

## VII. NOISE

### INTRODUCTION AND BACKGROUND

#### General Plan Legislation

The State of California has mandated that each County and City prepare a Noise Element as part of its General Plan. Section 65302(f) of the California Government Code requires that the Noise Element recognize the guidelines established by the Office of Noise Control in the Department of Health Services, and analyze and quantify current and projected noise levels for all noise sources. According to the California Government Code, noise contours shall be used as a guide for establishing a Land Use Element that minimizes the exposure of community residents to excessive noise.

#### Purpose and Function

The purpose of the Noise Element is to provide information on current and future noise levels in the City and provide the basis for the creation and enforcement of noise-associated standards and codes. These actions protect the health and wellbeing of persons living and working in Villa Park.

Noise is often identified as unwanted sound. Although sound is measurable, noise is subjective; the effects on people range from annoyance and inconvenience to temporary or permanent hearing loss. Every day, people are subjected to a multitude of sounds at home or in the work place. The relationship between measurable sound and human irritation is the key to understanding noise impacts; **Table VII-1** provides examples of noise creating activities and resulting effects.

**TABLE VII-1**

Common Outdoor Activities	Common Indoor Activities	A-Weighted Sound Level dBA	Subjective Loudness	Effects of Noise
Threshold of Pain		140	Intolerable or Deafening	Hearing Loss
Near Jet Engine		130		
		120		
Jet Fly-Over at 1,000 ft	Rock Band Performance	110	Very Noisy	
Loud Auto Horn		100		
Gas Lawn Mower at 3ft		90	Loud	Speech Interference
Diesel Truck at 50 ft, at 50 mph	Food Blender at 3ft	80		
Noisy Urban Area, Daytime	Vacuum Cleaner at 10ft	70		
Heavy Traffic at 300 ft	Normal Speech at 3ft	60	Moderate	Sleep Disturbance
Quiet Urban Daytime	Large Business Office	50		
Quiet Urban Nighttime	Theater, Large Conference Room (Background)	40	Faint	No Effect
Quite Suburban Nighttime	Library	30		
Quiet Rural Nighttime	Bedroom at Night, Concert Hall (Background)	20		
	Broadcast/Recording Studio	10	Very Faint	
Threshold of Human Hearing	Lowest Threshold of Human Hearing	0		

### **Perceived Noise Levels**

The A-weighted decibel, commonly abbreviated as dBA, has been devised to relate sound to the sensitivity of the human hearing system. This scale is calibrated to the faintest sound audible and has approximately the same frequency response as the human hearing system. A listener usually judges an increase in sound level of 10 dBA as a doubling of sound.

Environmental noise descriptors are generally based on averages, rather than instantaneous noise levels. The most commonly used figure is the equivalent level (Leq). Leq represents a steady sound level containing the same total energy as a time-varying level over a given measurement interval. Leq's may represent any desired length of time; however, one hour is most commonly used in environmental work. Consequently, Leq's will vary depending on the time of day. In traffic noise measurements, the noisiest hour of the day is considered the benchmark of a road's noise emissions; therefore, the peak hour Leq is the noise metric used by Caltrans for all traffic noise analyses.

Peak hour noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime hours. To account for this, the Community Noise Equivalent Level is utilized. The Community Noise Equivalent Level (CNEL) is the weighted average of the intensity of a sound, with corrections for the time of day, over 24 hours.

### **Measured and Forecast Noise Levels**

The sound from an individual source decreases with increasing distance. The amount of sound reaching the receiver is affected by barriers between the source and the receiver (such as windows, walls, landscaping, and buildings), atmospheric conditions (such as wind, temperature, and humidity), and the number of sources emitting sound.

Automobiles are the primary source of surface noise in Villa Park. Noise associated with passenger vehicles is generated by the engine, tires, and exhaust system. Noise varies with road conditions and speed. Generally, automobile noise is greater at high speeds than at low speeds; therefore, this noise peak may not occur at maximum traffic volume.

Transportation noise in Villa Park is greatest along arterial highways. Existing 2008 CNEL noise contours are shown in **Exhibit VII-1**. Noise referral zones are those areas that define a CNEL level of 60 decibels. According to the State of California Office of Planning and Research General Plan Guidelines, an acoustical study may be required in cases where noise-sensitive land uses are located in areas of 60 dBA CNEL or greater. Any land use that is exposed to

levels higher than the 65 dBA CNEL will require noise mitigation measures. The City of Villa Park defines 60 dBA CNEL as the level at which planning for future land uses should consider acoustical impacts. Noise sensitive land uses include residences of all types, rest homes, hospitals, places of worship, and schools.

