

Noise Element



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Noise Element



PURPOSE

The Noise Element is intended to limit exposure of the community to excessive noise levels. Noise is generally defined as unwanted or unpleasant sound. Excessive noise is associated with an interference with speech and other communication, a distraction at home and at work, the disturbance of rest and sleep, and the disruption of various recreational pursuits.

To ensure that noise does not affect the health and serenity of Victorville residents, this element provides a systematic approach to identifying and appraising excessive noise in the Planning Area, quantifying noise levels, and addressing excessive noise exposure, and community planning for the regulation of noise. This element includes policies, standards, criteria, programs, diagrams, a reference to action items, and maps related to protecting public health and welfare from noise.

Section 65302(f) of the Government Code requires that a General Plan include a Noise Element to guide decisions concerning land use and the location of excessive noise sources. Issues to be addressed in the Noise Element include:

- Major noise sources, both mobile and stationary
- Existing and projected levels of noise and noise contours for major noise sources
- Existing and projected land uses and locational relationship to existing and projected noise sources
- Existing and proposed sensitive receptors, including:
 - Hospitals
 - Convalescent homes

- Schools
- Churches
- Sensitive wildlife habitat, including the habitat of rare, threatened, or endangered species.

Major noise sources in a community include the following:

- Highways and freeways
- Primary arterials and major local streets
- Passenger and freight on-line railroad operations and ground rapid transit systems
- Commercial, general aviation, heliport, helistop and military airport operations, aircraft over-flights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation
- Local industrial plants, including, but not limited to railroad classification yards
- Other ground stationary sources identified by local agencies as contributing to the community noise environment.

RELATIONSHIP TO OTHER ELEMENTS

The Noise Element has a direct relationship with other General Plan elements, most notably the Land Use Element. Through the Land Use Map and Land Use Element policies, land uses that will be occupied by sensitive receptors are located away from excessive noise sources. These policies that focus on placing residential uses away from major noise sources also are reflected in the Housing Element. The Noise Element also relates to the Circulation Element, because the location and design of new roads and transit could impact existing and planned land uses. Finally, the Noise Element also relates to the Resource Ele-

ment because excessive noise may have a detrimental effect on sensitive habitats and the community's enjoyment of open spaces.

VISION – NOISE

The Noise Element of the City of Victorville's General Plan lays the foundation for balancing the placement of noise sensitive land uses with the need for infrastructure and activities that generate excessive noise. The goals, objectives, policies, and implementation measures of this element envision a Victorville that minimizes noise-land use incompatibilities and supports the health and serenity of its citizens.

EXISTING CONDITIONS

Definition of Noise

Noise is usually defined as unwanted or excessive sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep.

To the human ear, sound has two significant characteristics: pitch and loudness. Pitch is generally an annoyance, while loudness can affect the ability to hear. Pitch is the number of complete vibrations, or cycles per second, of a wave, resulting in the tone's range from high to low. Loudness is the strength of a sound and describes a noisy or quiet environment; it is measured by the amplitude of the sound wave. Loudness is determined by the intensity of the sound waves, combined with the reception characteristics of the human ear. In an urban environment, sound that becomes noise is typically a byproduct of transportation systems, certain land uses and on-going human activity.

Definitions of acoustical terms are provided in Table N-1.

Noise Measurement

The common unit for measuring sound (or noise) to the faintest level detectable by a person with good hearing is called a decibel (dB).

Because sound or noise can vary in intensity by over one million times within the range of human hearing, a logarithmic loudness scale is used to keep sound intensity numbers at a convenient level. Since the human ear is not equally sensitive to all sound frequencies within the entire spectrum, noise levels at maximum human sensitivity are factored more heavily into sound descriptions in a process called A-weighting, written as dBA. References to noise levels in this Section are in dBA. Ambient sounds generally range from 30 dBA (very quiet) to 100 dBA (very loud).

