

# General Plan

# Noise Element

## **BACKGROUND TO THE 1993 GENERAL PLAN AS AMENDED**

Significant portions of this background document have been revised through the November 9, 2011 General Plan amendment process to reflect more current conditions. Other background information has been retained from the June 24, 1998 amendment.

**County of Sacramento**  
Community Planning and Development Department

**Sacramento County General Plan  
Noise Element Background**

**Appendix A**

**Existing and Future Noise Environments Report**

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## **INTRODUCTION**

This section discusses the existing and projected future noise environment in Sacramento County. The Sacramento County limits and General Plan Noise Element study area are shown by Figure 1. The major noise sources in Sacramento County consist of highway and local traffic on County streets, railroad, aircraft, commercial and industrial uses, active recreation areas of parks, outdoor play areas of schools. These noise sources are discussed individually below.

## **ROADWAYS**

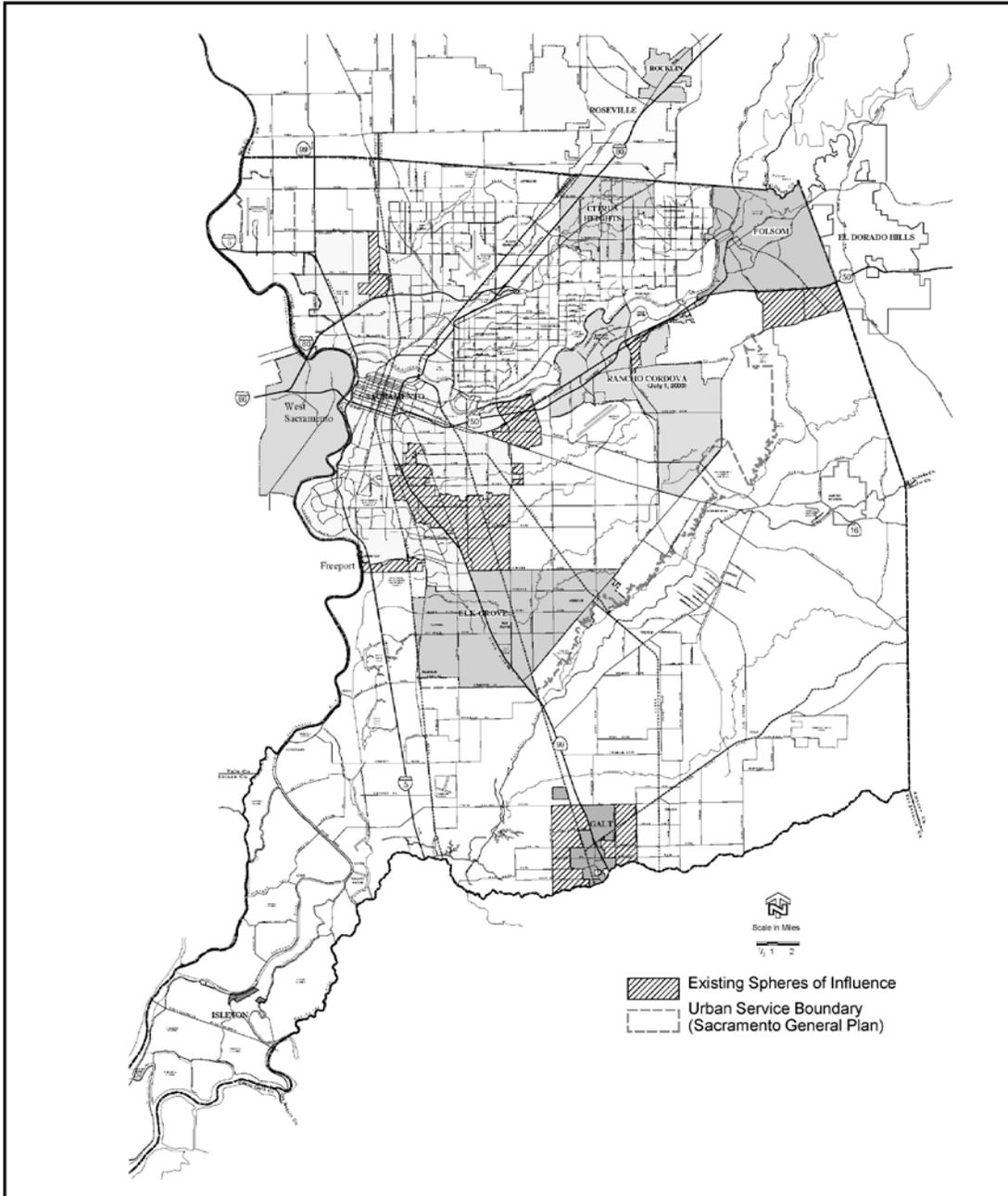
### **Highways**

The Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA-RD-77-108) with the Calveno vehicle noise emission curves was used to predict existing traffic noise levels within the Sacramento County Limits. 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 county 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.

Table 1 shows existing traffic volumes for the major highways located within Sacramento County. It also contains FHWA Model input data pertaining to truck usage based on Caltrans traffic counts, and the computed distances to the generalized existing 60 and 65 dB Ldn traffic noise contours. It is recognized that vehicle speeds vary on the Highways in Sacramento County, and the modeling effort attempted to account for such variation. The contour distances should also be considered conservative in that they do not account for local topographic shielding.

Future traffic forecasts for the County Highways were unavailable at the time this background report was prepared. Table 2 can be utilized to predict changes in distance to the reported noise contours based on the percentage increase in traffic volume (ADT). The Table 2 data assume that vehicle speeds, day/night distribution, and truck percentages would remain constant.

Figure 1  
 Sacramento County Noise Element Update  
 Sacramento, California



**Table 1**  
**FHWA-RD-77-108 Highway Traffic Noise Prediction Model Data Inputs and Distances to 60 and 65 dB Ldn Contours**  
**Sacramento County Element - Existing (2006) Conditions**

Highway	Location	ADT	Day %	Night %	Truck %		Speed	Distance to Contours, feet	
					Med.	Hvy.		60 dB Ldn	65 dB Ldn
Interstate 5	Twin Cities Rd. to Hood-Franklin Rd.	58000	80	20	6	19	70	1971	915
	Hood-Franklin Rd. to Elk Grove Blvd.	64000	80	20	3	10	70	1706	792
	Elk Grove Blvd. to Laguna Blvd.	74000	80	20	3	10	65	1712	795
	Laguna Blvd. to Pocket/Meadowview	99000	80	20	3	10	65	2079	965
	JCT. RTE. 99 North to Airport Blvd.	79000	80	20	4	10	65	1777	825
	North of Airport Blvd.	53000	80	20	4	10	65	1362	632
Interstate 80	Watt Ave. to Madison Ave.	136000	80	20	2	3	65	2003	930
	Madison Ave. to Greenback Ln.	207000	80	20	2	3	65	2651	1230
Highway 16	Watt Ave. to Bradshaw Rd.	16000	80	20	3	6	65	544	253
	Bradshaw Rd. to Excelsior Rd.	13400	80	20	3	6	65	483	224
	Excelsior Rd. to Sunrise Blvd.	10100	80	20	3	6	65	400	186
	Sunrise Blvd. to Grant Line Rd.	13800	80	20	3	6	65	491	228
	Grant Line Rd. to Dillard Rd.	14200	80	20	3	6	65	501	232
	Dillard Rd. to Latrobe Rd.	11700	80	20	2	2	65	378	176
	Latrobe Rd. to Murietta Pkwy.	16200	80	20	2	2	65	470	218
	Murietta Pkwy. to Ione Rd.	10900	80	20	2	2	65	361	167
	Ione Rd. to Amador County Line	7400	80	20	2	5	65	313	145
	Highway 50	Watt Ave. to Bradshaw Rd.	186000	80	20	1	2	65	2302
Sunrise Blvd. to Hazel Ave.		130000	80	20	1	4	65	1957	908
Hazel Ave. to Aerojet Rd.		118000	80	20	1	4	65	1835	852
Aerojet Rd. to Folsom Blvd.		117000	80	20	3	3	65	1847	857
Folsom Blvd. to Prairie City Rd.		93000	80	20	2	3	65	1553	721
Prairie City Rd. to Scott Rd.		81000	80	20	3	4	65	1461	687
Highway 99	East of Scott Rd.	88000	80	20	3	4	65	1544	717
	Twin Cities Rd. to Mingo Rd.	66000	80	20	6	9	65	1594	3434
	Mingo Rd. to Arno Rd.	66000	80	20	6	9	65	1594	3434
	Arno Rd. to Dillard Rd.	67000	80	20	6	9	65	1610	3469
	Dillard Rd. to Eschinger Rd.	67000	80	20	6	9	65	1610	3469

**Table 1**  
**FHWA-RD-77-108 Highway Traffic Noise Prediction Model Data Inputs and Distances to 60 and 65 dB Ldn Contours**  
**Sacramento County Element - Existing (2006) Conditions**

Highway	Location	ADT	Day %	Night %	Truck %		Speed	Distance to Contours, feet	
					Med.	Hvy.		60 dB Ldn	65 dB Ldn
	Elkhorn Blvd. to Elverta Rd.	43500	80	20	4	6	65	1071	2306
	North of Elverta Rd.	38500	80	20	4	6	65	987	2126

