

5.7 NOISE

The project would generate construction-related noise levels above County thresholds affecting sensitive receptors in the surrounding area. Construction impacts would be short-term and primarily related to the grading of individual parcels within the study area. This impact would be considered Class II, significant but mitigable. Stationary noise sources associated with the heating and cooling of greenhouses and parked, idling refrigeration trucks are considered nuisance noise sources, which could adversely effect sensitive receptors, particularly during night-time and early morning hours. This is considered a significant, but mitigable impact (Class II). The incremental increase in traffic generated noise levels throughout the Study Area is considered adverse, but not significant.

5.7.1 Setting

The County of Santa Barbara Environmental Thresholds and Guidelines Manual (updated 1995) provides basic information regarding the physical characteristics of noise. This Noise Element is herein incorporated in its entirety per *State CEQA Guidelines* Section 15150. Noise measurements were conducted on June 8, 1999 to obtain noise background measurements specific to the study area. The following is a summary of the information contained in the Thresholds Manual and pertinent additional information obtained from the noise measurements.

a. Overview of Sound Measurement. Noise level (or volume) is generally measured in decibels (dB) using the A-weighted sound pressure level (dB(A)). The A-weighting scale is an adjustment to the actual sound power levels to be consistent with that of human hearing response, which is most sensitive to frequencies around 4000 Hertz (about the highest note on a piano) and less sensitive to low frequencies (below 100 Hertz). In addition to the actual instantaneous measurement of sound levels, the duration of sound is important since sounds that occur over a long period of time are more likely to be an annoyance or cause direct physical damage or environmental stress. One of the most frequently used noise metrics that considers duration as well as sound power level is the equivalent noise level (Leq). The Leq is defined as the steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual time-varying levels over a period of time. Typically Leq is summed over a one-hour period.

The sound pressure level is measured on a logarithmic scale with the 0 dB level based on the lowest detectable sound pressure level that people can perceive (an audible sound that is not zero sound pressure level). Decibels cannot be added arithmetically, but rather are added on a logarithmic basis. A doubling of sound energy is equivalent to an increase of 3 dB and a sound that is 10 dB less than another does not increase the dB level. Because of the nature of the human ear, a sound must be about 10 dB greater than the reference sound to be judged as twice as loud. In general, a 3-dB change in community noise levels is noticeable, while 1-2 dB changes are generally not perceived.

The actual time period in which noise occurs is also important since noise that occurs at night tends to be more disturbing than that which occurs during the daytime. The Day-Night Average Level (Ldn) recognizes this characteristic by weighting the hourly Leqs over a 24-hour

period. The weighting involves the addition of 10 dB to nighttime noise levels to account for the greater amount of disturbance associated with noise at this time period.

b. Sensitive Receptors. Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with those uses. Residences, hospitals, schools, guest lodging, and libraries are most sensitive to noise intrusion and therefore have more stringent noise exposure targets than manufacturing or agricultural uses that are not subject to impacts such as sleep disturbance. Residential neighborhoods include Shepard Mesa, located in the northeastern corner of the study area, Serena Park and Toro Canyon in the western end of the study area, and two smaller subdivisions, La Mirada and Ocean Oaks, north of Foothill Road between Nidever Road and Cravens Lane. In addition, substantial greenhouse development has occurred adjacent to Carpinteria High School and residential development along the northern city limits. Existing development in relation to proposed greenhouse expansion areas is shown on Figure 2-4 of Section 2.0, *Project Description*.

c. Existing Noise Sources. Traffic on area roadways is the primary noise source in the study area. Greenhouse activity can also sometimes generate substantial noise and noise levels were measured at six locations in the study area on June 7, 1999. As shown in Table 5.7-1, measured levels varied widely through the study area. Noise levels were loudest adjacent to major transportation corridors, such as SR 192. Noise near Carpinteria High School was measured at over 60 dB(A) Leq, which was attributable primarily to school-related traffic. Measured noise adjacent to existing greenhouses were considerably lower, in the 45 to 50 dB(A) Leq range.

Table 5.7-1 Measured Noise Levels in the Study Area

Location	Noise Level		Major Noise Sources
	Leq	Lmax	
1	67.5	86.6	Traffic
2	62.8	78.6	Traffic
3	66.9	87.4	Traffic, parking lot activity
4	60.7	76.9	Traffic, industrial activity
5	48.3	53.9	Traffic, trees rustling
6	49.6	54.1	Traffic, voices, plane
7	58.1	73.0	Traffic, birds, dog

Measurement locations are illustrated on Figure 5.7-1.

d. Regulatory Setting.

