

## VI. NOISE ELEMENT

### INTRODUCTION TO THE NOISE ELEMENT

The control of noise is an important part of preserving the quality of a community. The development of effective strategies to reduce excessive noise is essential to creating a safe and compatible living and working environment. Since 1971, the Noise Element has been one of the seven mandatory elements of a general plan.

#### PURPOSE

The Noise Element of a general plan is a comprehensive program for including noise control in the planning process. It is a tool for achieving and maintaining environmental noise levels compatible with land use. The Noise Element identifies noise-sensitive land uses and noise sources, and defines areas of noise impact. This Noise Element establishes goals, policies, and programs to ensure that Cypress residents will be protected from excessive noise. The adopted noise element serves as a guideline for compliance with the state's noise insulation standards.

The Noise Element follows guidelines in the State Government Code Section 65302(f) and Section 46050.1 of the Health and Safety Code. It quantifies the community noise environment by establishing noise exposure contours for both near- and long-term levels of growth and noise-generating activity. The information will become a guideline for the development of goals and policies to achieve noise compatible land uses. This information also identifies baseline noise levels and sources for the identification of local noise ordinance enforcement.

#### RELATIONSHIP WITH OTHER GENERAL PLAN ELEMENTS

The Noise Element's relationship to other elements of the General Plan depends upon the nature of the other Elements. In the case of the Land Use Element, the relationship arises from the need to locate incompatible uses away from one another when possible. The relationship to the Safety Element works to protect residents, workers, and visitors within the City from being exposed to harmful noise levels. The relationship to the Circulation Element encourages roadways and other transportation systems that efficiently move people and goods, but also transportation systems which do not create serious noise impacts to surrounding land uses. The Housing Element and the Noise Elements work together to assure a housing stock that is well maintained and meets all current noise standards. Finally, the Conservation/Open Space Element and the Noise Element work together to assure that the City is a pleasant place to live and work.

## NOISE SCALES

Decibels (dB) are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers in a manner similar to the Richter scale used to measure earthquakes. In terms of human response to noise, a sound 10 dB higher than another is judged to be twice as loud; and 20 dB higher four times as loud; and so forth. Everyday sounds normally range from 30 dBA (very quiet) to 100 dBA (very loud). The A-weighted sound pressure level is the sound pressure level, in decibels, as measured on a sound level meter using the A-weighted filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound, placing greater emphasis on those frequencies within the sensitivity range of the human ear. Examples, of various sound levels in different environments are shown in Table N-1, *Sound Levels and Human Response*.

Many methods have been developed for evaluating community noise to account for, among other things:

- The variation of noise levels over time;
- The influence of periodic individual loud events; and
- The community response to changes in the community noise environment.

Numerous methods have been developed to measure sound over a period of time. These methods include: 1) the Community Noise Equivalent Level (CNEL); 2) the Equivalent Sound Level (Leq); and 3) the Day/Night Average Sound Level (Ldn). These methods are described below.

**Community Noise Equivalent Level (CNEL)** . The predominant community noise rating scale used in California for land use compatibility assessment is the Community Noise Equivalent Level (CNEL). The CNEL reading represents the average of 24 hourly readings of equivalent levels, known as Leq's, based on an A-weighted decibel with upward adjustments added to account for increased noise sensitivity in the evening and night periods. These adjustments are +5 dBA for the evening, 7:00 p.m. to 10:00 p.m., and +10 dBA for the night, 10:00 p.m. to 7:00 a.m. CNEL may be indicated by "dBA CNEL" or just "CNEL".

**Leq**. The Leq is the sound level containing the same total energy over a given sample time period. The Leq can be thought of as the steady sound level which, in a stated period of time, would contain the same acoustic energy as the time-varying sound level during the same period. Leq is typically computed over 1, 8 and 24-hour sample periods.