Because community receptors (e.g. residents, the infirm, convalescents, children) are more sensitive to unwanted noise during the evening and night, state law requires that nighttime noise be more heavily weighted than noise occurring during the day. To measure this noise variation during different times of the day, an artificial dB increment is added to quiet time noise levels for planning purposes in a 24-hour noise descriptor called the Community Noise Equivalency Level (CNEL). The CNEL takes average sound levels at an observation point and adds a weighting penalty to those sounds that occur during the evening and night hours. A penalty of 5 dBA is added between 7 PM and 10 PM, and a 10 dBA penalty is added between 10 PM and 7 AM. CNEL noise levels are often reported as 65 dB CNEL or 65 CNEL.

When evaluating changes in 24-hour community noise levels, a 3 dBA increase is

barely perceptible to most people. While a 5 dBA increase is readily noticeable, a 10 dBA increase would be perceived as a doubling of loudness (US DOT 1980).

Effects of Noise

Noise measurements are meaningless without an understanding of the relationship to human sensitivity. The human response to noise is varied and extremely complex. Noise effects have been divided and described in terms of physiological effects, behavioral effects, and subjective effects. Physiological effects include both temporary effects such as startle reactions and temporary hearing threshold shifts, along with enduring effects such as those from prolonged sleep loss or permanent hearing damage. Behavioral effects involve interference with ongoing activities such as speech, learning, listening, or distraction from the performance of various tasks. Subjective effects are a combined result of behavioral and physiological effects and

are described in such terms as "annoyance," "nuisance," "disturbance," or "dissatisfaction."

Table N-2, Common Noise Sources and Sound Levels, provides examples of some common sound levels and their noise sources.



Demolition of a portion of City Hall

Table N-1

Definitions of Acoustical Terms

Term	Definition
Decibel (dB)	A unit of level that denotes the ratio between two quantities that are proportional to power; the number of decibels is 10 times the logarithm (to the base 10) of this ratio.
Frequency (Hz)	Of a function periodic in time, the number of times that the quantity repeats itself in one second (i.e., number of cycles per second).
A-Weighted Sound Level (dBA)	The sound level obtained by use of A-weighting. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted, unless reported otherwise.
L_{02} , L_{08} , L_{50} , L_{90}	The fast A-weighted noise levels that are equaled or exceeded by a fluctuating sound level 2 percent, 8 percent, 50 percent, and 90 percent of a stated time period, respectively.
Equivalent Continuous Noise Level (L_{eq})	The level of a steady sound that, in a stated time period and at a stated location, has the same A-weighted sound energy as the time-varying sound.
Community Noise Equivalent Level (CNEL)	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 5 decibels to sound levels occurring in the evening from 7:00 PM to 10:00 PM and after the addition of 10 decibels to sound levels occurring in the night between 10:00 PM and 7:00 AM
Day/Night Noise Level (L_{dn})	The 24-hour A-weighted average sound level from midnight to midnight, obtained after the addition of 10 decibels to sound levels occurring in the night between 10:00 PM and 7:00 AM
L_{max} , L_{min}	The maximum and minimum A-weighted sound levels measured on a sound level meter, during a designated time interval, using fast time averaging.
Ambient Noise Level	The all-encompassing noise associated with a given environment at a specified time, usually a composite of sound from many sources at many directions, near and far; no particular sound is dominant.
Intrusive	The noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.
Source: <i>Handbook of Acoustical Measurement and Noise Control, 1991.</i>	

**Table N-2
Common Noise Sources and Sound Levels**

Noise Source	A-Weighted Sound Level (dB)	Noise Effect
Near jet engine	140	Deafening
Civil defense siren	130	Threshold of pain
Hard rock band	120	Threshold of feeling
Accelerating motorcycle at a few feet away	110	Very loud
Pile driver; noisy urban street/ heavy city traffic	100	Very loud
Ambulance siren; food blender	95	Very loud
Garbage disposal	90	Very loud
Freight cars; living room music	85	Loud
Pneumatic drill; vacuum cleaner	80	Loud
Busy restaurant	75	Moderately loud
Near freeway auto traffic	70	Moderately loud
Average office	60	Quiet
Suburban street	55	Quiet
Light traffic; soft radio music in apartment	50	Quiet
Large transformer	45	Quiet
Average residence without stereo playing	40	Faint
Soft whisper	30	Faint
Rustling leaves	20	Very faint
Human breathing	10	Very faint