Environmental Thresholds and Guidelines Manual. The County of Santa Barbara has adopted several noise policies contained within the Environmental Thresholds and Guidelines Manual (1995). These policies establish both interior and exterior limits for noise compatibility. The maximum noise exposure for indoor living areas in residences is not to exceed 45 dB(A) CNEL. The exterior noise level standard for residential uses is 65 dB(A) CNEL for exterior living space. Exterior spaces include yards and patios, pool areas, balconies, and recreation areas.

Figure 5.7-1 Noise Measurement Locations

State Office of Noise Control. The State Office of Noise Control land use compatibility guidelines identify 65 dB(A) CNEL (Community Noise Equivalent Level) as the primary criteria to determine the significance of impacts to residential uses and other sensitive receptors.

5.7.2 Impact Analysis

a. Methodology and Thresholds of Significance. Existing and future traffic noise levels were quantified using the California Vehicle Noise Emission Levels (Caltrans, January 1997), standard noise modeling equations, and current and forecasted traffic volumes. Construction noise was estimated based on levels presented in the USEPA document *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*.

The County's thresholds manual indicates that the following thresholds of significance are for assisting in the determination of noise impacts. The thresholds are intended to be used with flexibility, as each project must be viewed in its specific circumstances.

- a) A proposed development that would generate noise levels in excess of 65 dB(A) CNEL and could affect sensitive receptors would generally be presumed to have a significant impact.
- b) Outdoor living areas of noise sensitive uses that are subject to noise levels in excess of 65 dB(A) CNEL would generally be presumed to be significantly impacted by ambient noise. A significant impact would also generally occur where interior noise levels cannot be reduced to 45 dB(A) CNEL or less.
- c) A project will generally have a significant effect on the environment if it will increase substantially the ambient noise levels for noise-sensitive receptors adjoining areas. Per item a), this may generally be presumed when ambient noise levels affecting sensitive receptors are increased to 65 dB(A) CNEL or more. However, a significant effect may also occur when ambient noise levels affecting sensitive receptors increase substantially but remain less than 65 dB(A) CNEL, as determined on a case-by-case level.
- d) Noise from grading and construction activity proposed within 1,600 feet of sensitive receptors, including schools, residential development, commercial lodging facilities, hospitals or care facilities, would generally result in a potentially significant impact.

For this EIR, impacts are considered significant if on-site activities at possible greenhouse locations would generate noise of over 65 dB(A) at the property line. Traffic-related noise is considered significant if project traffic would either cause an audible noise level increase (3 dB(A) or greater) or would cause noise levels to exceed 65 dB(A) CNEL.

According to EPA guidelines, construction noise can reach about 95 dB(A) at a 50 foot distance from the source. A 6 dB drop occurs with a doubling of the distance from the source. Therefore, locations within 1,600 feet of the construction site would be affected by noise levels over 65 dB(A).

If nearby residential development, or other sensitive receptors, would be exposed to noise in exceedance of the above criteria, impacts would be considered significant.

b. Project Impacts. The AG-I-OF zone district retains the provisions of the existing AG-I zone district except for greenhouse development of 20,000 sf or more. The conversion of land to open field and orchard agriculture and the construction of less than 20,000 sf of greenhouse development per legal lot are permitted under the existing zone district, as well as the proposed AG-I-OF. As stated in Section 3.0, most land that is suitable for greenhouse cultivation has already been converted to agriculture. Eliminating the opportunity to construct greenhouses on slopes greater than 5% will not create an incentive to bring more natural lands into cultivation, as greenhouse development would not have occurred on these slopes anyway. Furthermore, conversion of natural lands to open field and orchard cultivation could occur irrespective of the proposed project. As discussed in Section 3.0, Environmental Setting, these zone district provisions and the impacts associated with their continuation are a part of the environmental baseline and will continue whether or not the project is approved. Therefore, there are no reasonably foreseeable significant noise impacts associated with the proposed AG-I-OF zone district.

The project impacts identified below would result from potential buildout of 3.0 million sf of greenhouse development in the proposed AG-I-CARP zone district.

Impact N-1 Greenhouse construction would create temporary short-term noise levels that could be audible at nearby residences.