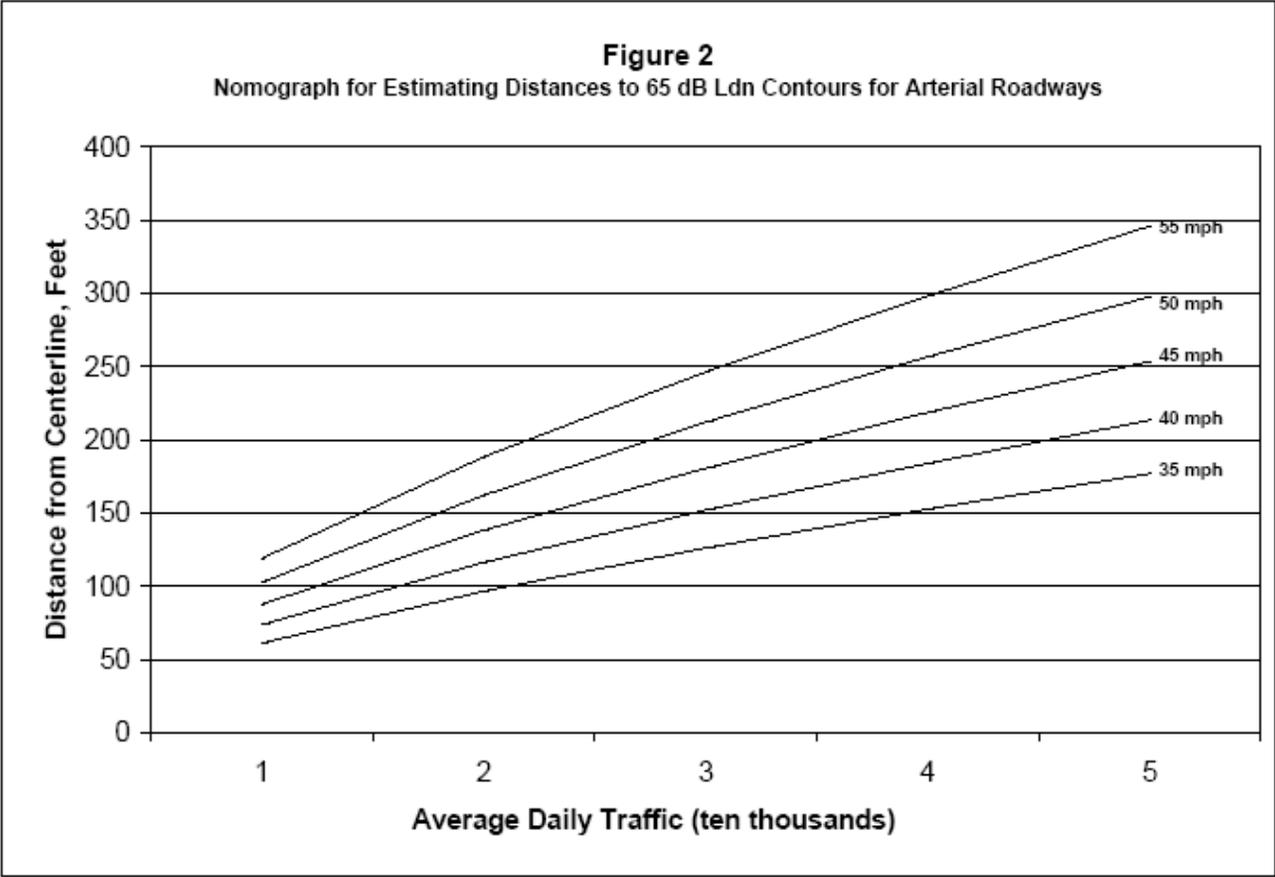
Source: *Annual Average Daily Truck Traffic on the California State Highway System*, Caltrans, 2005 & FHWA-RD-77-108

**Table 2**  
**Multipliers for Use in Predicting Distances to Future Traffic Noise Contours**  
**Based on Increases in Daily Traffic Volumes**

% Increase in Average Daily Traffic Volume	Increase in Traffic Noise Level, dB Ldn	Noise Contour Distance Multiplier
10%	0.4	1.1
20%	0.8	1.1
30%	1.1	1.2
40%	1.5	1.3
50%	1.8	1.3
60%	2.0	1.4
70%	2.3	1.4
80%	2.6	1.5
90%	2.8	1.5
100%	3.0	1.6

### **Arterial Roadways**

The data contained in Table 1 are limited to existing Highways in Sacramento County, and do not cover major arterial roadways within the County. As the circulation Element of the Sacramento County General Plan is updated, additional analysis of existing and projected future traffic noise levels within for the major County arterial roadways can and should be performed for these roadways. In the absence of existing and projected future traffic data for the major roadways in the County, the distance to the 65 dB Ldn traffic noise contours for these roadways can be estimated using Figure 2.



## **RAILROADS**

### **Freight and Passenger Heavy Rail**

The heavy rail operators within the County consist of the Union Pacific Railroad (UPRR), Burlington Northern Santa Fe (BNSF), and Amtrak. The Central California Traction Company (CCTC) also has trackage in the County, but it reportedly has not been used for rail service for several years. The locations of the heavy rail tracks are shown on Figure 3.

In order to quantify train activity and the associated noise levels along the BNSF tracks, continuous noise monitoring of railroad activity on both the UPRR and BNSF tracks was conducted. 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 the approximate number of existing operations on the local tracks was determined. In addition, the SEL (Sound Exposure Level) of individual trains were recorded along with the duration and maximum noise level during the monitoring program. The Mean SEL for railroad operations (both with and without warning horns), was used with the number of daily operations to compute the approximate distances to the 65 dB Ldn Railroad contours for the various tracks in Sacramento County. Because the numbers of daily operations on the heavy rail tracks has varied considerably in recent years between 20 and 40 trains per day, this analysis provides distances to the 65 dB Ldn contour for a range of railroad operations, with the results of this analysis reported in Table 3.

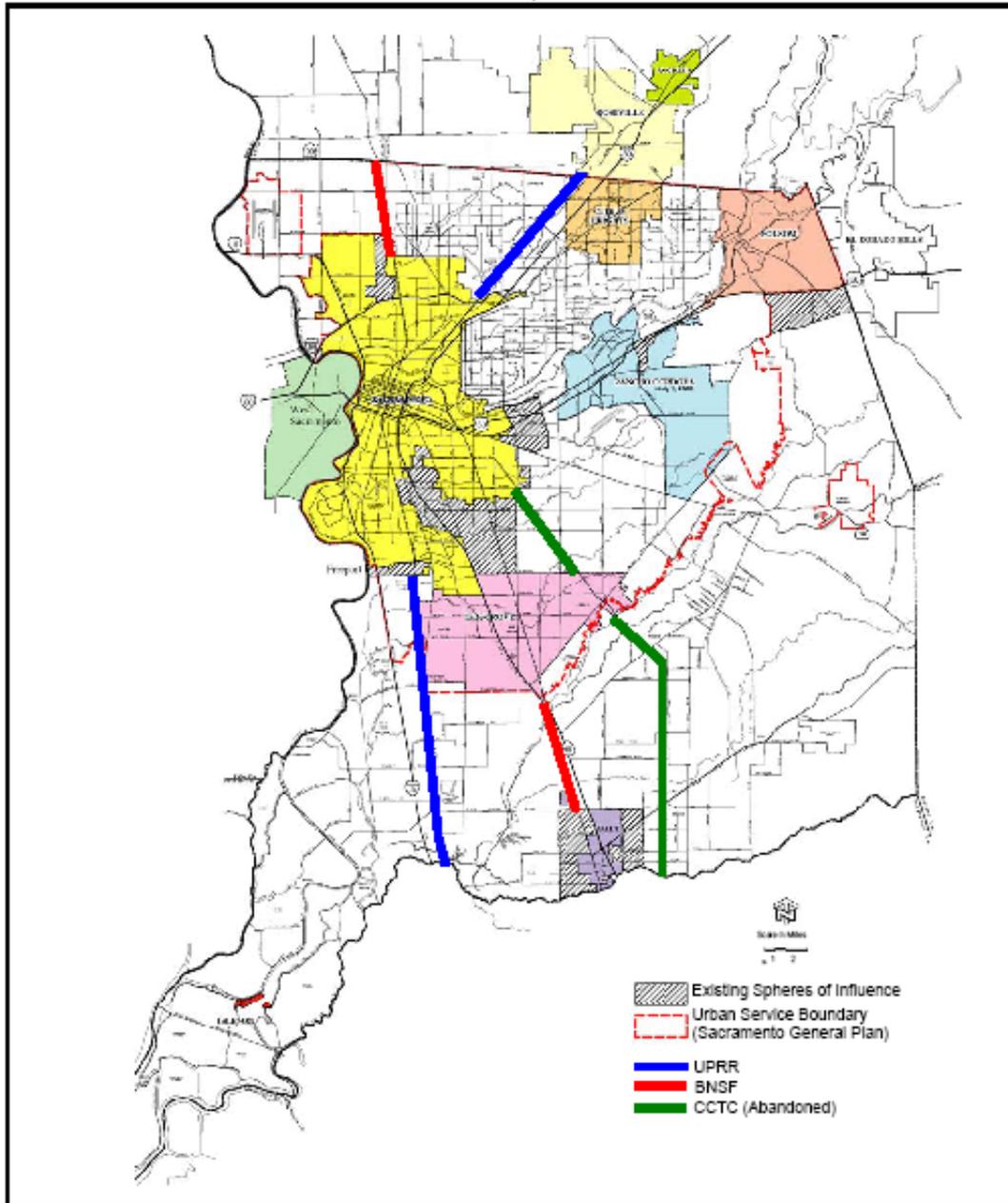
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**Table 3**  
**Estimated Daily Operations and Distances to Railroad Noise Contours (feet)**  
**Sacramento County, CA**

Daily Operations	Distance to 65 dB Ldn (feet)	
	Without Horn	With Horn
20	217	467
25	252	542
30	284	612
35	315	679
40	344	742

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Figure 3  
Sacramento County Noise Element Update  
Sacramento, California



## Light Rail

The unincorporated portion of Sacramento County is served by Regional Transit Light Rail along the Folsom Boulevard / Highway 50 corridor between the City of Rancho Cordova and Folsom, and along the northeast corridor between the City of Sacramento and Watt Avenue, with future service proposed to Sacramento International Airport and to Elk Grove.