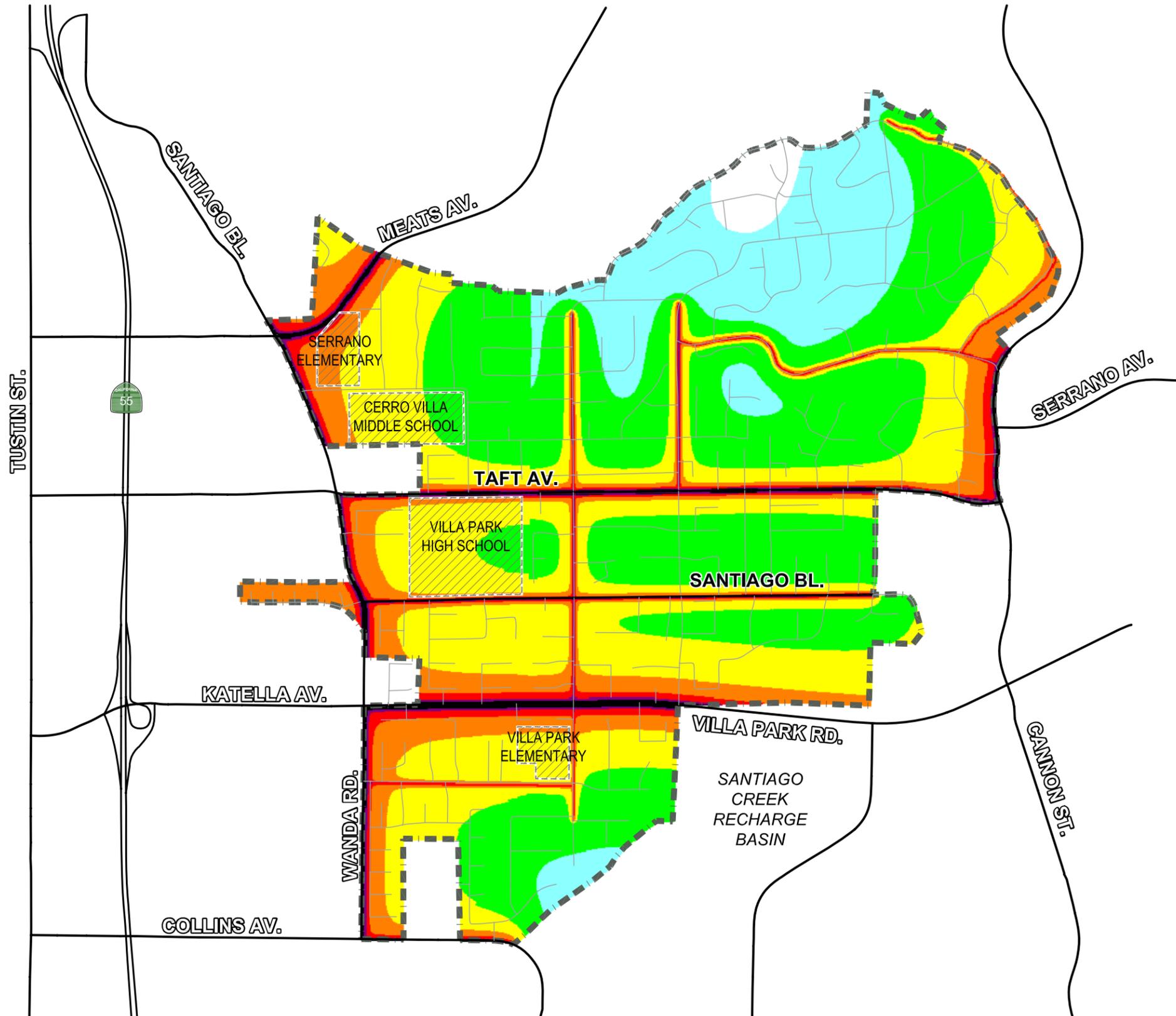
There are no industrial or railroad facilities within Villa Park to generate noise. The Orange County John Wayne Airport is located 8.7 miles south of the City and no portion of the City is located within the 65 dBA CNEL noise contours of the airport. Although there were approximately 1,000 commercial and general aviation flights using the airport in 2008, flight paths are at heights which do not transmit excessive sound (see Urban Crossroads technical report for measurement details) provided that aircraft comply with operational standards established by civilian and military authorities.

Future (year 2030) noise contours are shown in **Exhibit VII-2**. These contours are based upon the traffic forecasts shown in the Circulation Element. The increased traffic volume leads to a slightly enlarged footprint for the 60 and 65 dBA noise levels.