**Day Night Average (Ldn)**. Another commonly used method is the day/night average level or Ldn. The Ldn is a measure of the 24-hour average noise level at a given location. It was adopted by the U.S. Environmental Protection Agency (EPA) for developing criteria for the evaluation of community noise exposure. It is based on a measure of the average noise level over a given time period called the Leq. The Ldn is calculated by averaging the Leq's for each hour of the day at a given location after penalizing the "sleeping hours" (defined as 10:00 p.m. to 7:00 a.m.), by 10 dBA to account for the increased sensitivity of people to noises that occur at night. The maximum noise level recorded during a noise event is typically expressed as Lmax. The sound level exceeded over a specified time frame can be expressed as Ln (i.e., L90, L50, L10, etc.). L50 equals the level exceeded 50 percent of the time, L10 ten percent of the time, etc.

**Table N-1  
SOUND LEVELS AND HUMAN RESPONSE**

Noise Source	dB(A) Noise Level	Response
	150	
Carrier Jet Operation	140	Harmfully Loud
	130	Pain Threshold
Jet Takeoff (200 feet; thence.) Discotheque	120	
Unmuffled Motorcycle Auto Horn (3 feet; thence.) Rock'n Roll Band Riveting Machine	110	Maximum Vocal Effort Physical Discomfort
Loud Power Mower Jet Takeoff (2000 feet; thence.) Garbage Truck	100	Very Annoying Hearing Damage (Steady 8-Hour Exposure)
Heavy Truck (50 feet; thence.) Pneumatic Drill (50 feet; thence.)	90	
Alarm Clock Freight Train (50 feet; thence.) Vacuum Cleaner (10 feet; thence.)	80	Annoying
Freeway Traffic (50 feet; thence.)	70	Telephone Use Difficult
Dishwashers Air Conditioning Unit (20 feet; thence.)	60	Intrusive
Light Auto Traffic (100 feet; thence.)	50	Quiet
Living Room Bedroom	40	
Library Soft Whisper (15 feet; thence.)	30	Very Quiet
Broadcasting Studio	20	
	10	Just Audible
	0	Threshold of Hearing

Source: Melville C. Branch and R. Dale Beland, *Outdoor Noise in the Metropolitan Environment*, 1970, Page 2.

**FEDERAL NOISE STANDARDS**

The United States Noise Control Act of 1972 (NCA) recognized the role of the Federal government in dealing with major commercial noise sources in order to provide for uniform treatment of such sources. As Congress has the authority to regulate interstate and foreign commerce, regulation of noise generated by such commerce also falls under congressional authority. The Federal government specifically preempts local control of noise emissions from aircraft, railroad and interstate highways.

The U.S. EPA has identified acceptable noise levels for various land uses, in order to protect public welfare, allowing for an adequate margin of safety, in addition to establishing noise emission standards for interstate commerce activities.

**STATE NOISE STANDARDS**

The Office of Noise Control in the State Department of Health Services has developed criteria and guidelines for local governments to use when setting standards for human exposure to noise and preparing noise elements for General Plans. These guidelines include noise exposure levels for both exterior and interior environments. In addition, Title 25, Section 1092 of the California Code of Regulations sets forth requirements for the insulation of multiple-family residential dwelling units from excessive and potentially harmful noise. The State indicates that locating units in areas where exterior ambient noise levels exceed 65 dBA is undesirable. Whenever such units are to be located in such areas, the developer must incorporate into building design construction features which reduce interior noise levels to 45 dBA CNEL. Tables N-2 and N-3, below, summarize standards adopted by various State and Federal agencies. Table N-2, *Noise and Land Use Compatibility Matrix*, presents criteria used to assess the compatibility of proposed land uses with the noise environment. Table N-3, *Interior and Exterior Noise Standards*, indicates standards and criteria that specify acceptable limits of noise for various land uses throughout Cypress. These standards and criteria will be incorporated into the land use planning process to reduce future noise and land use incompatibilities. These tables are the primary tools which allow the City to ensure integrated planning for compatibility between land uses and outdoor noise.

**CITY NOISE STANDARDS**

The City of Cypress adopted a comprehensive noise ordinance into its City Code which sets standards for noise levels citywide and provides the means to enforce the reduction of obnoxious or offensive noises (refer to Table N-4, *Noise Ordinance Standards*). Sections 13-64 through 13-78 of the City Code establish noise standards and enforcement procedures.