In order to quantify train activity and the associated noise levels along the light-rail tracks, a noise monitoring survey of light-rail train activity was conducted along the tracks between the Hazel Avenue and Iron Point Stations on January 5-6, 2006. The results were compared to similar data previously collected adjacent to light rail tracks.

Based on the Sacramento Regional Transit Light Rail Schedule, it was determined that the numbers of light rail vehicle passbys on the tracks within Sacramento County varies, with approximately 140 train pass-bys per day along areas with double tracks, and approximately 60 train pass-bys per day along the single tracks. The Sound Exposure Level (SEL) of individual trains was recorded along with the duration and maximum noise level during the monitoring survey. 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 90 dB with usage of the warning horn, and approximately 86 dB without the usage of the horn. Trains are generally required to sound warning horns as they approach at-grade crossings.

Table 4 shows the computed light rail train noise levels in terms of Ldn at a distance of 100 feet from the tracks, as well as the predicted distances to the light rail noise contours in feet. These tables are broken into three categories corresponding to locations where no warning horns are applied (approximately 500+ feet from at grade crossings), locations where warning horns are applied but sufficiently removed from warning bells (approximately 100 to 500 feet from the intersection), and locations affected by both warning horns and warning bells (within 100 feet from the at-grade intersection).

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**Table 4**  
**Computed Light-Rail Noise Levels**

Daily Operations	Ldn @ 100= from Center Line of Tracks		
	0-100= from G/C	100=-500= from	500=+ from G/C
50	32	24	17
75	42	31	23
100	51	37	28
125	59	43	32
150	67	49	36

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## **NON-TRANSPORTATION NOISE SOURCES**

The production of noise is a result of many processes and activities, even when the 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 uses upon existing noise-producing 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 existing representative fixed noise sources in Sacramento County are provided below. These uses are intended to be representative of the relative noise generation of such uses, and are intended to identify specific noise sources which should be considered in the review of development proposals. 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.

### **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 Sacramento County. 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.

## **AeroJet General**

Aerojet, a GenCorp Inc. company, is a major space and defense contractor specializing in missile and space propulsion, and defense and armaments. It is located south of Highway 50 between Hazel Avenue and Prairie City Road. Although located within the City of Rancho Cordova Sphere of Influence, Consideration should be given to the noise generation of this facility should County development be proposed in the vicinity of Aerojet.

## **Cordova Shooting Center**

The Cordova Shooting Center is located on Douglas Road west of Sunrise Boulevard. The facility is used for small arms, rifle and shotgun firing and is open 7 day a week with hours beginning as early as 9 am and ending as late as 7 pm. Firearms used at this facility and similar shooting ranges generate maximum noise levels ranging from approximately 95 dB to 115 dB at a distance of 50 feet. Due to the impulsive nature of the noise generated at this facility, and the fact that impulsive noises have been found to be more annoying than steady state noises, proposals for development of noise-sensitive land uses in the general vicinity of this use should be carefully evaluated for noise impact.

## **Aggregate Facilities**

There are various aggregate mining and processing facilities within the Project Planning Area. Operations at aggregate facilities typically consist of the excavation of aggregate material using front-loaders and/or self elevating scrapers, the transfer of that material via truck or conveyor to the processing plant, where it is crushed and screened into various sized products, and the load out of the material via heavy trucks. Some facilities include asphalt concrete plants and Portland cement concrete plants. The noise generation of such facilities varies by size, type of equipment, and hours of operation, but processing plant equipment normally ranges from 80 to 90 dB Leq at a distance of 100 feet from the processing plant equipment. Because of the early startup hours normally associated with these types of uses, and the high noise generation of the mining and processing equipment, proposals for development of noise-sensitive land uses in the general vicinity of this use should be carefully evaluated for noise impact.

## **Softball Games**

Softball games and other organized outdoor activities produce unacceptable noise levels in residential areas. Crowd noise from softball games has been measured at up to 70 dBA at 350 feet from the bleachers. Area residents may complain about crowd noise, particularly if the event persists beyond 10 pm. In general, organized outdoor activities should be evaluated to determine whether crowd noise will exceed acceptable noise levels at adjacent residential uses, and such activities should be regulated as appropriate.

## **Auto Dismantlers**

There are various auto dismantlers along Recycle Road in Sacramento County. These operations exhibited similar characteristics, with forklifts being the primary noise sources. The Recycle Road area is well suited for these types of light industrial uses due to the presence of other significant noise sources such as Sunrise Blvd and an Aggregate facility, and because these uses are not considered noise-sensitive.

Although these auto dismantling operations do not individually produce significant noise levels, their collective noise output and that of Sunrise Blvd and the Aggregate facility is significant. Introduction of noise sensitive uses into this area should not be allowed without careful consideration of existing noise impacts.

## **Raceways**

The Sacramento Raceway is located on Excelsior Road north of Jackson Highway. The Raceway facilities include a quarter mile drag strip, and a midget car and motocross dirt oval track. Racing typically takes place on Wednesday and Friday nights with occasional large events on weekends. During previous Governor's Cup races, maximum noise levels of 130 dBA were measured at a distance of 100 feet from the drag strip during Top Fuel Funny Car races. Maximum noise levels measured during Pro- Gas, Door-Slammer and Alcohol Dragster races registered between 100 and 120 dBA at the same location.

## **Wilbur Ellis Fertilizer Plant**

Wilbur-Ellis Company is located on 4707 Twin Cities Road west of Interstate 5 and south of Dierssen Road. Wilbur-Ellis Company produces blended fertilizer. Hours of operation are typically 7:30 AM to 4:30 PM Monday B Friday. Noise producing equipment used at Wilber-Ellis consists of electrical motor driven processing equipment. The facility generates about 3 truck trips on a typical day, and Wilber-Ellis plans to do some expansion, however there are no specific plans in place at this time. Wilbur-Ellis has not had any noise complaints to date.

## **Dog Kennels**

The Sacramento County Animal Control Shelter is located at 4290 Bradshaw Road, north of Kiefer Blvd. The facility contains several kennels used to hold sick, lost and stray animals. Noise measurements have been previously conducted around the perimeter of the kennels to determine the noise levels generated by barking dogs. Average noise levels of 80 and 66 dBA were measured at distances of 30 and 100 feet from the dog kennels, respectively, with several dogs barking. Although kennel related noise levels at the Sacramento County Shelter are masked by Bradshaw Road traffic noise, construction of similar kennels in noise sensitive areas would probably lead to noise conflicts, especially during nighttime hours.

## **Sacramento River Power Boats**

Power boats have been identified as potentially significant producers of noise along the Sacramento River. Boat noise levels in the vicinity of marinas are not typically obtrusive due to a 5 mph speed limit. Increased boat speeds in areas removed from marinas result in correspondingly higher noise levels. Maximum noise levels of power boat operations on the Sacramento River typically range from 80 to 86 dBA at the riverbank.

## **Truck Stops**

Noise associated with truck stops is primarily defined by heavy trucks entering, idling, and leaving the facility. To prolong engine life, heavy truck engines often idle for long periods of time while parked at truck stops. Noise measurements of truck stops indicate that average noise levels of 70 dBA at a distance of 50 feet can be expected from such facilities, and that ten trucks idling continuously over a 24-hour period would produce an Ldn of 60 dB at a distance of approximately 1000 feet.

## **Car Washes**

Noise is generated at car wash facilities by high pressure water nozzles, automated washing equipment, vacuums and large blow dryers. Noise measurements of various car wash facilities indicate typical noise average noise levels of 70-80 dBA at a distance of 50 feet from the wash tunnels are common. The principal noise source identified for car washes are the blowers used for drying the vehicles.

## **Public Address Systems**

Public address systems at businesses such as automobile dealerships and auction yards, industrial facilities and recreational areas are considered potentially significant noise sources in Sacramento County. Noise levels produced by public address systems are a function of voice level, volume setting, amplifier power, shielding, wind direction and other atmospheric effects. According to Division of Environmental Health staff, PA system noise levels of 55 to 60 dBA have prompted complaints from nearby residents in the past. The use of public address systems in the vicinity of noise sensitive developments is thus a concern. The Sacramento County noise control ordinance currently regulates noise from public address systems.

## **Automotive Repair Facilities**

There are many automotive repair facilities in Sacramento County providing a variety of services. Typically the most significant noise levels are generated by pneumatic tools. Noise measurement data collected at various locations indicate that a typical impact wrench produces a maximum noise level of 73.3 dBA at a distance of 50 feet.

## **Scandia Family Fun Center**

The Scandia Family Fun Center is located at 5070 Hillsdale Boulevard near the Madison Avenue overcrossing at Interstate 80. Typical hours of operation are from 10 am to 1 am on weekends with fewer operating hours on weekdays and reduced hours during the off season. Facilities at Scandia include an indoor arcade, batting cages, two 18-hole miniature golf courses, bumper boats and a miniature Indy car race track. Noise at the site is dominated by traffic noise from Interstate 80. Noise measurements of various Scandia activities indicate maximum noise levels of 80 dBA at a distance of 10 feet from the center of the mini race car track with five race cars operating. At a distance of 15 feet from the path of the bumper boats a maximum noise level of 76 dBA was recorded. The only other significant noise source was the batting cages. Noise measurements conducted 10 feet from the batting area recorded maximum noise levels of 72 to 78 dBA resulting from the impact of the bat and ball. Noise measurements at the perimeter of the Scandia center were not possible due to the I-80 traffic noise exposure.