Standards for Land Use Compatibility

Activity, or land use, also is a factor in sensitivity to noise. Excessive noise could prevent sleep. As sleep is a primary activity in residences and hospitals, these land uses are also sensitive to noise. Noise can distract from activities that require quiet and human concentration, such as reading,

studying, and listening, making schools and libraries vulnerable to noise intrusion. Noise is tolerated to a much greater extent in commercial and industrial areas, where it does not interfere with quiet human activities as much. Table N-3 illustrates acceptable and unacceptable noise levels for various land uses as established by the U.S. Department of Housing and Urban Development and State of California Guidelines.

**Table N-3
Victorville Land Use Compatibility Standards**

Land Use Categories	Community Noise Exposure Ldn or CNEL, dB						
	55	60	65	70	75	80 +	
Residential - Low Density, Single Family, Duplex, Multi-family, Mobile Home	1	1	2	2	3	4	4
Transient Lodging - Motels, Hotels	1	1	2	2	3	3	4
Schools, Libraries, Churches, Hospitals, Nursing Homes	1	1	2	3	3	4	4
Auditoriums, Concert Halls, Amphitheaters	2	2	3	3	4	4	4
Sports Arena, Outdoor Spectator Sports	2	2	2	2	3	3	3
Playgrounds, Neighborhood Parks	1	1	1	2	3	3	3
Golf Courses, Riding Stables, Water Recreation, Cemeteries	1	1	1	2	2	4	4
Office Buildings, Business Commercial, Retail Commercial and Professional	1	1	1	2	2	3	3
Industrial, Manufacturing, Utilities	1	1	1	1	2	2	2
Agriculture	1	1	1	1	1	1	1

Legend:

1. **NORMALLY ACCEPTABLE:** Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
2. **CONDITIONALLY ACCEPTABLE:** New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and Schools, Libraries, Churches, Hospitals, Nursing Homes 1 needed noise insulation features included in the design. Conventional construction, with closed windows and fresh air supply systems or air conditioning will normally suffice.
3. **NORMALLY UNACCEPTABLE:** New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
4. **CLEARLY UNACCEPTABLE:** New construction or development should generally not be undertaken.

Noise exposure is "normally acceptable" if the level of exposure does not require any special noise insulation or special construction techniques to reduce interior noise levels. The maximum exterior noise level considered to be normally acceptable for residential development is 65 dBA.

The State also provides additional standards through the implementation of the State Noise Insulation Standards. These standards apply to new multiple-family residential development located in areas exposed to ambient noise levels that exceed 65 dB (CNEL or Ldn). New multiple-family development in these areas must reduce exterior to interior noise levels through insulation, construction, or design.

Noise Environment

The primary sources of noise in the Victorville Planning Area are freeways and roadways, railroad traffic, SCLA aircraft operations, and stationary sources, as described below.

Freeways and Roadways: The dominant sources of noise throughout the Planning Area are transportation-related. Motor vehicle noise commonly causes sustained noise levels, often in close proximity to sensitive land uses. The major sources of traffic noise in the Planning Area are the I-15, US-395, SR-18, Route 66, Bear Valley Road, Palmdale Road, Mojave Drive, 7th Street, Amethyst Road, El Evado Road, Green Tree Boulevard, Hesperia Road, and La Mesa Road.

