Rd.	SR99	East Stockton Blvd.	66.3	72.2	5.8
Grant Line Rd.	East Stockton Blvd.	Bradshaw Rd.	63.3	70.6	7.3
Grant Line Rd.	Bradshaw Rd.	Sheldon Rd.	62.4	67.9	5.5
Grant Line Rd.	Sheldon Rd.	Calvine Rd.	63.0	68.2	5.1
Grant Line Rd.	Calvine Rd.	Sloughhouse Rd.	64.1	68.6	4.5
Harbor Point Dr.	Laguna Blvd.	Elk Grove Blvd.	59.5	64.2	4.7
I-5	-	S. of Hood Franklin	72.7	73.6	0.9
I-5	Hood Franklin Rd.	Elk Grove Blvd.	72.5	73.6	1.1
I-5	Elk Grove Blvd.	Laguna Blvd.	72.2	74.0	1.9
I-5	Laguna Blvd.	Meadow View/Pocket	74.3	75.9	1.6
Kammerer Rd.	I-5	Franklin Rd.	55.3	65.4	10.1
Kammerer Rd.	Franklin Rd.	Bruceville Rd.	53.2	65.3	12.2
Kammerer Rd.	Bruceville Rd.	West Stockton Blvd.	55.8	69.3	13.5
Laguna Blvd.	I-5	Franklin Rd.	67.6	68.4	0.7
Laguna Blvd.	Franklin Blvd.	Bruceville Rd.	67.9	68.8	0.9
Laguna Blvd.	Bruceville Rd.	West Stockton Blvd.	69.3	70.1	0.8
Laguna Blvd.	West Stockton Blvd.	East Stockton Blvd	69.0	70.0	1.0
Laguna Springs Dr.	Elk Grove Blvd.	Laguna Ridge Drive	54.8	65.3	10.5
Laguna Ridge Dr.	Big Horn Blvd.	Poppy Ridge Rd.	0.0	64.0	N/A
Laguna Ridge Dr.	Poppy Ridge Rd.	Kammerer Rd.	0.0	64.2	N/A
Power Inn Rd.	Calvine Rd.	Elsie Ave.	65.7	67.9	2.2
Poppy Ridge Rd.	Franklin Rd.	West Stockton Blvd.	0.0	67.2	N/A
Sheldon Rd.	Center Parkway	West Stockton Blvd.	65.4	67.2	1.8
Sheldon Rd.	West Stockton Blvd.	East Stockton Blvd	66.4	67.6	1.2
Sheldon Rd.	East Stockton Blvd	Elk Grove-Florin Rd.	65.1	68.4	3.2
Sheldon Rd.	Elk Grove-Florin Rd.	Bradshaw Rd.	64.5	66.7	2.2
Sheldon Rd.	Bradshaw Rd.	Grant Line Rd.	61.0	64.3	3.3

4.6 NOISE

Roadway	From	To	Existing Ldn at 100 ft.	Ldn with Buildout of Proposed G.P.	Difference
State Route 99	Eschinger Rd.	Grant Line Rd.	73.0	75.1	2.1
State Route 99	Grant Line Rd.	Elk Grove Blvd.	72.8	74.8	2.0
State Route 99	Elk Grove Blvd.	Laguna Blvd.	72.7	74.5	1.8
State Route 99	Laguna Blvd.	Sheldon Rd.	74.0	75.8	1.7
State Route 99	Sheldon Rd.	Calvine Rd.	74.4	75.8	1.4
State Route 99	Calvine Rd.	Stockton Blvd.	74.3	75.8	1.5
Waterman	Calvine Rd.	Vintage Park Rd.	49.5	60.1	10.5
Waterman	Calvine Rd.	Bond Rd.	60.3	66.0	5.7
Waterman	Bond Rd.	Grant Line Rd.	61.2	66.2	5.0
Wilton Rd.	Grant Line Road	Dillard Rd.	61.1	62.7	1.6

Source: *Bollard & Brennan, Inc., 2003*

Mitigation Measures

Implementation of the above General Plan policies NO-2, NO-5, NO-6, NO-7 and associated action items would reduce impacts to traffic noise. However, there is no sufficient mitigation that would reduce this impact to a less than significant level for impacts within the City and in the City of Sacramento and Sacramento County. Possible mitigation includes installation and/or expansion of sound barriers, however, sound barriers (in some cases) would need to be placed in front yards and would be ineffective given the need for openings for driveways. In addition, the City does not have jurisdiction to place sound barriers outside of the City limits. Therefore, impacts resulting from traffic noise are considered **significant and unavoidable**.