**Noise Ordinance.** The City Noise Ordinance is designed to protect people from non-transportation noise sources such as music, construction activity, machinery and pumps, and air conditioners. Enforcement of the ordinance ensures that adjacent properties are not exposed to excessive noise from stationary sources. Enforcing the Noise Ordinance includes requiring proposed development projects to show compliance with the ordinance, and requiring construction activity to comply with established schedule limits. The ordinance will be reviewed periodically for adequacy and amended as needed to address community needs and development patterns.

**Table N-2  
NOISE AND LAND USE COMPATIBILITY MATRIX**

Land Use Category	Community Noise Exposure			
	Ldn or CNEL, dB			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential-Low Density	50-60	60-65	65-75	75-85
Residential-Multiple Family	50-60	60-65	65-75	75-85
Transient Lodging-Motel, Hotels	50-65	65-70	70-80	80-85
Schools, Libraries, Churches, Hospitals, Nursing Homes	50-60	60-65	65-80	80-85
Auditoriums, Concert Halls, Amphitheaters	NA	50-65	NA	65-85
Sports Arenas, Outdoor Spectator Sports	NA	50-70	NA	70-85
Playgrounds, Neighborhood Parks	50-70	NA	70-75	75-85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50-70	NA	70-80	80-85
Office Buildings, Business Commercial and Professional	50-67.5	67.5-75	75-85	NA
Industrial, Manufacturing, Utilities, Agriculture	50-70	70-75	75-85	NA

Source: Modified from U.S. Department of Housing and Urban Development Guidelines and State of California Standards.

NOTES: **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.

**CONDITIONALLY ACCEPTABLE**  
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

**NORMALLY UNACCEPTABLE**  
New Construction or development should 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.

**CLEARLY UNACCEPTABLE**  
New construction or development should generally not be undertaken.

**NA:** Not Applicable

**Table N-3  
INTERIOR AND EXTERIOR NOISE STANDARDS**

Land Use Categories		CNEL	
Categories	Uses	Interior <sup>1</sup>	Exterior <sup>2</sup>
Residential	Single family Duplex, Multiple Family	45 <sup>3</sup> - 55	50 – 60
	Mobile Home	45	65 <sup>4</sup>
Commercial Industrial Institutional	Hotel, Motel, Transient Lodging	45	--
	Commercial Retail, Bank, Restaurant	55	--
	Office Building, Research and Development, Professional Offices, City Office Building	50	--
	Amphitheater, Concert Hall, Auditorium, Meeting Hall	45	--
	Gymnasium (Multipurpose)	50	--
	Sports Club	55	--
	Manufacturing, Warehousing, Wholesale, Utilities	65	--
	Movie Theaters	45	--
Institutional	Hospital, Schools' Classrooms	45	65
	Church, Library	45	--
Open Space	Parks	--	65

**NOTES:**

1. Indoor environmental including: Bedrooms, living areas, bathrooms, toilets, closets, corridors.
2. Outdoor environment limited to: Private yard of single family  
Multi-family private patio or balcony which is served by a means of exit from inside the dwelling  
Balconies 6 feet deep or less are exempt  
Mobile home park  
Park's picnic area  
School's playground
3. Noise level requirement with closed windows. Mechanical ventilating system or other means of natural ventilation shall be provided as of Chapter 12, Section 1205 of UBC.
4. Exterior noise levels should be such that interior noise levels will not exceed 45 CNEL.

**Table N-4  
NOISE ORDINANCE STANDARDS**

Noise Zone	Exterior Standard	Interior Standard
1	55dB(A) 7am-10pm 50dB(A) 10pm-7am	55dB(A) 7am-10pm 45dB(A) 10pm-7am
2	60dB(A) 7am-10pm 55dB(A) 10am-7pm	55dB(A) 7am-10pm 45dB(A) 10am-7pm
Noise Zone 1: Noise Zone 2:	RS-15000 and RS-6000 zoned residential. All other residential properties.	

## SUMMARY OF EXISTING CONDITIONS

The sources of noise in Cypress fall into four basic categories. These are:

- Major and minor arterial roadways;
- Aircraft overflights (from the Joint Forces Training Center (JFTC) Los Alamitos);
- Stationary sources (including industrial and commercial centers); and
- Trains (from the Southern Pacific rail line).