Vehicular noise along these routes comes from both cars and trucks. The following roadways are designated truck routes, and are expected to have notably higher levels of truck related Noise: Air Expressway; National Trails Highway / D Street; Hesperia Road from Bear Valley Road to D Street; Green Tree Boulevard from 7th Street to

Hesperia Road; Mariposa Road from Bear Valley Road to Green Tree Boulevard; Bear Valley Road within the City limits; Amargosa Road from Bear Valley Road to Dos Palmas Road; Nisqualli Road from Hesperia Road to I-15.

Railroad Traffic: The Burlington Northern Santa Fe Company (BNSF) operates freight rail services through the City of Victorville, with a double main line and lead tracks for industrial uses. Union Pacific Railroad also operates on the double main line and Victorville is within its service area. The rail lines bisect the eastern portion of the City. In the future, with the expansion of the SCLA, Victorville plans to function as a major hub for cargo transfer and distribution. The City has begun construction of the first phase of rail lines leading to a new inter-modal/multi-modal rail yard. This facility will be located in the northwestern portion of the City, allowing transfer of freight from rail-to-truck and rail-to-rail.

SCLA Airport Noise: The SCLA site encompasses approximately 2,762 acres in the northwestern part of Victorville. It is bordered by the Mojave River to the east, a federal correctional facility to the south, and the City of Adelanto to the west. Aircraft noise is an important component of determining land use compatibility with airport operations. Aircraft activity noise contours have been calculated based upon long range SCLA utilization projections.

The existing aircraft noise contours presented in the "Comprehensive Land Use Plan for Southern California Logistics Airport" (Draft December 2007) are depicted in Figure N-1. Future Noise Contours are presented in Figure N-2. For existing activity levels, the 70 and 75 CNEL contours remain entirely on airport property. The 65 CNEL noise contour extends off airport property to the south. This area is presently

undeveloped. The 60 CNEL noise contour extends off airport property to the north, south, and southwest. The 55 CNEL noise contour extends off airport property to the north, south, northeast, and southwest.¹

SCLA is proposing to update its master plan and increase aircraft flight operations. As proposed, SCLA's long-term forecast activity, expected in year 2025, would extend its noise contours (75, 70, 65, 60, 55 CNEL) beyond airport property. As shown in Figure N-2, the contours that are considered to have a significant noise effect are the 75, 70, and 65 CNEL contours. The 75

CNEL noise contour extends a short distance beyond the airport property line to the north and south. To the east and west this contour does not go beyond the airport property line. The 70 CNEL noise contour extends north and south of airport property approximately one mile. This contour does not extend beyond the property line to the east or west. The 65 CNEL noise contour extends south of the airport property line approximately three miles to Mojave Drive. It extends north of airport property approximately 2.5 miles. Additionally, this contour extends beyond airport property west of Adelanto Road.