## **Shopping Center Loading Docks**

Shopping centers and grocery stores are often located near residential developments, and loading dock activities usually involve heavy trucks and forklifts. Loading dock activities commonly take place in the early morning hours involving several medium and heavy trucks at a time. Recent noise measurements of loading dock activities at several locations in Sacramento County resulted in maximum truck passage noise levels ranging from 69 to 74 dBA at a distance of 100 feet. Smaller delivery trucks produced maximum levels of 67 dBA at 50 feet. Maximum forklift noise levels ranged from 60 to 70 dBA at 100 feet.

## **Child Care Centers**

Child care centers are potentially significant noise sources in Sacramento County, and have generated public concern and complaints at some locations. Children using the outdoor play areas of day care centers often speak in elevated voices, or shout to be heard and/or recognized. The noise produced by equipment used at outdoor play areas, such as swings, slides, etc., is not usually significant relative to the noise generated by the children. Noise measurements of childcare facilities indicate average noise levels of 55-60 dBA at a distance of 50 feet from the play areas with 7 children playing. With 20 and 40 children playing, average noise levels are predicted to be 60 and 63 dBA, respectively, at a distance of 50 feet.

## **Heating, Ventilating and Air Conditioning (Hvac) Systems**

HVAC noise sources include fans, pumps, cooling towers, compressors, condensers, and boilers. HVAC equipment is associated with virtually every type of inhabited structure, including residential, commercial and industrial uses. Large HVAC components are often housed in mechanical equipment rooms which reduce the transmitted noise. However, HVAC equipment must sometimes be located outdoors to provide adequate ventilation or heat exchange.

## Landfills

The Sacramento County Landfill is located at Kiefer Road near Grant Line Road in the central eastern section of the county. Typical hours of operation at this facility are from 7 am to 5 pm. The landfill is surrounded by mostly undeveloped rolling terrain. Significant noise sources at this location include bulldozers, backup warning devices, garbage trucks, and private and commercial traffic using the landfill. Noise measurements conducted at the landfill yielded an average noise level of 71 dBA at a distance of 100 feet from the main dump activity area.

The North Area Transfer Station is located at 3450 Roseville Road. The facility operates 7 days per week from 8:30 am to 5 pm. Operations at this facility are similar to the South Area Transfer Station discussed above, except that a large trash compacter is used for compacting, rather than a front bucket loader. The trash compacter is motor-driven, and forces compacted garbage into the tractor trailer trucks for transport to the County Landfill. An average noise level of 71 dBA was previously measured at a distance of 50 feet from the dumping area.

## COMMUNITY NOISE SURVEY

To quantify existing noise levels in the quieter parts of Sacramento County, a community noise survey was performed at 5 locations in this County which are removed from major noise sources. The locations were monitored over a continuous 24-hour period. The results of the community noise survey are provided in Table 4, and Figures 5-10 show the measurement sites and continuous monitoring results.

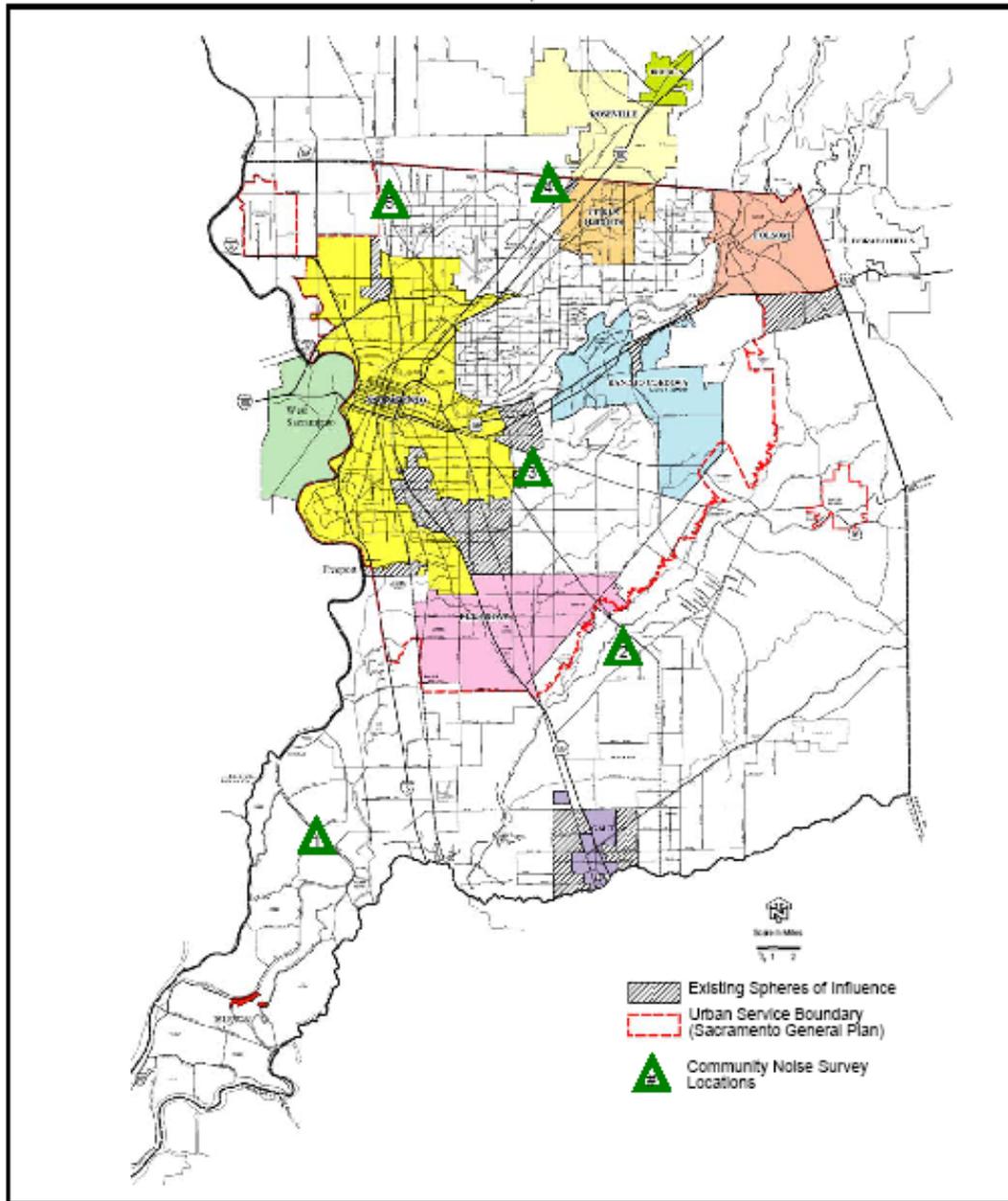
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**Table 5**  
**Sacramento County Noise Element Community Noise Survey Results**

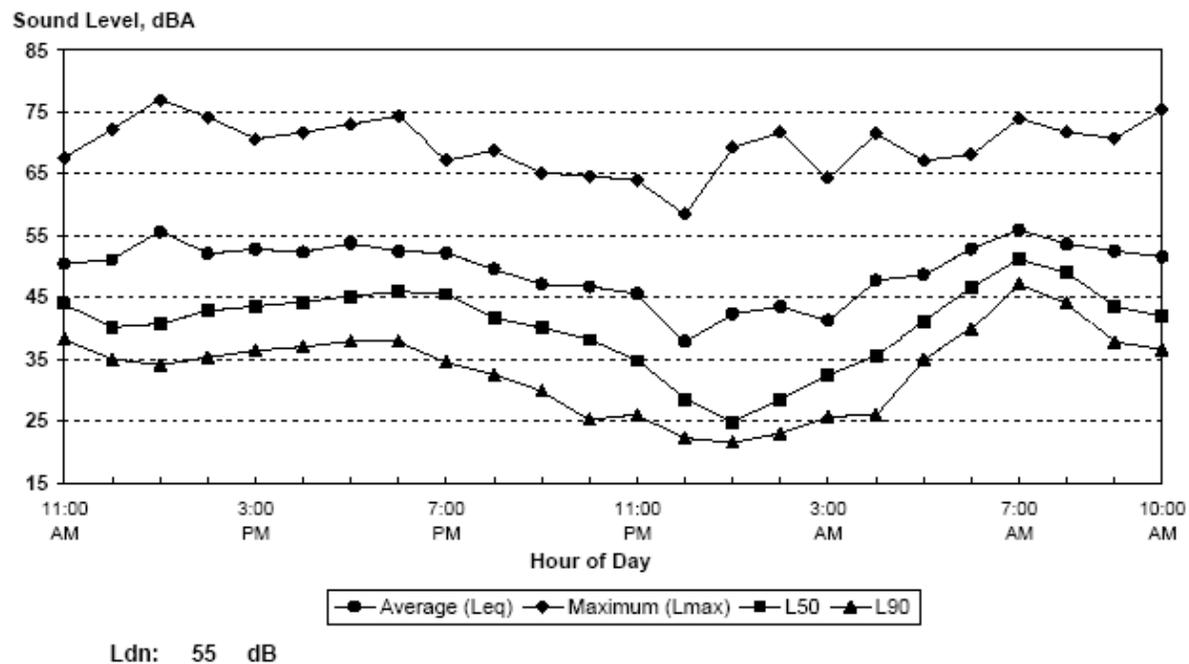
Site (see figures 5-10)	Date	Daytime Leq	Nighttime Leq	Ldn
Site 1	10/13/05-10/14/05	53 dB	47 dB	55 dB
Site 2	10/13/05-	49 dB	46 dB	53 dB
Site 3	10/13/05-10/14/05	55 dB	53 dB	60 dB
Site 4	10/13/05-10/14/05	54 dB	44 dB	54 dB
Site 5	10/18/05-10/19/05	46 dB	39 dB	48 dB