**Major and Minor Arterial Roadways.** Traffic noise on surface streets is a significant source of noise within the community. The major roadways in the City include: Crescent Avenue, Lincoln Avenue, Orange Avenue, Ball Road, Cerritos Avenue, Katella Avenue, Orangetown Avenue, Bloomfield Street, Denni Street, Moody Street, Walker Street, Valley View, Holder Street, and Knott Street.

Noise levels along roadways are determined by a number of traffic characteristics. Most important is the average daily traffic (ADT). Additional factors include the percentage of trucks, vehicle speed, the time distribution of this traffic, and gradient of the roadway. In general, most of the land uses along the major roadways are commercial, open space, and light industrial. However, single and multi-family areas, as well as public facilities, are situated along many of the major roadways indicated above.

**Aircraft Operations.** The Joint Forces Training Center (JFTC) Los Alamitos is situated along the southern boundary of the City and is the only airport within the vicinity of Cypress. The Center is primarily a helicopter training base. Approximately 91 percent of total operations are by helicopters with the remainder being light twin-engine fixed-wing aircraft and occasional operations by transient military and civil support aircraft.

Land uses within the Airport Environs Land Use Plan (AELUP) include residential, vacant, agricultural, and business park uses. Exhibit N-2 shows the existing noise contours which form the boundary of AELUP.

**Stationary Sources.** Commercial and industrial land uses located near residential areas currently generate occasional noise impacts. The primary noise sources associated with these facilities is caused by delivery trucks, air compressors, generators, outdoor loudspeakers, and gas venting. Other significant stationary noise sources in the City include noise from construction activity, street sweepers, and gas powered leaf blowers.

**Train Operations.** The City is traversed by one Southern Pacific Rail Road (SPRR) freight train line. Train traffic on this rail line which run along the northeastern edge of the City is considered to contribute to a relatively minor source of noise within the community due to the low frequency of operation (approximately two trains per day unless freight activity requires an increase in frequency in which 3 trips per day occurs).

The railroad lines traverse both commercial and residential property. Any residential developments and other sensitive uses located along the two railroad lines will require sound insulation to mitigate noise to an acceptable level.

## **NOISE SENSITIVE RECEPTORS**

Housing is the most predominant and noise-sensitive land use in Cypress. This land use is considered especially noise-sensitive because (1) considerable time is spent by individuals at home, (2) significant activities occur outdoors, and (3) sleep disturbance is most likely to occur in a residential area. Mixed use developments which include residential uses along major arterials are particularly sensitive uses since they are located in areas where higher noise levels are generated.

Additionally, the City of Cypress has a number of educational facilities, churches, a library, senior housing, and park and recreation facilities that are considered noise-sensitive. The location of noise sensitive receptors are shown on Exhibit N-1, *Noise Sensitive Receptors*. Noise levels measured at schools, day care centers, churches (with day care centers), the library and community centers are reported in Table N-4, *Field Noise Measurements*.

## **COMMUNITY NOISE CONTOURS**

The noise environment for Cypress can be described using noise contours developed for the major noise sources within the City. These contours represent lines of equal noise exposure, just as the contour lines on a topographic map are lines of equal elevation. The contours shown are the 60 and 65 dB(A) CNEL (Community Noise Equivalency Level) contours. As previously stated, CNEL is a 24-hour time-weighted average noise level where noise which occurs during sensitive time periods is weighted more heavily.

Noise contours for Cypress were developed based on existing and future traffic levels, and other sources of noise in the community. Cypress noise contours are presented in Exhibits N-2 and N-3. Exhibit N-2 shows the noise environment as estimated in 1999 for existing land uses and traffic on major streets in the City. Exhibit N-3 shows the future noise environment as it would exist at full implementation of the General Plan.

The inclusion of an area within a 60 or 65 CNEL contour on Exhibit N-2, *Existing Noise Contours (1999)*, or N-3, *Future Noise Contours (2020)*, indicates that noise levels are high enough to be of potential concern, but does not imply that excessive noise levels are present uniformly on all sites within the area. Buildings, walls, berms, and changes in topography affect noise levels. Some locations may be screened from noise impact by the presence of one or more of these features.