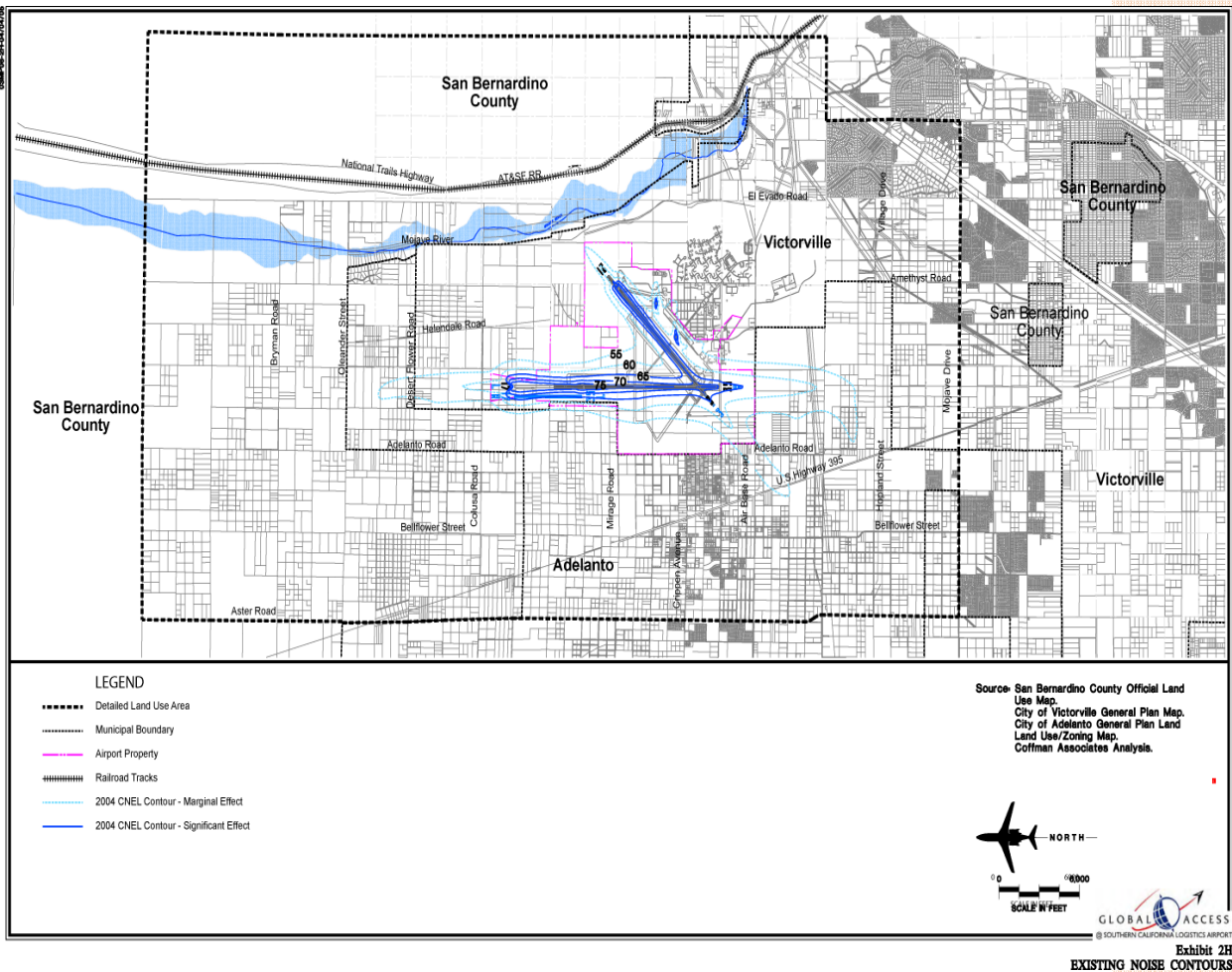


Figure N-1. SCLA Existing Airport Noise Contours

¹Comprehensive Land Use Plan for Southern California Logistics Airport, Draft December 2007, Coffman Associates.

