

4.12 NOISE

4.12.1 Background

Noise levels and standards are expressed on a logarithmic scale in units called decibels (dBA), using a frequency-weighting pattern that duplicates the sensitivity of the human ear. Since noise levels from various sources vary over time, they are frequently expressed as an equivalent noise level (Leq), which is a computed steady noise level that represents the same energy transmission over a specified time. Leq values are commonly expressed for one-hour periods, but different averaging times may be specified.

For the evaluation of environmental or community noise effects, it is customary to define a 24-hour-long noise level based on hourly Leq values, and to apply an excess or “penalty” noise during the evening and/or nighttime hours to account for the added nuisance of noise during those periods. Depending on the exact penalty scheme, the resulting noise descriptor is either a Community Noise Equivalent Level (CNEL) or a Day-Night Average Noise Level (Ldn). The two ways of expressing such noise levels are nearly equivalent, and are often used interchangeably.

For local governments, noise standards are specified within the mandated Noise Element of their General Plan, which usually defines maximum noise levels that are considered compatible with various land uses. Frequently, local governments also have a specific Noise Ordinance designed to regulate specific noise-producing activities such as construction work.

4.12.2 Noise Environment

The following subsections discuss existing noise conditions and applicable noise regulations by area and jurisdiction.

4.12.2.1 City of Lancaster

The Antelope Substation and northerly extent of the proposed Segment 2 500 kV T/L route are located within the western limit of the City of Lancaster. Additionally, the southern portion of Segment 3 is located in Lancaster (refer to Figure 3-1). This area is generally rural or low density residential, and existing noise levels are generally low.

In the City of Lancaster, noise standards are set forth in the Noise chapter of the Plan for Public Health and Safety, one of the elements of the Lancaster General Plan (City of Lancaster, 1997b: Table III-1). These standards are presented in Table 4.12-1.

**TABLE 4.12-1
CITY OF LANCASTER NOISE ELEMENT STANDARDS**

Land Use	Maximum Exterior CNEL	Maximum Interior CNEL
Rural, Single Family, Multiple Family Residential	65 dBA	45 dBA
Schools:		
Classrooms	65 dBA	45 dBA
Playgrounds	70 dBA	
Libraries		50 dBA
Hospitals/Convalescent Facilities:		
Living Areas		50 dBA
Sleeping Areas		40 dBA
Commercial and Industrial Office Areas	70 dBA	50 dBA

The City of Lancaster Noise Ordinance is set forth in Chapter 8.24 of the municipal code. The code includes a general prohibition against loud, unnecessary, and unusual noises (Section 8.24.030), and a prohibition against performing specified construction and building work between the hours of 8:00 p.m. and sunrise, and on Sundays. No grading with heavy equipment or construction with loud mechanical equipment is allowed within 500 feet of an occupied dwelling during the specified times.

4.12.2.2 City of Palmdale

The proposed Segment 2 500 kV T/L route traverses the western portion of the City of Palmdale, but it is located well away from developed areas. South of the California Aqueduct, the route crosses the Ritter Ranch and Anaverde properties, both within the City of Palmdale.

Noise and land use compatibility standards are contained in Table N-3 of the City of Palmdale Noise Element (City of Palmdale, 1993c). For all residential areas, the maximum acceptable Community Noise Equivalent Level (CNEL) is 65 dBA.

Section 8.28 of the Palmdale City Municipal Code restricts building construction hours and operation between the hours of 8:00 p.m. and 6:30 a.m. to minimize the effects of construction noise.

4.12.2.3 Los Angeles County Unincorporated Areas

The unincorporated areas through which the proposed Segments 2 and 3 (including the southern portion of Alternatives A and B) 500 kV T/L routes pass are predominantly vacant land or rural residential in nature. Existing noise levels are generally low, and due to distant roadway traffic and aircraft. In the vicinity of State Route (SR) 14 near the southerly end of

the Segment 2 T/L route, noise levels are louder due to SR 14 traffic. Based on the assumptions shown in Table 4.12-2, and using the Federal Highway Administration Noise Model (Barry and Regan, 1978), the existing Day-Night Average Noise Level at 100 feet from the centerline of the freeway is approximately 77 dBA. SCE's existing Vincent Substation is the southern terminus of Segment 2 and is located south of SR 14.

**TABLE 4.12-2
ASSUMPTIONS FOR SR 14 Ldn ESTIMATE**

Input	Source
Average Daily Traffic – 93,000	Caltrans data for 2003
Heavy Duty Truck Traffic – 3%	Caltrans data for 2001
Medium Duty Truck Traffic	Caltrans data for 2001
Speed – 55 miles per hour	Assumed
Daytime: 15 hours, 7:00 am to 10:00 pm, 85% of ADT	Assumed
Nighttime: 9 hours, 10:00 pm to 7:00 am, 15% of ADT	Assumed

The existing (1987) Noise Element of the Los Angeles County General Plan provides background information regarding noise and general policy guidance, but does not contain any numerical standards for the compatibility between land uses and noise levels. Policy 2 of the Noise Element states that the County should: “Establish acceptable noise standards consistent with health and quality of life goals and employ effective techniques of noise abatement through such means as building code, noise, subdivision and zoning ordinances.”