INSERT EXHIBIT N-1  
"Noise Sensitive Receptors"

This page left intentionally blank.

INSERT EXHIBIT N-2  
"Existing Noise Contours (1999)"

This page left intentionally blank.

INSERT EXHIBIT N-3  
"Future Noise Contours (2020)"

This page left intentionally blank.

**Table N-5  
FIELD NOISE MEASUREMENTS**

Site #	Sensitive Receptor	Leq dBA	Lmax dBA	L10 dBA	L50 dBA	L90 dBA
1	Cypress Montessori School	50.6	68.8	49.8	40.0	37.7
2	King Elementary School	51.2	63.4	55.0	48.0	40.9
3	ABC Development Pre-School (8710 Moody Street.)	51.3	60.4	54.4	49.7	43.0
4	Calvary Chapel Christian School	50.2	61.9	53.5	47.5	41.0
5	Cypress Head Start	47.3	54.3	47.7	47.2	46.8
6	Cypress College	52.0	69.5	54.8	45.8	41.8
7	Cypress High School	49.2	57.8	53.7	45.5	41.7
8	ABC Development Pre-School (9952 Graham Street)	51.8	61.8	55.4	48.9	41.7
9	Morris Elementary School	43.8	61.3	43.2	35.4	32.8
10	Swain Elementary School	36.6	45.9	39.7	34.2	32.5
11	Children's World Learning Center	37.5	53.9	40.2	32.9	31.2
12	Cypress Learning Tree	50.2	59.7	51.5	46.7	42.2
13	Cypress Senior Center	49.7	66.6	52.7	43.4	36.9
14	St. Irenaeus Catholic School	46.1	60.5	50.4	40.0	34.7
15	Oxford Academy	48.7	61.9	51.3	45.5	40.0
16	Cypress Library	47.7	57.3	51.2	46.3	37.8
17	Cypress Community Center	41.3	47.6	44.0	40.5	37.4
18	Lexington Junior High School	45.5	53.7	49.0	43.8	37.2
19	Arnold Elementary School	46.7	60.4	50.4	43.5	38.2
20	ABC Development Pre-School (9281 Denni Street)	38.3	53.4	38.7	36.8	35.2
21	Landell Elementary	43.8	52.7	47.8	40.8	35.0
22	A Child's Adventure (9739 Denni Street)	43.3	56.1	46.4	41.3	36.5
23	Cawthon Elementary School	42.4	58.5	45.7	35.3	33.3
24	A Child's Adventure (4545 Myra Avenue)	45.2	59.6	49.8	37.9	33.3
25	Damron Elementary School	45.1	63.7	48.0	38.3	35.3
26	A Child's Adventure (5400 Myra Avenue)	37.8	48.0	40.4	36.5	33.7
27	Vessels Elementary School	42.8	56.6	46.5	38.2	36.2
28	Carousel Pre-School and Day Care	42.0	54.3	43.5	41.8	39.3
29	Cypress Park Community Church and Day Care	47.2	60.5	49.4	44.7	40.4
30	Grace Christian School	49.3	59.2	53.0	47.3	40.4
31	Cypress Early Learning Center	55.4	69.3	58.7	53.0	47.3
Source: Noise monitoring survey conducted by Robert Bein, William Frost & Associates on August 26, and August 27, 1999.						
<ol style="list-style-type: none"> <li>1. Noise measurements based on 15 minute recording period.</li> <li>2. Measurements recorded adjacent to abutting roadway.</li> </ol>						

Exhibit N-3 shows projected 60 dB contours ranging between approximately 110 feet and 520 feet from the roadway centerlines. The 65 dB contour ranges between 51 feet and 240 feet along roadways modeled. This impacts existing residential neighborhoods. However, Lincoln Avenue's 60 dB noise contour impacts land uses within approximately 280 feet and Valley View Street and Katella Avenue between 360 feet and 520 feet, respectively. Future residential units constructed along Lincoln Avenue will therefore require noise mitigation. Exhibit N-3 also shows the noise contours for the Los Alamitos Army Airfield which extend over the Cypress Business Park and a residential neighborhood on the City's eastern border.