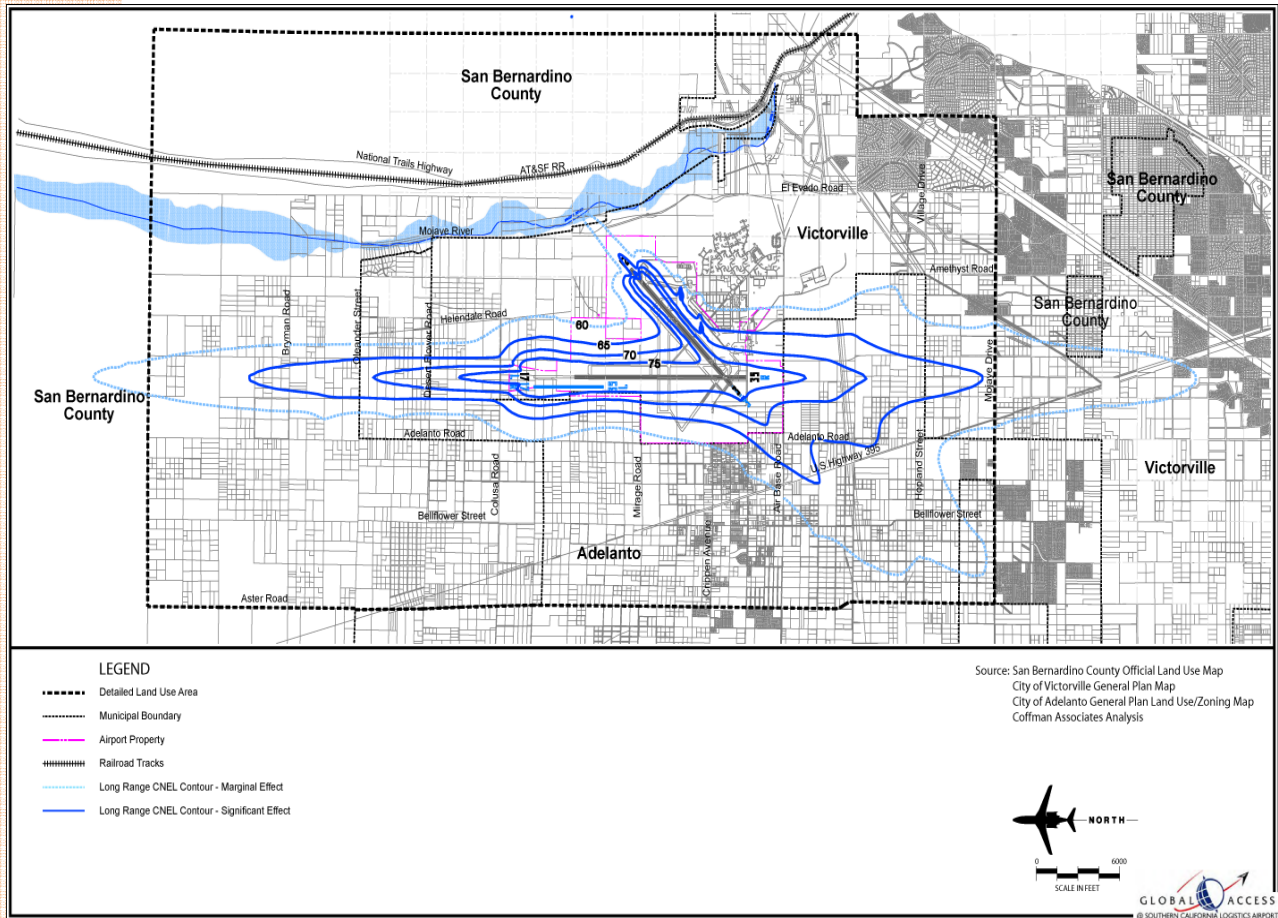


Figure N-2 (5.11-2. SCLA Proposed Future (2025) Airport Noise Contours)

Stationary Noise Sources: Manufacturing operations are the major stationary noise sources in the Planning Area. Of the existing manufacturing operations in the Planning Area, cement manufacturers are expected to generate the most noise. There are currently two cement manufacturers in the Planning Area, both which have outdoor rock crushing operations. Both are located within Heavy Industrial land use designated areas where 75 decibels is "conditionally acceptable" for permitted uses.

GOALS, OBJECTIVES, POLICIES AND IMPLEMENTATION

The following goals, objectives, policies and implementation measures are intended to achieve the Vision of this Noise Element and to guide the City's efforts to minimize noise-land use incompatibilities and support the health and serenity of its citizens.

GOAL #1: Noise Sensitivity – Identify significant noise sources that could adversely affect community.

GOAL #2: Noise Control – Manage the affects of noise emissions to help ensure reduction of adverse affects on the community.

GOAL #1: NOISE SENSITIVITY
IDENTIFY SIGNIFICANT NOISE
SOURCES THAT COULD ADVERSELY
AFFECT COMMUNITY.

Objective 1.1: Locate noise sensitive land uses away from existing excessive noise sources, and locate new excessive noise generators away from existing sensitive land uses

Policy 1.1.1: *Implement Table N-3 regarding placement of new land uses.*

Implementation Measure 1.1.1.1: Continue to assess projects through the subdivision, site plan, conditional use permit, and other development review processes and incorporate conditions of approval which ensure noise compatibility where appropriate.