Future Stationary Noise Impacts

Impact 4.6.3 Implementation of the proposed General Plan could result in the future development of land uses that generate noise levels in excess of applicable noise standards for non-transportation noise sources. This is considered a **less than significant** impact.

Implementation of the proposed General Plan could result in the future development of land uses that generate noise levels in excess of applicable City of Elk Grove noise standards for non-transportation noise sources. Such land uses may include commercial, office, and industrial uses as well as recreational uses. However, specific land use types that would locate in the City are not known at this time.

General Plan Policies and Action Items

- NO-2* *Where noise sensitive land uses are proposed in areas exposed to existing or projected exterior noise levels exceeding the levels specified in Table NO-C (see Table 4.6-11) or the performance standards of NO-A (see Table 4.6-12), an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design.*
- NO-3* *Noise created by new proposed non-transportation noise sources shall be mitigated so as not to exceed the noise level standards of Table NO-A (see Table 4.6-12) as measured immediately within the property line of lands designated for noise-sensitive uses.*
- NO-3-Action 1* *Limit construction activity to the hours of 7 a.m. to 7 p.m. whenever such activity is adjacent to residential uses.*
- NO-3-Action 2* *Consider limiting the hours of operation for loading docks, trash compactors, and other noise-producing uses in commercial areas which are adjacent to residential uses.*
- NO-4* *Where proposed non-residential land uses are likely to produce noise levels exceeding the performance standards of Table NO-A (see Table 4.6-12) at existing or planned noise-sensitive uses, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design. The requirements for the content of an acoustical analysis are shown in Table NO-B (see Table 4.6-14).*

4.6 NOISE

TABLE 4.6-14
(TABLE NO-B FROM THE CITY OF ELK GROVE DRAFT GENERAL PLAN)
REQUIREMENTS FOR ACOUSTICAL ANALYSIS

All acoustical analysis prepared pursuant to this Noise Element shall:	
A.	Be the financial responsibility of the applicant.
B.	Be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics.
C.	Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions and the predominant noise sources.
D.	Estimate existing and projected cumulative (20 years) noise levels in terms of L_{dn} or CNEL and/or the standards of Table NO-A, and compare those levels to the adopted policies of the Noise Element.
E.	Recommend appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element, giving preference to proper site planning and design over mitigation measures which require construction of noise barriers or structural modifications to buildings which contain noise-sensitive land uses.
F.	In cases where a sound wall is proposed, the potential impacts associated with noise reflecting off the wall and toward other properties or sensitive uses shall be evaluated.
G.	Estimate noise exposure after the prescribed mitigation measures have been implemented.
H.	Describe a post-project assessment program which could be used to evaluate the effectiveness of the proposed mitigation measures.

*NO-8 Where noise mitigation measures are required to achieve the standards of Tables NO-A (see **Table 4.6-12**) and NO-C (see **Table 4.6-11**), the emphasis of such measures shall be placed upon site planning and project design. The use of noise barriers shall be considered a means of achieving the noise standards only after all other practical design-related noise mitigation measures – including the use of distance from noise sources – have been integrated into this project.*

Implementation of the above General Plan policies and action items would reduce future stationary noise impacts to a **less than significant** level.

Mitigation Measures

None required.

Airport Noise Conflicts

Impact 4.6.4 Implementation of the proposed General Plan could expose future land uses to noise associated with the operation of the Sunset Sky ranch Airport or Franklin Field Airport. This is considered a **less than significant** impact.

As shown in **Figure 4.6-4**, implementation of the General Plan could expose future land uses to noise impacts associated with the operation of the Sunset Sky ranch Airport. Based on the State of California Code of Regulations, Title 21, Subchapter 6, the following land uses are incompatible within the 65 dB CNEL: single-family dwellings, multi-family dwellings, trailer parks,

and schools of standard construction. Within the 65 dB CNEL for the Sunset Sky ranch Airport, there would only be rural residential development exposed to noise impacts. Any residential dwellings, other than single-family detached, would be subject to an acoustical study showing that the structure would be designed to meet the interior standard of 45 dB CNEL. Compliance with state regulations and City of Elk Grove transportation noise policies would maintain these impacts at a **less than significant** level.

As shown in **Figure 4.6-5**, implementation of the proposed General Plan would not result in the exposure of future land uses to noise impacts resulting from the operation of the Franklin Field Airport. The Franklin Field Airport noise contours do not expose land uses within the City to any impacts. Therefore, this is a **less than significant** impact.