**60 CNEL.** The 60 CNEL contour defines the Noise Study Zone. The noise environment for any proposed noise-sensitive land use (for example, single- or multi-family residences, hospitals, schools, or churches) within this zone should be evaluated on a project specific basis. The project may require mitigation to meet City and/or State (Title 24) standards. A site- and project-specific study will be necessary to determine what kinds of mitigation will make the interior building environment acceptable for the given type of land use. Some sites may already be sufficiently protected by existing walls or berms that no further mitigation measures are required.

**65 CNEL.** The 65 CNEL contour defines the Noise Mitigation Zone. Within this contour, new or expanded noise-sensitive developments should be permitted only if appropriate mitigation measures, such as barriers or additional sound insulation, are included and City and/or State noise standards are achieved. In some instances it may be possible to show that existing walls, berms, or screening may exist such that required mitigation is already in place.

## KEY NOISE ISSUES

Several factors contribute to create noise issues within the City. These issues are summarized below.

### TRANSPORTATION NOISE CONTROL

The City of Cypress contains several transportation-related noise sources, including Joint Forces Training Center, major arterials, and collector roadways. These sources are the major contributors of noise in Cypress. Cost-effective strategies to reduce their influence on the community noise environment are an essential part of the Noise Element.

### NOISE AND LAND USE PLANNING INTEGRATION

Information relative to the existing and future noise environment within Cypress should be integrated into future land use planning decisions. The Element presents the noise environment in order that the City may include noise impact considerations in development programs. Noise and land use compatibility guidelines are presented, as well as noise standards for new developments.

### COMMUNITY NOISE CONTROL FOR NON-TRANSPORTATION NOISE SOURCES

Residential land uses and areas identified as noise-sensitive must be protected from excessive noise from non-transportation sources including commercial and industrial centers. These impacts are best controlled through effective land use planning and the application of the City Noise Ordinance.

**DESCRIPTION OF THE NOISE PLAN**

**NOISE CONTROL**

Transportation noise is the most serious noise problem in Cypress. However, local government has little direct control of transportation noise at the source. State and federal agencies have the responsibility to control vehicle noise emission levels. The most effective method the City has to mitigate transportation noise is by reducing noise impact on the community. Mitigation through site planning and the design and construction of a noise barrier (generally a wall or berm) are the most common ways of alleviating traffic noise impacts in existing urban environments.

**TRANSPORTATION NOISE CONTROL**

The most efficient and effective means of controlling noise from transportation systems is to reduce noise at the source. However, since the City has little direct control over source noise levels because of State and federal preemption (for example, State motor vehicle noise standards and federal air regulations), policies should be focused on reducing the impact of the noise on the community.

The following methods can be utilized to assist in the reduction of transportation related noise levels:

- Ensure the employment of noise mitigation measures in the design of roadway improvement projects consistent with funding capability. Support efforts by the California Department of Transportation and other agencies to provide for acoustical protection of existing noise-sensitive land uses affected by these projects.
- Require the use of walls and landscape berms in the design of residential and other noise-sensitive land uses that are adjacent to major roads, railroads, Joint Forces Training Center (JFTC) Los Alamitos, commercial uses, or industrial areas.
- Provide for continued evaluation of truck movements and routes in the City to provide effective separation from residential and other noise-sensitive land uses.
- Enforce the State motor vehicle noise standards for cars, trucks, and motorcycles.

**NOISE AND LAND USE PLANNING INTEGRATION**

Information relative to the existing and future noise environments within Cypress should be integrated into future land use planning decisions. The Element presents the existing and future noise environments so that the City will include noise impact considerations in development programs. Noise and land use compatibility guidelines are presented, as well as noise standards for new developments. Community noise considerations are to be incorporated into land use planning to the maximum extent feasible.

The following methods are intended to prevent future noise and land use incompatibilities:

- Enforce standards that specify acceptable noise limits for various land uses throughout the City. Table N-1 shows criteria used to assess the compatibility of proposed land uses with the noise environment. These criteria are the basis of specific noise standards.

These standards, presented in Table N-2, define City policy related to land uses and acceptable noise levels.