EXHIBIT VII-1  
**EXISTING NOISE CONTOURS**

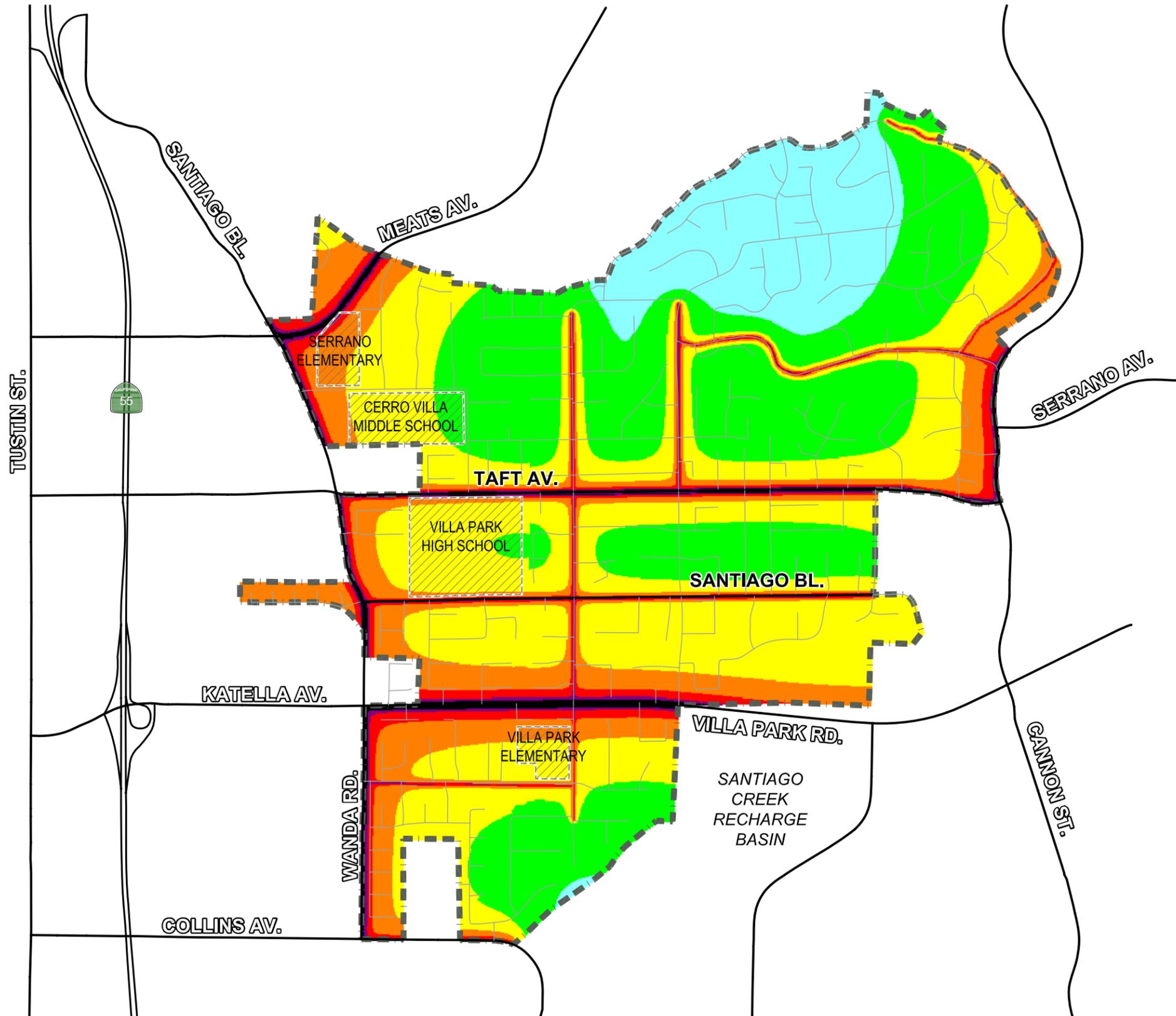
**LEGEND:**

-  CITY BOUNDARY
-  > 45.0 dBA CNEL
-  > 50.0 dBA CNEL
-  > 55.0 dBA CNEL
-  > 60.0 dBA CNEL
-  > 65.0 dBA CNEL
-  > 70.0 dBA CNEL
-  > 75.0 dBA CNEL



**LEGEND:**

-  CITY BOUNDARY
-  > 45.0 dBA CNEL
-  > 50.0 dBA CNEL
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-  > 75.0 dBA CNEL



## **ISSUES AND OPPORTUNITIES**

### **Issues**

- Vehicular traffic is the primary noise generator in Villa Park.

### **Opportunities**

- Routing regional traffic onto surrounding arterial roadways rather than through Villa Park would reduce noise levels on residential streets.

### **Objective**

- Maintain a residential noise environment consistent with the Noise Insulation Standards of the California Administrative Code, which sets forth construction standards to provide a suitable living environment.

**GOALS, POLICIES AND PROGRAMS**

**Noise Goal #1: Continue to provide acceptable noise environments for residential land use.**

**Noise Policies:**

- N #1: Continue to apply noise considerations into the community planning process to prevent noise/land use conflicts.
- N #2: Minimize through traffic in residential areas by promoting peripheral routing.
- N#3: Promote, where appropriate, sound attenuation measures. These may include the use of berms and wall barriers, the placement of buildings away from the noise source, or a combination of sound attenuation measures.

**Action Programs:**

1. Continue to enforce the City Noise Ordinance.
2. Require that any new commercial uses adjacent to noise sensitive uses must be designed with noise mitigation measures to reduce the noise associated with truck deliveries and stationary equipment such as pumps, compressors, and air conditioning units.
3. Require that all commercial loading facilities be located, designed, and used to minimize noise at adjacent noise sensitive areas.