General Plan Policies and Action Items

- CI-21 The City shall consider the recommendations in the Comprehensive Land Use Plans (CLUPs) for airports within or adjacent to Elk Grove in the review of potential land uses or projects.*
- NO-2 Where noise-sensitive land uses are proposed in areas exposed to existing or projected exterior noise levels exceeding the levels specified in Table NO-C (see **Table 4.6-11**) or the performance standards of Table NO-A (see **Table 4.6-12**), an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design.*
- NO-5 Noise created by the construction of new transportation noise sources (such as new roadways or light rail service) shall be mitigated so as not to exceed the levels specified in Table NO-C (see **Table 4.6-11**) at outdoor activity areas or interior spaces of existing noise-sensitive land uses. Please see Policy NO-6 for discussion of improvements to existing roadways.*

Compliance with the above General Plan policies CI-21, NO-2 and NO-5 would reduce impacts resulting from airport noise to a **less than significant** level.

Mitigation Measures

None required.

Railroad Noise Impacts

Impact 4.6.5 Implementation of the proposed General Plan could expose future land uses and residents to railroad noise. This is considered a **less than significant** impact.

Table 4.6-5 shows the estimated distances to railroad noise contours for the two railroads that travel through the City of Elk Grove, with and without the warning horn. Trains must sound their horn 800 feet before an at-grade railroad crossing within the City of Elk Grove. According to the Table, the 60 dB L_{dn} noise standard would only be met at a distance of 1,000 feet.

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General Plan Policies and Action Items

- NO-2 *Where noise-sensitive land uses are proposed in areas exposed to existing or projected exterior noise levels exceeding the levels specified in Table NO-C (see **Table 4.6-11**) or the performance standards of Table NO-A (see **Table 4.6-12**), an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design.*
- NO-5 *Noise created by the construction of new transportation noise sources (such as new roadways or light rail service) shall be mitigated so as not to exceed the levels specified in Table NO-C (see **Table 4.6-11**) at outdoor activity areas or interior spaces of existing noise-sensitive land uses. Please see Policy NO-6 for discussion of improvements to existing roadways.*
- NO-6 *It is anticipated that roadway improvement projects (such as widening of existing roadways) will be needed to accommodate build-out of the General Plan. Therefore, existing noise-sensitive uses may be exposed to increased noise levels due to roadway improvement projects as a result of increased roadway capacity, increases in travel speeds, etc. It may not be practical to reduce increased traffic noise levels consistent with those contained in Table NO-C (see **Table 4.6-11**). Therefore, the following criteria shall be used as a test of significance for roadway improvement projects which are not directly tied to a development project:*
- *Where existing traffic noise levels are less than 60 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +5 L_{dn} increase in noise levels due to roadway improvement projects will be considered significant; and*
 - *Where existing traffic noise levels range between 60 and 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +3 dB L_{dn} increase in noise levels due to roadway improvement projects will be considered significant; and*
- NO-7 *The City shall not require the installation of soundwalls in front yard areas to reduce noise to acceptable levels in residential areas which were originally constructed without soundwalls. The City shall emphasize other methods to reduce noise levels in these situations.*
- NO-7-Action 1 *Consider adopting a citywide noise reduction program to reduce traffic and other noise levels citywide.*
- NO-8 *Where noise mitigation measures are required to achieve the standards of Tables NO-A (see **Table 4.6-12**) and NO-C (see **Table 4.6-11**), the emphasis of such measures shall be placed upon site planning and project design. The use of noise barriers shall be considered a means of achieving the noise standards only after all other practical design-related noise mitigation measures – including the use of distance from noise sources – have been integrated into this project.*

Implementation of the above General Plan policies NO-2, NO-7 and its associated action item, and NO-8 would reduce impacts from railroad noise to a **less than significant** level.

Mitigation Measures

None required.

4.6.4 CUMULATIVE SETTING, IMPACTS AND MITIGATION MEASURES

CUMULATIVE SETTING

The cumulative analysis takes into account planned development patterns set forth in the Sacramento County General Plan, including the North Vineyard Station Specific Plan and Vineyard Springs Comprehensive Plan, the City of Sacramento General Plan that includes the North Natomas Community Plan, potential future urban development within the City of Folsom Sphere of Influence, City of Galt General Plan, as well as large-scale proposed and approved development projects identified in **Table 4.0-2**.