- Incorporate noise-reduction features during site planning to mitigate anticipated noise impacts on affected noise-sensitive land uses. The noise referral zones identified by 60 and 65 decibel CNELs in Exhibits N-2 and N-3 can be used to identify locations of potential conflict. New developments will be permitted only if appropriate mitigation measures are included such that the standards contained in this Element are met in accord with Table N-3.
- Enforce the provisions of the current State of California Uniform Building Code, which specifies that the indoor noise levels for multi-family residential living spaces not exceed 45 dB CNEL due to the combined effect of all noise sources. The State requires special construction features to be incorporated within project design to attain this interior noise standard when the outdoor noise levels exceed 65 dB CNEL.

The Noise Referral Zones (the 65 dB CNEL contour) can be used to determine when this standard needs to be addressed. The Uniform Building Code requires that “interior” CNEL/ $L_{dn}$  with windows closed, attributable to exterior sources shall not exceed an annual CNEL or  $L_{dn}$  of 45 dB in any habitable room. The code requires that this standard be applied to all new hotels, motels, apartment houses, and dwellings other than detached single-family dwellings. The City will also apply this standard to single-family dwellings.

- Coordinate all land use planning and design efforts in the environs of Joint Forces Training Center (JFTC) Los Alamitos to be consistent with noise levels for the airport. Noise sensitive land uses should be prohibited inside the 65 CNEL contour projected for the airport and all noise sensitive land uses inside the 60 CNEL contour should be designed to mitigate airport noise.

## **NON-TRANSPORTATION NOISE CONTROL**

People must be protected from excessive noise from non-transportation sources, including commercial and industrial centers. These impacts are most effectively controlled through the application of the City's Noise Ordinance. Refer to *City Noise Standards* discussion, above, for basic standards of the City's noise ordinance.

- Enforce the comprehensive City Noise Ordinance. The ordinance will protect people from non-transportation related noise sources such as music, machinery, pumps, and air conditioners.
- Require that any proposed development and building projects demonstrate compliance with the City Noise Element and Ordinance prior to project approval. Notify applicants for building permits that include mechanical equipment that this requirement exists.
- Require construction activity to comply with limits established in the City Noise Ordinance. Ensure adequate noise control measures at all construction sites through provision of mufflers and the physical separation of machinery maintenance areas from adjacent residential uses.
- Continue the noise enforcement efforts of the City.

- Limit delivery hours for commercial and industrial uses with loading areas or docks fronting, siding, bordering, or gaining access on driveways adjacent to noise-sensitive areas. Exemption from this restriction shall be based solely on attaining full compliance with the nighttime noise limits of the noise ordinance.

## STANDARD NOISE ATTENUATION TECHNIQUES

Noise reduction can be accomplished by placement of walls, landscaped berms, or a combination of the two, between the noise source and the receiver. Generally, effective noise shielding requires a solid barrier with a mass of at least four pounds per square foot of surface area which is large enough to block the line of sight between source and receiver. Variations may be appropriate in individual cases based on distance, nature and orientation of buildings behind the barrier, and a number of other factors. Garages or other buildings may be used to shield dwelling units and outdoor living areas from traffic noise.

In addition to site design techniques, noise insulation can be accomplished through proper design of buildings. Nearby noise generators should be recognized in determining the location of doors, windows and vent openings. Sound-rated windows (extra thick or multi-paned) and wall insulation are also effective. None of these measures, however, can realize their full potential unless care is taken in actual construction: doors and windows fitted properly; openings sealed; joints caulked; plumbing adequately insulated from structural members. And, of course, sound-rated doors and windows will have little effect if left open. This may require installation of air conditioning for adequate ventilation. The chain of design, construction and operation is only as effective as its weakest link.

Noise impacts can be reduced by insulating noise sensitive uses, such as residences, schools, libraries, hospitals, nursing and carehomes and some types of commercial activities. But perhaps a more efficient approach involves limiting the level of noise generation at the source. State and Federal statutes have largely preempted local control over vehicular noise emissions but commercial and industrial operations and certain residential activities provide opportunities for local government to assist in noise abatement. Local ordinances may establish maximum levels for noise generated on-site. This usually takes the form of limiting the level of noise permitted to leave the property where it may impact other uses.