The sensitive receptors nearest the project site include residences throughout the northern portion of Carpinteria. Residential neighborhoods in the western part of the city near Santa Monica Road would have particularly high potential to experience construction noise due to their location proximal to sites where additional greenhouse development could occur. Construction activity could occur as near as 30 feet from residential properties. Residential areas with the greatest potential for exposure to significant noise levels include the neighborhoods north of El Carro Lane between Sterling Avenue and Santa Ynez Avenue and Venice Lane west of Santa Monica Road. Both of these are immediately adjacent to **Greenhouse Clusters D and E** large expansion areas along Foothill Road and Santa Monica Creek, which have substantial additional greenhouse development potential. Approximately ~~18~~²⁵ residences would be directly affected by ~~development~~ construction noise in these areas. ~~Cluster D, while about 12 adjacent residences located south of Cluster E would be affected by construction noise. An additional two residences located north of Foothill Road could be affected by construction noise in Cluster E.~~

Construction activities associated with greenhouse buildout would not occur uniformly over time, nor would all construction involve identical parcel sizes for specific types of development. Therefore, actual construction noise would vary from site to site. Nevertheless, general construction noise levels are presented herein to provide a reasonable estimate of noise. Construction on individual sites in the study area would likely occur over a period lasting from 3 weeks to 3 months, with the noisiest activities occurring during the site preparation stage and the concrete and structural work stage.

The operation of heavy equipment during construction of greenhouses would result in temporary increases in noise in the immediate vicinity of individual construction sites. As illustrated in Table 5.7-2, average noise levels associated with the use of heavy equipment at construction sites can range from about 78 to 88 dB(A) at 50 feet from the source, depending upon the types of equipment in operation at any given time and the phase of construction. At 30 feet from the source (the likely smallest distance between construction sites and sensitive receptors), the noise level could range from about 81 to 93 dB(A). Such levels would occur only intermittently during construction, but could cause noise annoyance to nearby receptors. The highest sustained noise levels would be expected to occur during excavation, which involves the use of such equipment as backhoes, bulldozers, shovels, and front end loaders.

Impacts associated with construction activity would be temporary and would be restricted to areas adjacent to possible construction sites. Nevertheless, according to County thresholds, impacts are considered potentially significant for construction projects within 1,600 feet of sensitive noise receptors. Because greenhouse buildout could involve construction activity that would be audible to nearby residences, impacts are considered potentially significant.

Table 5.7-2 Typical Noise Level Ranges at Construction Sites

Construction Phase	Average Noise Level	
	At 50 Feet from Source	At 30 Feet from Source
Clearing	84 dB(A)	88.4 dB(A)
Excavation	89 dB(A)	93.4 dB(A)
Foundation	77 dB(A)	81.4 dB(A)
Erection	84 dB(A)	88.4 dB(A)
Finishing and Cleanup	89 dB(A)	93.4 dB(A)
General grading *	82 dB(A)	--

Source: Bolt, Beranek and Newman, "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances," prepared for the U.S. Environmental Protection Agency, 1971. Noise levels at 30 feet from source were calculated based upon the levels at 50 feet and an attenuation rate of 6 dB per doubling of distance.

* Rincon Consultants, 1996. Monitored sound levels

Impact N-2 Operation of fans and industrial heaters, as well as idling refrigerator trucks, could generate nuisance noise at nearby receptor locations.

Noise measurements taken adjacent to greenhouses as part of this study did not find noise exceeding acceptable levels. As discussed in the Setting, noise measurements of two adjacent greenhouses were in the 45 to 50 dB(A) range. However, the measurements only represent a snapshot of the noise profile in these areas and noise levels at other times could be considerably higher. Neighbors of greenhouses in the study area have maintained that operation of such equipment as fans and heaters create nuisance noise, particularly when it occurs at night. In addition, operation of heavy trucks on-site likely create increased noise on an intermittent basis. Because of the potential for the operation of these types of equipment in proximity to sensitive receptors, noise associated with on-site greenhouse operations is considered potentially significant.

Operation of fans and industrial heaters could occur as near as 30 feet from residential properties. Several residential areas north of Highway 101 are located adjacent to possible greenhouse expansion areas and therefore could be exposed to noise from greenhouse equipment. Residential areas with the greatest potential for exposure to significant noise levels include the neighborhoods north of El Carro Lane between Sterling Avenue and Santa Ynez Avenue and Venice Lane west of Santa Monica Road.

Impact N-3 Greenhouse buildout would increase traffic-related noise on study area roadways.

Buildout of the project is expected to generate a total of 822 average daily trips (ADT). A relatively high proportion of project-generated traffic (up to about 23%) would consist of truck traffic (18% light to medium trucks, 5% large trucks). Medium and heavy-duty trucks are generally noisier than light duty autos and passenger trucks. Table 5.7-3 compares existing noise levels along several study area roadways to future noise levels with and without the proposed project.

Table 5.7-3 Comparison of Existing and Future Noise Levels (50 Feet from Roadway Centerline)

Roadway	Noise Level (dB(A) CNEL)			Project Change (in dB(A))	Cumulative Change (in dB(A))
	Existing Conditions (w/out Project)*	Future Conditions (w/o Project)*	Future Conditions (w/ Project)		
Foothill west of Cravens	57.9	59.3	59.6	0.3	1.7
Foothill east of Linden	62.8	63.0	63.2	0.2	0.5
Casitas Pass south of Foothill	64.6	65.1	65.2	0.1	0.6
Linden south of Foothill	60.7	60.9	61.2	0.3	0.5
Via Real west of Cravens	64.6	65.3	65.6	0.3	1.0

See Appendix H for calculations.