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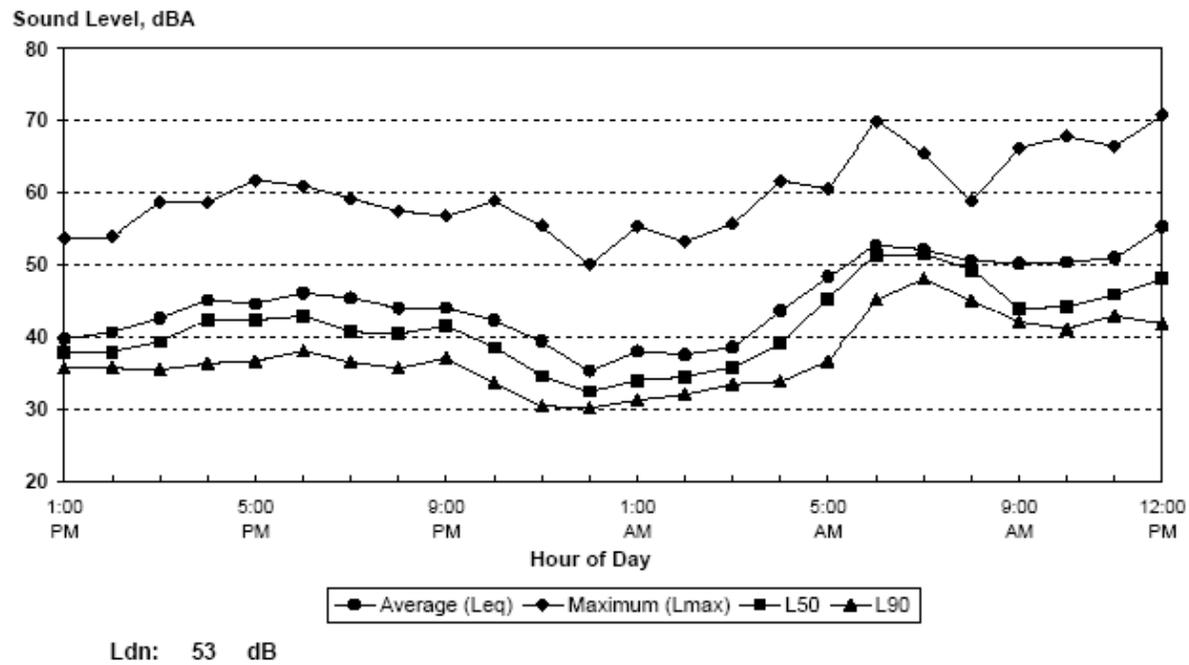
Figure 5  
Sacramento County Noise Element Update  
Sacramento, California



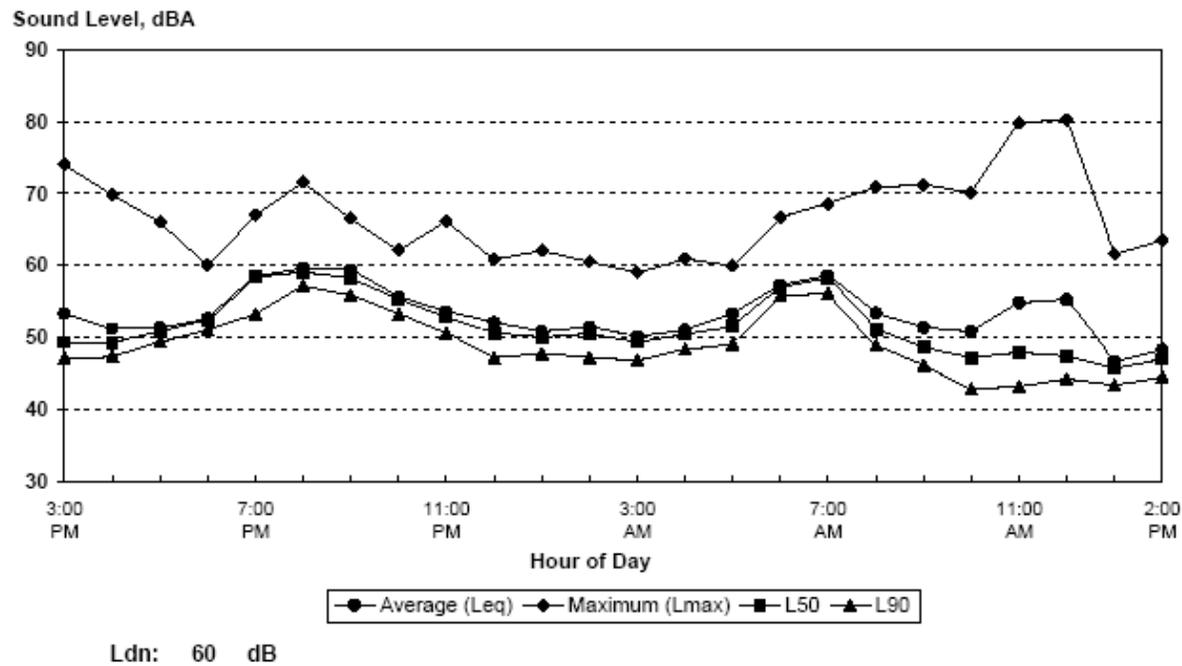
**Figure 6**  
**Sacramento County Noise Element Background Report Site 1**  
**24hr Continuous Noise Monitoring**  
**10/13/05-10/14/05**



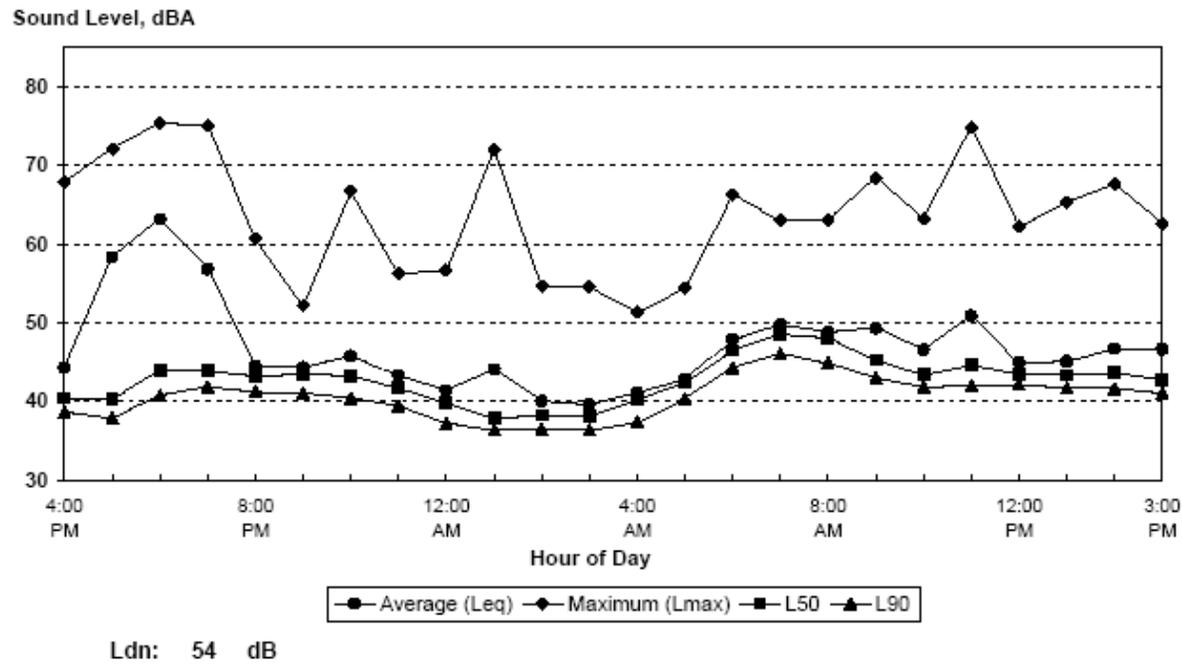
**Figure 7**  
**Sacramento County Noise Element Background Report Site 2**  
**24hr Continuous Noise Monitoring**  
**10/13/05-10/14/05**



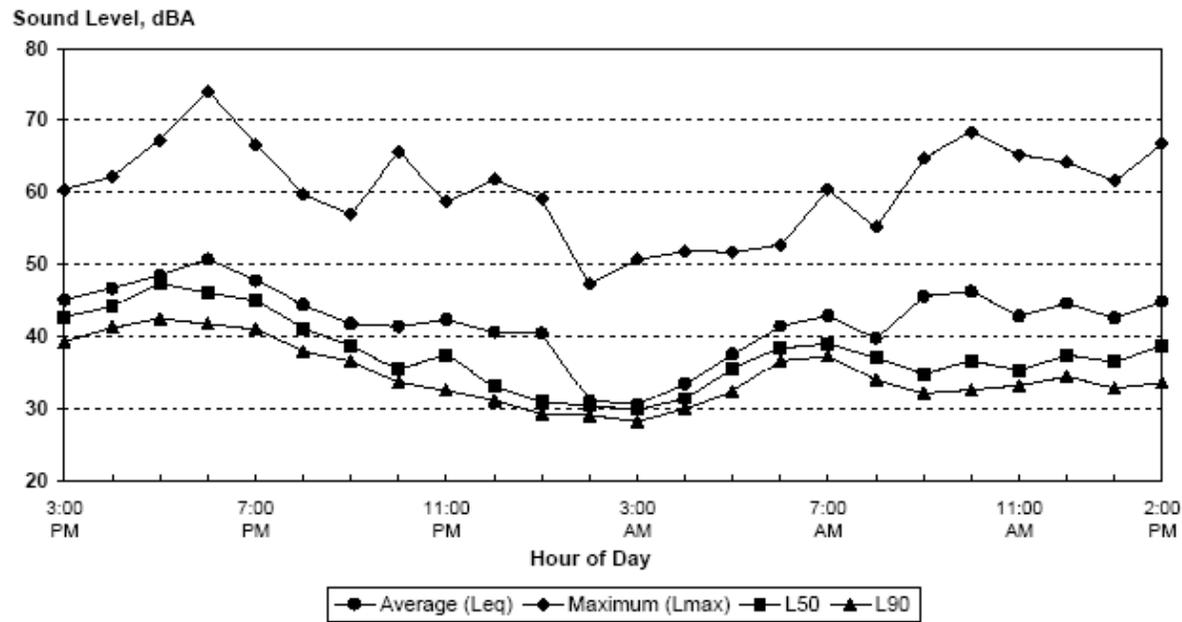
**Figure 8**  
**Sacramento County Noise Element Background Report Site 3**  
**24hr Continuous Noise Monitoring**  
**10/13/05-10/14/05**