Although vehicular noise emissions standards are established at the State and Federal levels, local agencies can play a significant part in reducing traffic noise by controlling traffic volume and congestion. Traffic noise is greatest at intersections due to acceleration, deceleration and gear shifting. Measures such as signal synchronization can help to minimize this problem. Likewise, reduction of congestion aids in reduction of noise. This can be accomplished through the application of traffic engineering techniques such as channelization of turning movements, parking restrictions, separation of modes (bus, auto, bicycle, pedestrian) and restrictions on truck traffic.

## GOALS AND POLICIES

### TRANSPORTATION NOISE CONTROL

- N-1: Reduce noise impacts from transportation noise sources.
  - N-1.1: Require construction of barriers to shield noise-sensitive uses from excessive noise.

- N-1.2: Ensure the inclusion of noise mitigation measures in the design of new roadway projects in Cypress.
- N-1.3: Reduce transportation noise through proper design and coordination of new or remodeled transportation and circulation facilities.
- N-1.4: Enforce City, State, and federal noise standards, especially those for automobile mufflers and modified exhaust systems.
- N-1.5: Ensure that the Zoning Ordinance, Circulation Element, and Land Use Element fully integrate the policies adopted as part of the Noise Element.
- N-1.6: Monitor noise from buses and other heavy vehicles in residential areas. If necessary, consider alternate circulation routes for those types of vehicles.
- N-1.7: Discourage through-traffic in residential neighborhoods by use of one-way streets.
- N-1.8: Require that new equipment purchased by the City of Cypress comply with noise performance standards.

**NOISE AND LAND USE PLANNING INTEGRATION**

**NOISE AND LAND USE PLANNING INTEGRATION**

- N-2: Incorporate noise considerations into land use planning decisions.
  - N-2.1: Establish targeted limits of noise for various land uses throughout the community, in accordance with Table N-2.
  - N-2.2: Ensure acceptable noise levels near schools, hospitals, convalescent homes, churches, and other noise-sensitive areas, in accordance with Table N-1.
  - N-2.3: Establish standards for all types of noise not already governed by local ordinances or preempted by State or federal law.
  - N-2.4: Require noise-reduction techniques in site planning, architectural design, and construction where noise reduction is necessary.
  - N-2.5: Discourage and, if necessary, prohibit the exposure of noise-sensitive land uses to noisy environments.
- N-3: Minimize noise spillover from commercial uses into nearby residential neighborhoods.
  - N-3.1: Enforce the 65 dB(A) State standard for exterior noise levels for all commercial uses.
  - N-3.2: Require that a minimum of 15 feet be landscaped as a buffer between a commercial or mixed use structure and an adjoining residential parcel.

- N-3.3: Require that automobile and truck access to commercial properties located adjacent to residential parcels be located at the maximum practical distance from the residential parcel.
- N-3.4: Truck deliveries within the City to commercial and industrial properties abutting residential uses shall fully comply with the City's Noise Ordinance.
- N-4: Minimize the noise impacts associated with the development of residential units above ground floor commercial uses in mixed use developments.
  - N-4.1: Require that commercial uses developed as part of a mixed use project (with residential uses) not be noise-intensive.
  - N-4.2: Require that mixed use structures be designed to prevent transfer of noise and vibration from the commercial to the residential use.
  - N-4.3: Orient mixed use residential units away from major noise sources.
  - N-4.4: Locate balconies and openable windows of residential units in mixed use projects away from the primary street and other major noise sources.

**NON-TRANSPORTATION NOISE CONTROL**

- N-5.0: Develop measures to control non-transportation noise impacts.
  - N-5.1: Review the City's existing noise ordinance and revise as necessary to better regulate noise-generating uses.
  - N-5.2: Continue to enforce the Noise Ordinance and make the public more aware of its utility.
  - N-5.3: Where possible, resolve existing and potential conflicts between various noise sources and other human activities.
  - N-5.4: Reduce noise generated by building activities by requiring sound attenuation devices on construction equipment.
  - N-5.5: Establish and maintain coordination among the agencies involved in noise abatement.