Los Angeles County is in the process of updating its General Plan. The Noise Element of the draft General Plan Goals and Policies provides somewhat more specific guidance. Draft Policy N-1.2 states: “Avoid development of residential and other noise-sensitive uses in areas of the County where outdoor ambient noise levels exceed 55 CNEL unless interior noise levels from exterior sources can be mitigated to less than 45 CNEL”.

The Los Angeles County Noise Ordinance is reflected in Chapter 12.08 of the County Code. The County Noise Ordinance has a somewhat complex system of allowable noise limits, which is summarized in the following paragraphs.

Activities may not generate noise levels above specified limits, both at the exterior and interior areas of neighboring land uses. The limits are derived from tabulated values that depend on the sensitivity of the land use, with adjustments to create a series of noise Standards. The basic exterior limits are presented in Table 4.12-3.

**TABLE 4.12-3
LOS ANGELES COUNTY NOISE ORDINANCE
STANDARDS (SECTION 12.08.390)**

Noise Zone	Designated Noise Zone Land		Exterior Noise Level (dB)
	Use (Receptor property)	Time Interval	
I	Noise sensitive area	Anytime	45
II	Residential properties	10:00 pm to 7:00 am (nighttime)	45
		7:00 am to 10:00 pm (daytime)	50
III	Commercial properties	10:00 pm to 7:00 am (nighttime)	55
		7:00 am to 10:00 pm (daytime)	60
IV	Industrial properties	Anytime	70

Adjustments are made to the above allowable limits depending on the nature of the ambient noise, or the duration of the noise. The ambient noise is specified as a statistical noise level or L_x , where x is the percentage of time that the noise levels exceed the limit L . For example, an L_{80} is the noise level in dBA that is exceeded 80 percent of the time. The adjusted standards, derived from the above limits are as follows:

Standard 1. The above exterior limits, for any generated noises that occur for a cumulative period of more than 30 minutes in any hour. If the ambient L_{50} exceeds this limit, then the L_{50} becomes the exterior noise level limit for Standard 1.

Standard 2. The above exterior limits, plus 5 dBA, which may not be exceeded for a cumulative period of more than 15 minutes in any one hour. If the ambient L_{25} exceeds this limit, then the L_{25} becomes the exterior noise level limit for Standard 2.

Standard 3. The above exterior limits, plus 20 dBA [sic, probably 10 dBA], which may not be exceeded for a cumulative period of more than 5 minutes in any one hour. If the ambient $L_{8.3}$ exceeds this limit, then the L_{25} becomes the exterior noise level limit for Standard 3.

Standard 4. The above exterior limits, plus 15 dBA, which may not be exceeded for a cumulative period of more than 1 minute in any one hour. If the ambient $L_{1.7}$ exceeds this limit, then the L_{25} becomes the exterior noise level limit for Standard 4.

Standard 5. The above exterior limits, plus 20 dBA, which may not be exceeded for any period of time. If the ambient L_0 exceeds this limit, then the L_0 becomes the exterior noise level limit for Standard 5.

There are additional specifications in the Noise Ordinance that relate to limits for noise levels between two different land use zones, limits for interior noise levels, and corrections for pure tone or impulsive sounding noises (limits are 5 dBA more restrictive).

In addition to these measures, the Noise Control Ordinance of Los Angeles County also prohibits construction activities and noise during certain times, in areas that would affect a residential or commercial property line. The prohibited times are between the weekday hours of 7:00 p.m. and 7:00 a.m., and any time on Sundays or holidays (Section 12.08.440).

4.12.2.4 Kern County and Tehachapi

The Segment 3 proposed 500 kV T/L route extends northward from Los Angeles County into the southern portion of Kern County where it connects with proposed Substation One at MP 25.6, and with Substation Two at MP 35.2 (refer to Figure 3-1). The region through which the 500 kV T/L portion of Segment 3 passes in Kern County is generally agricultural and/or undeveloped and rural residential in nature. There are few residences, and noise levels are generally low. Typical noise levels in such rural areas are below 50 dBA in the daytime and below 40 dBA at nighttime. Distant roadway traffic and occasional aircraft overflights are usually the only notable noise sources. Willow Springs Raceway is located approximately 2.25 miles to the east of the proposed 500 kV T/L route (MP 13.6; refer to Figure 3.3, sheet 3 of 7), and Edwards Air Force Base is located approximately 9 miles to the east of the majority of the proposed 500 kV T/L route (refer to Figure 3-1).

The Kern County General Plan Noise Element (2004d, page 149) establishes 65 dBA as the maximum Day-Night Average Noise Level (Ldn) considered compatible with residential uses or development.

The Noise Control Ordinance in the Kern County Code (Section 8.36.020 et seq.) prohibits a variety of nuisance noises, but does not specifically mention construction or related noise.

The northerly portions of Segment 3 between Substations One and Two (220 kV T/L route), including proposed Substation Two (and alternatives), remain outside of the City of Tehachapi, so the noise standards and requirements of Kern County govern in this area. The Tehachapi General Plan Noise Element has standards that are very similar to those in Kern County. The standards establish maximum Ldn values, which vary depending on the sensitivity of the land use that must not be exceeded. For “sensitive” land uses, which include residences, schools, and parks, the maximum Ldn is 65 dBA (City of Tehachapi General Plan Noise Element, 1999).

Existing noise sources in the northerly portions of Segment 3 include the existing wind turbines, the Cal Cement facility and associated rail spur, and Highway 58 (refer to Figure 3-1).