Implementation Measure 1.1.1.2: Prohibit new single family residential land uses in areas with a CNEL of 65 dB or greater.

Implementation Measure 1.1.1.3: Require a noise study to be performed and appropriate noise attenuation to be incorporated prior to approving any multifamily or mixed-use residential development in an area with a CNEL of 65 dB or greater.

Policy 1.1.2: *Continue to ensure that there is no conflict or inconsistency between the operation of the Southern California Logistics Airport and future land uses within the Planning Area.*

Implementation Measure 1.1.2.1: Continue to monitor Southern California Logistics Airport operations to ensure there is no conflict or inconsistency between the operation of the Southern California Logistics Airport and future land uses within the Planning Area.

Implementation Measure 1.1.2.2: Work closely with Southern California Logistics Airport planners to ensure that future master plan expansions do not impact sensitive Victorville land uses.

Implementation Measure 1.1.2.3: Require Southern California Logistics Airport to update its Specific Plan as directed by the City to accommodate changes in its master plan.

Objective 1.2: Design new transportation facilities to minimize noise impacts on nearby sensitive sources

Policy 1.2.1: *Include noise mitigation measures in the design and use of new roadway projects.*

Implementation Measure 1.2.1.1: Continue to use special paving materials that will buffer roadway noise.

Implementation Measure 1.2.1.2: Incorporate adequate setbacks in roadway design to maximize the distance from sensitive land uses.

Implementation Measure 1.2.1.3: Restrict new truck routes to roadways that are located away from sensitive land uses.

Policy 1.2.2: *Promote noise mitigation measures in the design and use of new rail projects.*

Implementation Measure 1.2.2.1: Continue to coordinate with regional agencies and rail providers to incorporate adequate setbacks in rail line to maximize the distance from sensitive land uses.

GOAL #2 NOISE CONTROL

MANAGE THE AFFECTS OF NOISE EMISSIONS TO HELP ENSURE REDUCTION OF ADVERSE AFFECTS ON THE COMMUNITY

Objective 2.1: Ensure existing and future noise sources are properly attenuated

Policy 2.1.1: *Continue to implement acceptable standards for noise for various land uses throughout the City.*

Implementation Measure 2.1.1.1: Require a noise study to be performed and appropriate noise attenuation to be incorporated prior to approving any multifamily or mixed-use residential development in an area with a CNEL of 65 dB or greater.

Implementation Measure 2.1.1.2: Monitor noise complaints and enforce provisions of the City noise ordinance.

Implementation Measure 2.1.1.3: Discourage location of new educational facilities in areas with noise levels greater than 65 dB CNEL.

Implementation Measure 2.1.1.5: Continue to restrict noise and require mitigation measures for any noise-emitting construction equipment or activity.

Implementation Measure 2.1.1.6: Reduce speed limits on arterial streets if necessary to lower sound to appropriate levels for adjacent and surrounding land uses.

Objective 2.2: Ensure the community is properly informed regarding potential noise from SCLA operations

Policy 2.2.1: *Incorporate current information regarding SCLA operations into the land use planning process.*

Implementation Measure 2.2.1.1: Place the following condition on all new residential projects within the Planning Area: *The applicant/developer shall record an Airport Location Notice, which discloses the direction and distance from Southern California Logistics Airport. This notice shall record with the final map, including legal descriptions for all lots, and shall be subject to staff review and approval.*

Implementation Measure 2.2.1.2: Place the following condition on all development within the airport influence area, roughly north of Mojave Drive and west of Amargosa Road: *The applicant/developer shall record an Avigation Easement, which allows for the continued operation of overhead flights from Southern California Logistics Airport. The Avigation Easement shall be recorded prior to the issuance of any building permits, and shall be subject to staff review and approval.*