The change in noise level associated with project only traffic would be 0.3 dB(A) or less on all five study roadways; therefore, the increase in noise associated with project traffic would not be perceptible on any study area roadway. Traffic associated with cumulative growth would cause noise levels along two study area roadway segments (Casitas Pass Road south of Foothill and Via Real west of Cravens) to exceed 65 dB(A) CNEL. However, project traffic would not in itself cause any exceedance of the 65 dB(A) CNEL standard. Project impacts are therefore considered less than significant.

5.7.3 Mitigation Measures

a. Existing Comprehensive Plan/Coastal Plan Policies. Included in Section 4.0 of this EIR, Consistency with Locally Adopted Plans and Policies, is a discussion of existing County Comprehensive Plan policies which address noise-related issues.

The County's Right to Farm Ordinance standards pertaining to buffers (Sec. 35-292k.10.D.6) would partially address potential noise conflicts between adjacent residential uses and greenhouse operations.

b. Proposed Development Standards. No specific noise development standards are proposed in the AG-I-CARP or AG-I-OF zoning districts.

c. Additional Proposed Mitigation Measures. The following measures to reduce noise effects on nearby sensitive receptors are required:

Mitigation N-1 Acoustical Shelters. Stationary construction equipment that could generate noise exceeding 65 dB(A) at project site boundaries shall be shielded to County P&D's satisfaction, and shall be located a minimum of two hundred (200) feet from sensitive receptors. *(Addresses Impact N-1)*

Mitigation N-2 Construction Timing. Construction activities shall be limited to the daytime hours between 8:00 a.m. to 5:00 p.m. Monday through Friday. Construction maintenance shall be limited to the same hours. Non-noise generating activities (e.g., interior painting) are not subject to these restrictions. *(Addresses Impact N-1)*

Mitigation N-3 Sound Level Management. Industrial fans and heaters for all greenhouse development shall be designed such that external sound levels do not exceed 65 dB(A) at the property line. Such equipment shall not be located on greenhouse walls that face adjacent existing residences. To ensure that this maximum sound level is not exceeded, acoustical analyses shall be conducted prior to zoning clearance of individual greenhouses and follow-up noise monitoring shall be conducted at least twice during the first year of greenhouse operation. If noise levels from greenhouse equipment is found to exceed 65 dB(A) at the property line, adjustments shall be made to ensure compliance with this requirement. *(Addresses Impact N-2)*

Mitigation N-4 Sound Amplification Systems. Noise associated with paging and/or broadcasting of music over speakers within greenhouse structures shall be limited to levels that are not audible within 30 feet of the exterior of the structure. *(Addresses Impact N-2)*

Mitigation N-5 Distribution Facility Management. To the maximum extent feasible, loading docks, packing sheds, and delivery bays shall be centrally located within individual greenhouse operations. A minimum 100 foot setback shall be maintained between loading/unloading areas, driveways, and parking areas and adjacent residential properties unless it can be determined that shielding or other measures can provide sufficient attenuation to reduce noise at the property line to less than 65 dB(A). *(Addresses Impact N-2)*

5.7.4 Residual Impacts

The following discussion identifies the level of significance after all available mitigation measures have been applied.

Impact N-1. While construction noise could result in temporary annoyances to nearby sensitive receptors, the recommended mitigation measures would be expected to reduce construction noise to a ***less than significant level (Class II)***.

Impact N-2. Greenhouse operations would generate nuisance noise that could effect nearby sensitive receptors. However, recommended mitigation measures would reduce these impacts ***to less than significant levels (Class II)***.

Impact N-3. Project traffic-related noise would be less than significant without mitigation. The *de minimus* contribution to cumulative noise levels is considered ***adverse, but less than significant (Class III)***.

5.7.5 Cumulative Impacts

Greenhouse development, in combination with other planned and pending development in the region, would cumulatively increase ambient noise levels in the Carpinteria Valley dB(A). Cumulative traffic growth without project added traffic could cause noise levels on Casitas Pass Road south of Foothill and Via Real west of Cravens to exceed the 65 dB(A) CNEL threshold. Since the project's added contribution of 0.1 dB(A) and 0.3 dB(A) is not considered a perceptible noise level increase (min. 3 dB(A) increase), the project's *de minimus* contribution to cumulative noise levels is considered ***adverse, but less than significant (Class III)***.