**Figure 9**  
**Sacramento County Noise Element Background Report Site 4**  
**24hr Continuous Noise Monitoring**  
**10/13/05-10/14/05**



**Figure 10**  
**Sacramento County Noise Element Background Report Site 5**  
**24hr Continuous Noise Monitoring**  
**10/18/05-10/19/05**



Ldn: 47 dB

## **AIRPORTS**

There are several public use airports in Sacramento County. This section describes the location and nature of operations at each airport. The CNEL contours which have been adopted, or are currently being considered, by the County Board of Supervisors for planning purposes are included below for the County Airports. As new noise contours are adopted for use by the Board, the contours contained in the Noise Element will be updated to reflect the adopted contours. Those contours shall be used to describe projected future operations for the purposes of the Noise Element. The major Airports located within the County Airport system include Sacramento International Airport, Mather Airport, Executive Airport, and McClellan Airport. Because operations and noise programs associated with the County airports are dynamic, the reader is referred to <http://www.sacairports.org/int/index.html> for the most current information pertaining to aircraft activity in the County.

It should be noted that the General Plan Noise Element guidelines and background information are utilized for new project development, and not for the resolution of existing conditions or issues pertaining to compatibility between existing noise-sensitive land uses and the County airports.

### **Sacramento International Airport**

Sacramento International Airport is located northwest of the City of Sacramento near I-5 and the Sacramento River. The airport is currently surrounded by agricultural uses, but development of the Metro Air Center is underway to the immediate east of the airport. The North and South Natomas areas are currently planned and are actively being developed for commercial and residential uses, and there is a potential for noise conflicts with the airport as these areas are further developed. At current passenger levels, the airport has about 160 scheduled daily flights serving about 20,000 passengers per day. This generates approximately 30,000 vehicle trips within the regional area each day. Figure 11 shows the noise contours for Sacramento International Airport.

### **Mather Airport**

Mather Airport is located in central Sacramento County, just south of the newly formed City of Rancho Cordova. Since its conversion from a military airfield to a public/commercial facility, operations have steadily increased at this facility, as have issues relative to local development. The airport is in the process of developing new noise contours for use in guiding future growth in the airport vicinity, and two scenarios are presented in Figure 12. A preferred scenario will ultimately be selected by the Board of Supervisors, with this Noise Element to be amended to reflect the contours which are ultimately adopted by the Board for use in planning purposes.

### **McClellan Airport**

McClellan Airport is located in north-central Sacramento County, just northeast of the City of Sacramento. Since its conversion from a military airfield to a public/commercial facility,

operations have increased at this facility, although not as quickly as Mather Airport. The airport noise contours for use in guiding future growth in the airport vicinity are presented in Figure 13.

### **Sacramento Executive Airport**

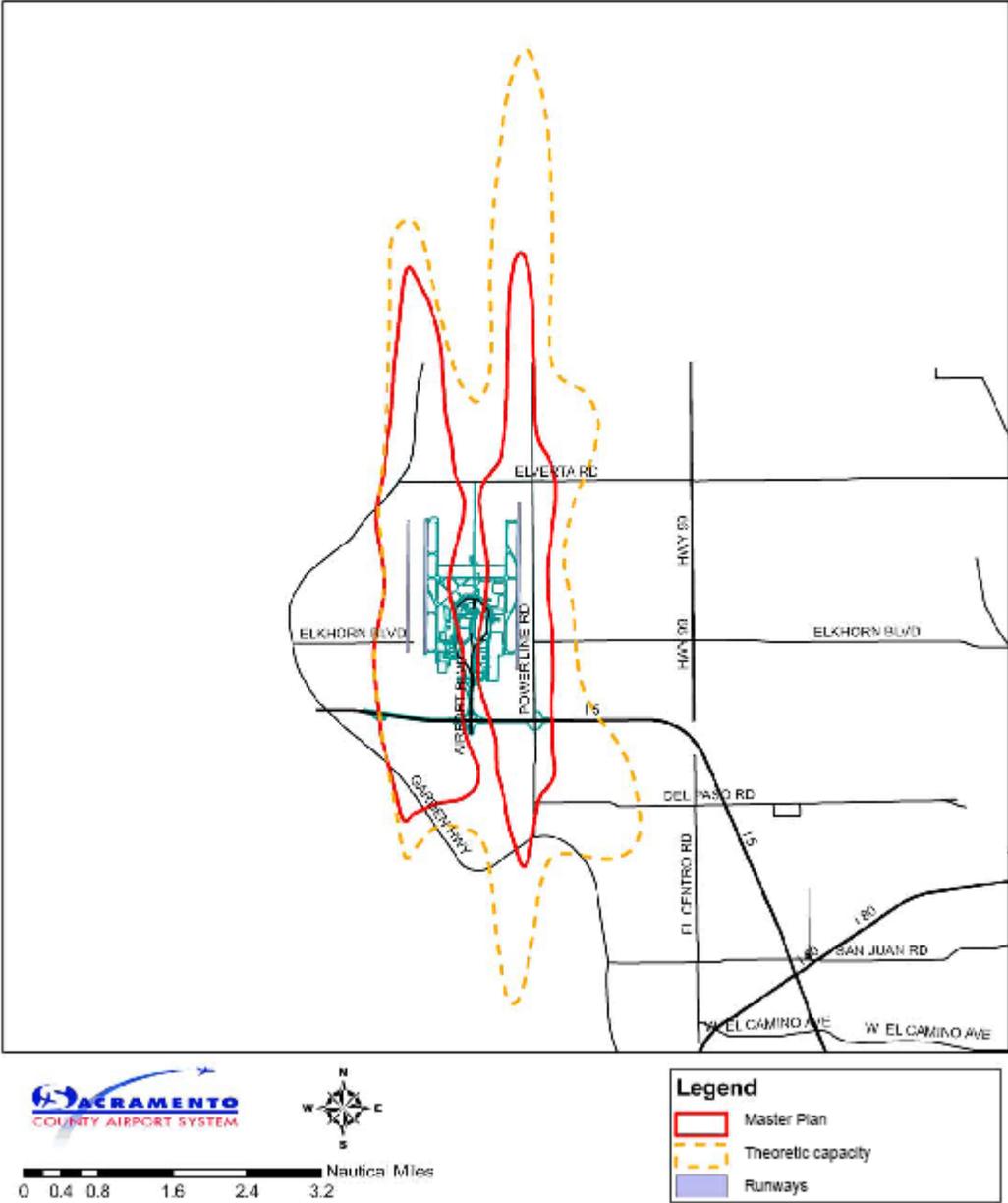
This airport is located in the City of Sacramento, and is surrounded by residential, commercial, and light industrial uses. Given that the area surrounding the airport is essentially built out, and that there is a considerable buffer between the airport and undeveloped County properties, this airport does not likely present significant noise impacts to future development within the unincorporated County.

Executive Airport's planning and development are handled by the Sacramento County's Planning and Development department. Sacramento County Airport System operates Executive Airport. Executive Airport is approximately 540 acres, much of it already developed or in a clear zone. Executive is preparing for a Master Plan Study that will lay the groundwork for the future of Executive Airport with community input.