This analysis also takes into account the potential urban development of the “Urban Study Areas” identified in General Plan Policy LU-10 and Figure LU-2 of the General Plan (see also **Figure 3.0-7**). As described in Section 4.0 (Introduction to the Environmental Analysis and Assumptions Used), there is no assumption for development of these areas, nor do they have any specific land use mix associated with them. However, any potential development above their current land uses would produce an increase in the cumulative noise environment.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Traffic Noise Conflicts

Impact 4.6.6 Implementation of the proposed General Plan along with potential development of the Urban Study Areas could result in increased traffic noise conflicts. This is considered a **less than significant** cumulative impact.

As shown in **Figure 3.0-7**, the southern Urban Study Area is located adjacent to Interstate 5. Although there is no specific land use mix given to the Urban Study Areas, any development more dense than the existing land uses would be subject to conflicts from traffic noise. **Figure 4.6-1** of this section shows that the noise contour for Interstate 5 would not conflict with the boundaries of the southern Urban Study Area.

General Plan Policies and Action Items

NO-2 *Where noise-sensitive land uses are proposed in areas exposed to existing or projected exterior noise levels exceeding the levels specified in Table NO-C (see **Table 4.6-11**) or the performance standards of Table NO-A (see **Table 4.6-12**), an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design.*

NO-5 *Noise created by the construction of new transportation noise sources (such as new roadways or light rail service) shall be mitigated so as not to exceed the levels specified in Table NO-C (see **Table 4.6-11**) at outdoor activity areas or interior spaces of existing noise-sensitive land uses. Please see Policy NO-6 for discussion of improvements to existing roadways.*

NO-6 *It is anticipated that roadway improvement projects (such as widening of existing roadways) will be needed to accommodate build-out of the General*

4.6 NOISE

*Plan. Therefore, existing noise-sensitive uses may be exposed to increased noise levels due to roadway improvement projects as a result of increased roadway capacity, increases in travel speeds, etc. It may not be practical to reduce increased traffic noise levels consistent with those contained in Table NO-C (see **Table 4.6-11**). Therefore, the following criteria shall be used as a test of significance for roadway improvement projects which are not directly tied to a development project:*

- *Where existing traffic noise levels are less than 60 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +5 L_{dn} increase in noise levels due to roadway improvement projects will be considered significant; and*
- *Where existing traffic noise levels range between 60 and 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +3 dB L_{dn} increase in noise levels due to roadway improvement projects will be considered significant; and*

NO-7 The City shall not require the installation of soundwalls in front yard areas to reduce noise to acceptable levels in residential areas which were originally constructed without soundwalls. The City shall emphasize other methods to reduce noise levels in these situations.

NO-7-Action 1 Consider adopting a citywide noise reduction program to reduce traffic and other noise levels citywide.

Compliance with General Plan policies NO-2, NO-5, NO-6, NO-7 and its associated action item, would help reduce cumulative traffic impacts resulting from the implementation of the proposed General Plan to a **less than significant** level.

Mitigation Measures

None required.

Cumulative Airport Noise Conflicts

Impact 4.6.7 Implementation of the proposed General Plan along with potential development of the Urban Study Areas could result in noise conflicts with the Sunset Sky ranch Airport. This is considered a **cumulative significant** impact.

Potential development of the Urban Study Area located adjacent to the eastern edge of the City could result in conflicts between future land use densities and existing airport noise contours. The CLUP for the Sunset Sky ranch Airport indicated that the following land uses would not be compatible with the noise contours: single-family dwellings, multi-family dwellings, trailer parks, and schools of standard construction.

General Plan Policies and Action Items

CI-21 The City shall consider the recommendations in the Comprehensive Land Use Plans (CLUPs) for airports within or adjacent to Elk Grove in the review of potential land uses or projects.

LU-15 *The areas designated in the Planning Area as Urban Study Areas are envisioned as areas in which urbanization to some extent could occur, generally in compliance with the following criteria:*

- *Development should be limited to areas outside of the 100-year floodplain.*
- *Development should take place in compliance with the goals and policies of this General Plan.*
- *Any study of potential land uses in these areas should be accomplished in cooperation with the County of Sacramento.*
- *Any study of land uses in these areas should be accompanied by an environmental evaluation of the potential impacts of development.*

LU-15-Action 1 *Work with the County of Sacramento to establish and implement a program to study the potential for these areas to support urban development.*

Implementation of the above General Plan policies CI-18 and LU-10 with its associated action item would reduce impacts related to cumulative airport noise conflicts to a **less than significant** level.

Mitigation Measures

None required.

Regional Traffic Noise Impacts

Impact 4.6.8 Implementation of the proposed General Plan along with potential development of the Urban Study Areas would result in impacts to regional noise attenuation levels. This is considered a **cumulative significant** impact.