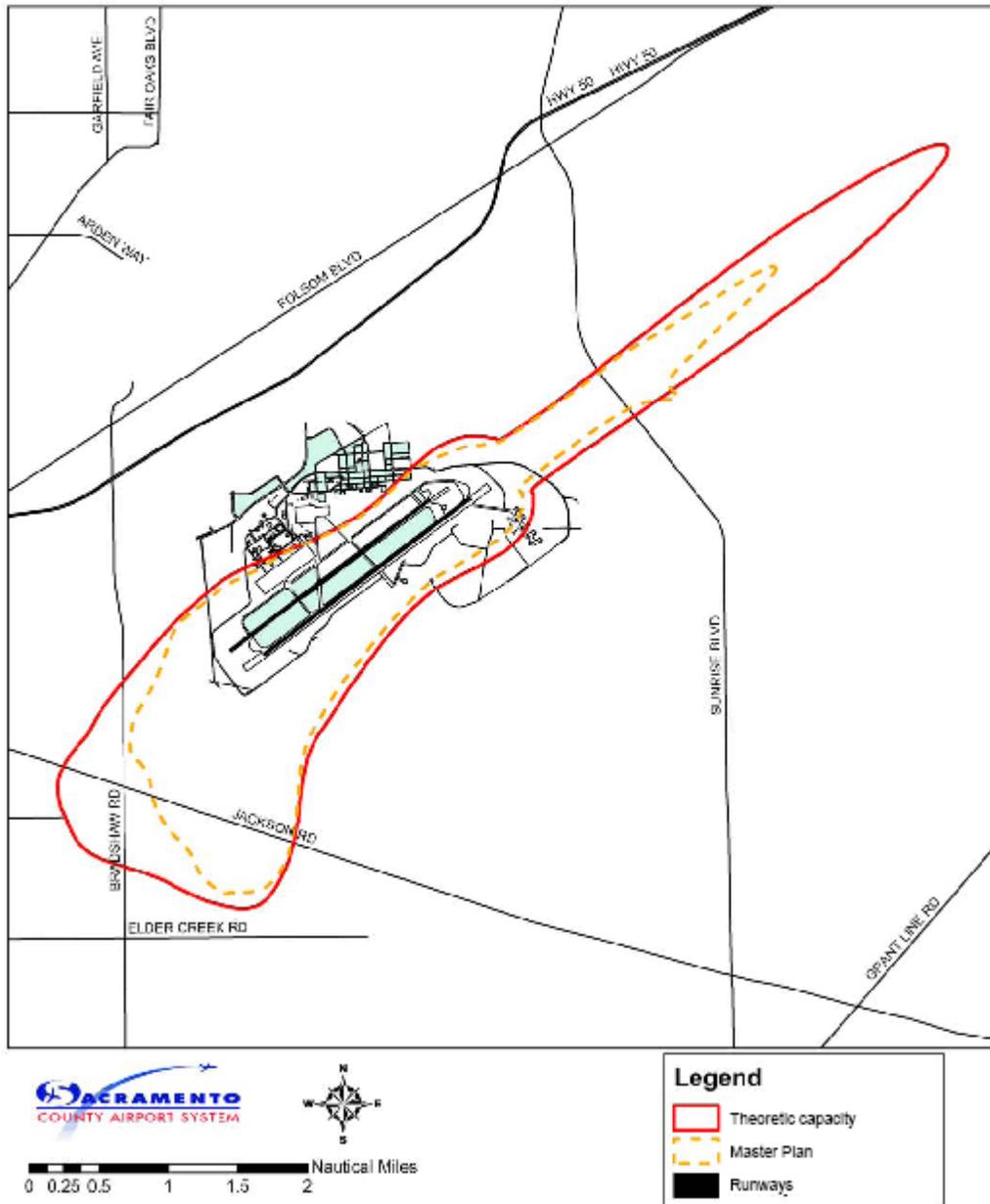
### **Franklin Field**

Franklin Field, located at 12480 Bruceville Road, Elk Grove, CA is currently a public use airport owned and operated by the County of Sacramento. The facility is considered an uncontrolled airport since it does not have an air traffic control tower or personnel. There are approximately 36,000 operations each year at Franklin Field, including flight training.

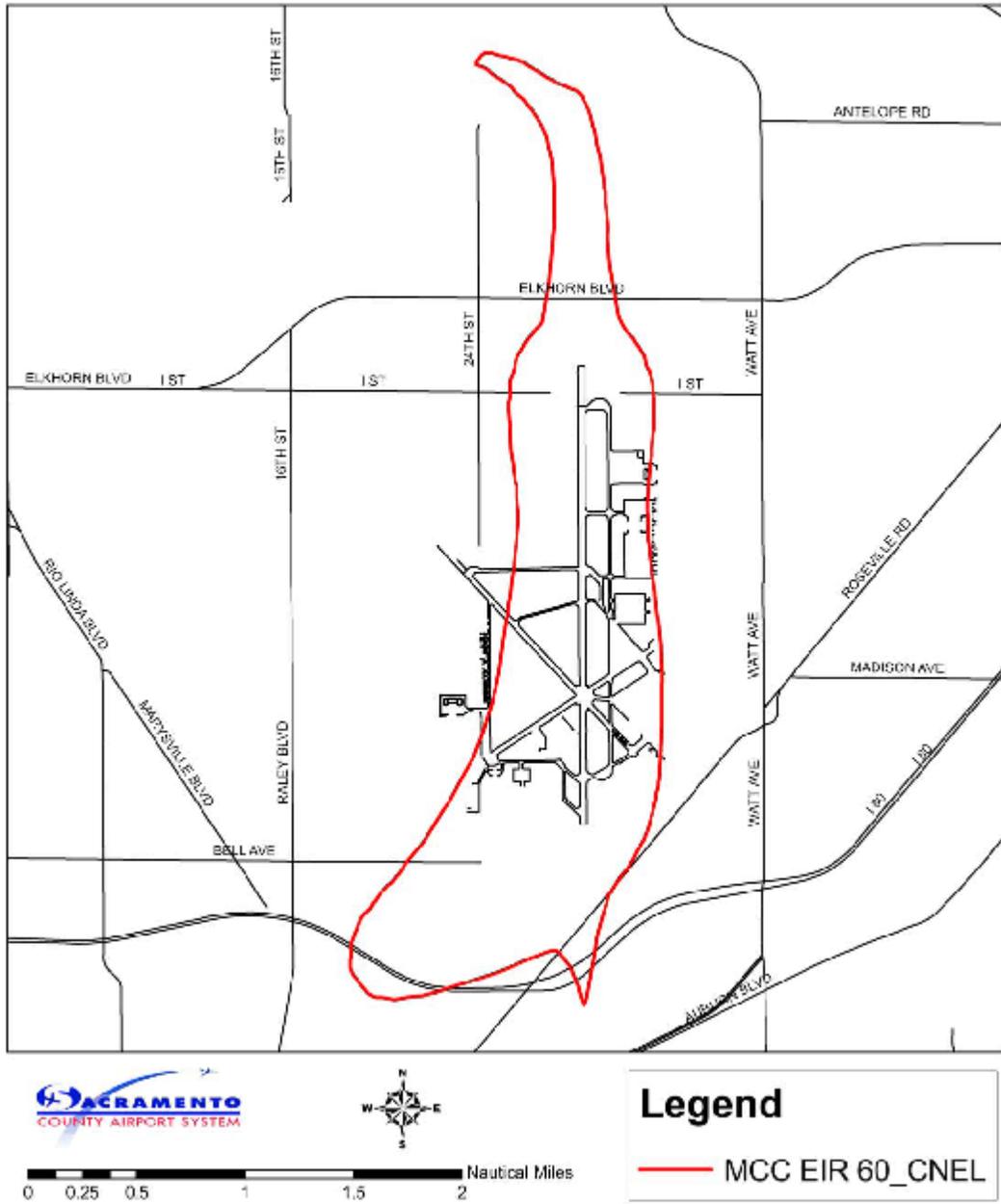
**Figure 11**  
**Sacramento County Noise Element**  
**Sacramento International Airport 60 dB CNEL Noise Contours**



**Figure 12**  
**Sacramento County Noise Element**  
**Mather Airport 60 dB CNEL Noise Contours**



**Figure 13**  
**Sacramento County Noise Element**  
**McClellan Airport 60 dB CNEL Noise Contour**



# Sacramento County General Plan Noise Element Background

## Appendix B

### Examples of Policy Application

#### INTRODUCTION

The following examples are intended to provide guidance to Sacramento County Planning Staff regarding the application of the General Plan Noise Element Standards. Due to the wide ranging number of noise sources and sensitive receiver types/designs, it is not practical for the Noise Element Policies to contain specific language for each possible combination. As a result, the Noise Element policies have been developed to apply to broad categories of noise sources and sensitive receptors, and may require interpretation in some cases. When such interpretation is necessary, the focus should be on a reasonable assessment of noise impacts at locations where noise-sensitivity either already exists, or where sensitive areas would be created as a result of a project.

#### Traffic and Railroad Noise Sources

NO-1. The noise level standards for noise-sensitive areas of new uses affected by traffic or railroad noise sources in Sacramento County are shown by Table 1. Where the noise level standards of Table 1 are predicted to be exceeded at new uses proposed within Sacramento County which are affected by traffic or railroad noise, appropriate noise mitigation measures shall be included in the project design to reduce projected noise levels to a state of compliance with the Table 1 standards.

**Example:** A single family residential development is proposed on a project site which is adjacent to the Union Pacific Railroad tracks. A noise analysis indicates that noise level in the backyards and nearest building facades located adjacent to the tracks is 73 dB Ldn. According to Table 1, the exterior noise level standard applicable to the backyard areas is 65 dB Ldn. As a result, the project would need to provide noise mitigation to reduce railroad noise exposure in the nearest backyards of this development by 8 dB in order to comply with the 65 dB Ldn standard. Such mitigation could take the form of increased setbacks, reorientation of the residences such that back yard areas are shielded by the residential structure, and/or construction of solid noise berms/barriers between the tracks and back yard spaces.

At the interior spaces of these residences, Table 1 indicates that 45 dB Ldn is the applicable noise standard for residential uses. Furthermore, footnote 5 indicates that maximum railroad noise levels shall not exceed 70 dB within residences during train passages to minimize the potential for sleep disturbance during nighttime train passages. Given an exterior noise level of 73 at the nearest building facades, the exterior to interior noise reduction necessary from those facades would be 28 dB.

Because standard residential construction provides approximately 25 dB of exterior to interior noise reduction, it is likely that upgrades to façade construction would be required to ensure satisfaction with the 45 dB Ldn standard. Depending on measured maximum noise levels at the project site, it is likely that such upgrades would be necessary to achieve satisfaction with the 70 dB Lmax interior noise standard as well.

This example would be applicable to the same development if the noise source in question were traffic instead of railroad. The only difference would be that the 70 dB Lmax standard would not be applicable.

In the same example, if the proposed use were a church, office building, or industry, the 65 dB Ldn exterior noise level standard would only be applied if the project included a noise-sensitive component, such as employee break area, or other noise-sensitive outdoor activity area. If no such area is proposed as part of the development, then only the interior noise level standards shown in Table 1 for the respective uses would apply.

### **Aircraft Noise Sources**

NO-2. Proposals for new development within Sacramento County which may be affected by aircraft noise shall be evaluated relative to Table 4: *Land Use Compatibility for Aircraft Noise*.

**Example:** A residential development is proposed on a project site which is located between the 60 and 65 dB CNEL contours of McClellan Airport. According to Table 4, residential uses are not compatible with aircraft noise environments exceeding 60 dB CNEL, so this development would not be permitted.

If the proposed use in this example was an elementary school, the use would be permitted, as Table 4 indicates that school uses are permitted in aircraft environments up to 70 dB CNEL.

NO-3. New residential development within the 60 CNEL noise contours adopted by the County for planning purposes at any airport or Helipad within Sacramento County shall be prohibited. This policy is not applicable to Executive Airport.

**Example:** This policy is self-explanatory.

NO-4. New residential development within adopted Airport Policy Area boundaries, but outside the 60 CNEL, shall be subject to the following conditions:

- A. Provide minimum noise insulation to 45 dB CNEL within new residential dwellings, including detached single family dwellings, with windows closed in any habitable room.
- B. Notification in the Public Report prepared by the California Department of Real Estate disclosing the fact to prospective buyers that the parcel is located within an Airport Policy Area.
- C. An Avigation Easement prepared by the Sacramento County Counsel's Office granted to the County of Sacramento, recorded with the Sacramento County Recorder, and filed with Department of Airports. Such Avigation Easement shall acknowledge the property location within an Airport Planning Policy Area and shall grant the right of flight and unobstructed passage of all aircraft into and out of the subject Airport.

Exceptions: New accessory residential dwellings on parcels zoned Agricultural, Agricultural-Residential, Interim Agricultural, Interim General Agricultural, or Interim Limited Agricultural and between the 60 and 65 CNEL contours, shall be permitted within adopted Airport Policy Area boundaries, but would be subject to the conditions listed above.

**Discussion:** The intent of this policy is to recognize that annoyance can occur at residential developments despite being in compliance with the permissible 60 dB CNEL noise standard. It provides additional safeguards to the prospective buyer of the property through disclosure statements, and provides safeguards to the airport through the avigation easement.

## **Non-Transportation Noise Sources**

NO-5. The interior and exterior noise level standards for noise-sensitive areas of new uses affected by existing non-transportation noise sources in Sacramento County are shown by Table 2. Where the noise level standards of Table 2 are predicted to be exceeded at a proposed noise-sensitive area due to existing non-transportation noise sources, appropriate noise mitigation measures shall be included in the project design to reduce projected noise levels to a state of compliance with the Table 2 standards within sensitive areas.

**Example:** A school is proposed adjacent to a concrete batch plant facility. According to Table 2, the school would need to be designed so that noise-sensitive exterior spaces such as playground and outdoor theater or dining areas would not be exposed to median and maximum noise levels exceeding 55 dB and 75 dB, respectively, during daytime hours. Because schools are not in session during nighttime hours (10 pm o 7 am), there are no standards applicable to the school use at night.

In addition to the noise level standards applicable at exterior spaces, Table 2 also indicates that the noise standards which would be applicable to noise-sensitive interior spaces (classrooms, multi-purpose rooms, administrative offices, etc) would be 35 dB L50 and 60 dB Lmax.

NO-6. Where a project would consist of or include non-transportation noise sources, the noise generation of those sources shall be mitigated so as not exceed the interior and exterior noise level standards of Table 2 at existing noise-sensitive areas in the project vicinity.

**Example:** If the example for Policy 5 was reversed, and a concrete batch plant were proposed adjacent to an existing school, the same standards would be applicable. The difference being that the concrete batch plant would need to limit its noise emissions so as to satisfy the Table 2 standards at the noise-sensitive exterior and interior spaces of the development.

NO-7. The “last use there” shall be responsible for noise mitigation. However, if a noise-generating use is proposed adjacent to lands zoned for uses which may have sensitivity to noise, then the noise generating use shall be responsible for mitigating its noise generation to a state of compliance with the Table 2 standards at the property line of the generating use in anticipation of the future neighboring development.

**Discussion:** The intent of this standard is to place the responsibility for providing noise mitigation with the new use, as illustrated in the examples provided for Policies 5 and 6. In the Policy 5 example, the industry was already there so the school

would be required to design and implement mitigation to ensure the Table 2 standards would be satisfied. In the Policy 6 example, the school came first so the responsibility for mitigation would fall with the industry.

**Construction Noise**

NO-8. Noise associated with construction activities shall adhere to the County Code requirements. Specifically, Section 6.68.090(e) addresses construction noise within the County.

**Discussion:** This policy recognizes that noise generated by construction activities is addressed in the County Code and that the noise standards of Tables 1 or 2 are not applicable provided that the construction adheres to the County Code requirements.

**Transportation Projects**

NO-9. For capacity enhancing roadway or rail projects, or the construction of new roadways or railways, a noise analysis shall be prepared in accordance with the Table 3 requirements. If pre-project traffic noise levels already exceed the noise standards of Table 1 and the increase is significant as defined below, noise mitigation measures should be considered to reduce traffic and/or rail noise levels to a state of compliance with the Table 1 standards. A significant increase is defined as follows:

<u>Pre-Project Noise Environment (Ldn)</u>	<u>Significant Increase</u>
Less than 60 dB	5+ dB
60 - 65 dB	3+ dB
Greater than 65 dB	1.5+ dB

**Example:** A major intersection in Sacramento County is being improved and existing traffic noise levels in the project vicinity currently exceed 65 dB. However, the project is for restriping only to add additional turn lanes and the project’s noise level increase would be less than a decibel. Under this policy, the County would not be required to consider noise mitigation for this project.

If under this same example, the project involved a widening which would result in a traffic noise level increase of 3 dB, the County would be required to consider noise mitigation for the project.

NO-10. For interim capacity enhancing roadway or rail projects, or the construction of new interim roadways or railways, it may not be practical or feasible to provide mitigation if the ultimate roadway or railway design would render the interim improvements ineffective or obsolete. An example would be a noise barrier constructed for an interim project which would need to be removed to accommodate the ultimate project. The following factors should be considered in determining whether or not noise mitigation will be implemented for interim project, but in general, noise mitigation for interim projects would not be provided:

- a. The severity of the impact
- b. The cost and effectiveness of the mitigation.
- c. The number of properties which would benefit from the mitigation.
- d. The foreseeable duration between interim and ultimate improvements.
- e. Aesthetic, safety and engineering considerations.

**Discussion:** The intent of this policy is to recognize that there may be cases where interim projects could technically require noise mitigation based on the standards of Policy 9, but that the mitigation measures would normally not be implemented for interim projects. Nonetheless, the policy contains flexibility for the County to consider the factors affecting mitigation decisions on a project by project basis.

NO-11. If noise-reducing pavement is to be utilized in conjunction with a roadway improvement project, or if such paving existing adjacent to a proposed new noise-sensitive land use, the acoustical benefits of such pavement shall be included in the noise analysis prepared for the project.

**Discussion:** Many County roadway improvement projects have utilized noise-reducing pavement. The intent of this policy is to recognize the noise reducing benefits of such pavements in partially or completely mitigating potential noise impacts, thereby decreasing dependence on solid noise barriers.

### **General Noise Policy**

NO-12. All noise analyses prepared to determine compliance with the noise level standards contained within this Noise Element shall be prepared in accordance with Table 3.

**Discussion:** The intent of this policy is to provide uniformity in terms of process and reporting for acoustical analyses required by the County.

NO-13. Where noise mitigation measures are required to satisfy the noise level standards of this Noise Element, emphasis shall be placed on the use of setbacks and site design to the extent feasible, prior to consideration of the use of noise barriers.

**Discussion:** The intent of this Policy is to recognize the County's desire to explore alternatives to noise barriers as effective forms of noise mitigation. This measure does not mandate that alternate measures be required over barriers should such measures be considered infeasible.

NO-14. Noise analyses prepared for multi-family residential projects, town homes, mixed-use, condominiums, or other residential projects where floor ceiling assemblies or party-walls shall be common to different owners/occupants, shall be consistent with the State of California Noise Insulation standards.

**Example:** Where a new apartment project is proposed, a noise analysis prepared for the project should address compliance with the floor ceiling and party wall noise requirements of the State Noise Insulation standards. The intent of this standard is to ensure that the State standards are addressed.

NO-15. The County shall have the flexibility to consider the application of 5 dB less restrictive exterior noise standards than those prescribed in Tables 1 and 2 in cases where it is impractical or infeasible to reduce exterior noise levels within infill projects to a state of compliance with the Table 1 or 2 standards. In such cases, the rationale for such consideration shall be clearly presented and disclosure statements and noise easements should be included as conditions of project approval. The interior noise level standards of Tables 1 and 2 would still apply.

**Discussion:** This policy recognizes that development of certain infill sites adjacent to uses similar to those being proposed may not be feasible due to elevated noise exposure. This policy provides the County with flexibility in relaxing the exterior noise standard by 5 dB in such cases.

## **Exemptions**

NO-16. The following sources of noise shall be exempt from the provisions of this Noise Element:

- a. Emergency warning devices and equipment operated in conjunction with emergency situations, such as sirens and generators which are activated during power outages. The routine testing of such warning devices and equipment shall also be exempt provided such testing occurs during daytime hours.
- b. Activities at schools, parks or playgrounds, provided such activities occur during daytime hours.
- c. Activities associated with events for which a permit has been obtained from the County.

**Discussion:** The intent of this policy is to recognize that certain activities within the County may generate noise levels in excess of the Noise Element standards, but that such activities, such as approved fireworks displays or high school football games, for example, may be desirable even though the noise generation of those activities cannot practically be reduced to the Noise Element standards.