Implementation of the proposed General Plan and the potential development of the Urban Study Areas would result in the contribution to increased regional noise impacts, specifically traffic noise (see **Table 4.6-13**). Additional development of the City of Elk Grove, along with neighboring jurisdictions such as Galt, Folsom, Sacramento, and Placer and El Dorado counties, would result in significant cumulative traffic noise increases.

General Plan Policies and Action Items

NO-2 *Where noise sensitive land uses are proposed in areas exposed to existing or projected exterior noise levels exceeding the levels specified in Table NO-C (see **Table 4.6-11**) or the performance standards of NO-A (see **Table 4.6-12**), an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design.*

NO-3 *Noise created by new proposed non-transportation noise sources shall be mitigated so as not to exceed the noise level standards of Table NO-A (see **Table 4.6-12**) as measured immediately within the property line of lands designated for noise-sensitive uses.*

4.6 NOISE

- NO-3-Action 1 *Limit construction activity to the hours of 7 a.m. to 7 p.m. whenever such activity is adjacent to residential uses.*
- NO-3-Action 2 *Consider limiting the hours of operation for loading docks, trash compactors, and other noise-producing uses in commercial areas which are adjacent to residential uses.*
- NO-4 *Where proposed non-residential land uses are likely to produce noise levels exceeding the performance standards of Table NO-A (see **Table 4.6-12**) at existing or planned noise-sensitive uses, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design. The requirements for the content of an acoustical analysis are shown in Table NO-B (see **Table 4.6-14**).*
- NO-5 *Noise created by the construction of new transportation noise sources (such as new roadways or light rail service) shall be mitigated so as not to exceed the levels specified in Table NO-C (see **Table 4.6-11**) at outdoor activity areas or interior spaces of existing noise-sensitive land uses. Please see Policy NO-6 for discussion of improvements to existing roadways.*
- NO-6 *It is anticipated that roadway improvement projects (such as widening of existing roadways) will be needed to accommodate build-out of the General Plan. Therefore, existing noise-sensitive uses may be exposed to increased noise levels due to roadway improvement projects as a result of increased roadway capacity, increases in travel speeds, etc. It may not be practical to reduce increased traffic noise levels consistent with those contained in Table NO-C (see **Table 4.6-11**). Therefore, the following criteria shall be used as a test of significance for roadway improvement projects which are not directly tied to a development project:*
- Where existing traffic noise levels are less than 60 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +5 L_{dn} increase in noise levels due to roadway improvement projects will be considered significant; and*
 - Where existing traffic noise levels range between 60 and 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a +3 dB L_{dn} increase in noise levels due to roadway improvement projects will be considered significant; and*
- NO-7 *The City shall not require the installation of soundwalls in front yard areas to reduce noise to acceptable levels in residential areas which were originally constructed without soundwalls. The City shall emphasize other methods to reduce noise levels in these situations.*
- NO-7-Action 1 *Consider adopting a citywide noise reduction program to reduce traffic and other noise levels citywide.*
- NO-8 *Where noise mitigation measures are required to achieve the standards of Tables NO-A (see **Table 4.6-12**) and NO-C (see **Table 4.6-11**), the emphasis of such measures shall be placed upon site planning and project design. The use of noise barriers shall be considered a means of achieving the noise standards only after all other practical design-related noise mitigation*

measures – including the use of distance from noise sources – have been integrated into this project.

Mitigation Measures

Compliance with General Plan policies NO-2, NO-3, NO-4, NO-5, NO-6, NO-7, and NO-8, along with associated action items, as well as mitigation measures MM 4.2.3 and MM 4.2.4 would help reduce the City's contributions to regional traffic noise impacts. However, there is no mitigation available that would reduce the impacts to a less than significant level for impacts within the City and in the City of Sacramento and Sacramento County. Possible mitigation includes installation and/or expansion of sound barriers. However, sound barriers (in some cases) would need to be placed in front yards and would be ineffective given the need for openings in driveways. In addition, the City does not have jurisdiction to place sound barriers outside of City limits. Therefore, this cumulative impact is **significant and unavoidable**.

REFERENCES

- City of Elk Grove Development Services. 2003. *City of Elk Grove General Plan*. Elk Grove, CA.
- Federal Highway Administration. 1977. *Highway Traffic Noise Prediction Model FHWA-RD-77-108*.
- Sacramento County Planning Department. 1993. *County of Sacramento General Plan*. Sacramento, CA.