4.5 NOISE

The purpose of this section is to describe the existing and future noise environment within the City of Cypress.

4.5.1 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 4.5-1, *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 United States Environmental Protection Agency (U.S. 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 4.5-1
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.

As previously mentioned, people tend to respond to changes in sound pressure in a logarithmic manner. In general, a 1 dBA change in the sound pressure levels of a given sound is detectable only under laboratory conditions. A 3 dBA change in should pressure level is considered a "just detectable" difference in most situations. A 5 dBA change is readily noticeable and a 10 dBA change is considered a doubling (or halving) of the subjective loudness. It should be noted that a 3 dBA increase or decrease in the average traffic noise level is realized by a doubling or halving of the traffic volume; or by about a 7 mile per hour (mph) increase or decrease in speed.

For each doubling of distance from a point noise source, the sound level will decrease by 6 dBA. In other words, if a person is 100 feet from a machine, and moves to 200 feet from that source, sound levels will drop approximately 6 dBA. For each doubling of distance from a line source, like a roadway, noise levels are reduced by 3 to 5 decibels, depending on the ground cover between the source and the receiver.

Noise barriers can provide approximately a 5 dBA CNEL noise reduction (additional reduction may be provided with a barrier of appropriate height, material, location and length). A row of buildings provides up to 5 dBA CNEL noise reduction with a 1.5 dBA CNEL reduction for each additional row up to a maximum reduction of approximately 10 dBA. The exact degree of noise attenuation depends on the nature and orientation of the structure and intervening barriers.

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, the U.S. EPA has established 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. Table 4.5-2, *Noise and Land Use Compatibility Matrix*, presents criteria used to assess the compatibility of proposed land uses with the noise environment. Table 4.5-3, *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.

Table 4.5-2
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, 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 4.5-3
INTERIOR AND EXTERIOR NOISE STANDARDS

Land Use Categories		CNEL	
Categories	**Uses**	**Interior[1]**	**Exterior[2]**
Residential	Single family Duplex, Multiple Family	45[3]	65
	Mobile Home	--	65[4]
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: 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.

CITY NOISE STANDARDS

The City of Cypress adopted a comprehensive noise ordinance into its City Code which sets standards for stationary noise levels citywide and provides the means to enforce the reduction of obnoxious or offensive noises (refer to Table 4.5-4, *Noise Ordinance Standards*). Sections 13-64 through 13-78 of the City Code establish noise standards and enforcement procedures.

Table 4.5-4
NOISE ORDINANCE STANDARDS

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

Noise Ordinance. The City's 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, as well as compliance during the construction phase. The ordinance will be reviewed periodically for adequacy and amended as needed to address community needs and development patterns.

4.5.2 ENVIRONMENTAL SETTING

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

- Major and minor arterial roadways;
- Aircraft overflights (from the JFTC Los Alamitos);
- Stationary sources (including industrial and commercial centers); and
- Trains (Southern Pacific Railroad 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, Orangewood 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 Airfield is situated along the southern boundary of the City and is the only airport within the vicinity of Cypress. The Airfield 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. It is worth noting that during a recent operations years at JFTC, Los Alamitos the airfield was visited 12 times by C-5 transports, which is the largest aircraft in the military fleet, and two times by Air Force One, which is a Boeing 747 aircraft.

Land uses within the Airport Environs Land Use Plan (AELUP) include residential, vacant, agricultural, and business park uses. Exhibit 4.5-1, *Joint Forces Training Center (JFTC) Los Alamitos Airfield Impact Zones,* also shows the noise contours for the JFTC Los Alamitos Airfield, which extend over the Cypress Business Park and a residential neighborhood on the City's eastern border. A copy of the most current AELUP is on file at the City of Cypress, Community Development Department.

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 runs 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 three trips per day occurs). This railroad line traverses both commercial and residential property. Any residential developments and other sensitive uses located along the SPRR line would 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 4.5-2, *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 4.5-5, *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 dBA and 65 dBA 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 (1999) and future (2020) traffic levels. Table 4.5-6, *Existing Noise Exposure Adjacent to Nearby Roadways, 1999*, depicts the 60, 65, and 70 CNEL distances from the centerline of major streets throughout the City. Exhibit 4.5-3, *Existing Noise Contours (1999)*, illustrates the project noise contours for existing land uses along major streets within the City, based on 1999 traffic data. The following briefly describes the City's 60 CNEL Noise Study Zone and the 65 CNEL Noise Mitigation Zone.

Insert Exhibit 4.5-1, Joint Forces Training Center (JFTC) Los Alamitos Airfield Impact Zones

Insert Exhibit 4.5-2, Noise Sensitive Receptors

This page intentionally left blank.

Table 4.5-5
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 RBF Consulting on August 26, and August 27, 1999.

1. Noise measurements based on 15 minute recording period.
2. Measurements recorded adjacent to abutting roadway.

Table 4.5-6
EXISTING NOISE EXPOSURE ADJACENT TO NEARBY ROADWAYS, 1999

Roadway Segment	ADT[1]	CNEL @[2]	Distance to Contours (Ft.)[3]		
	(Veh/Day)	100 Ft.	70 dBA	65 dBA	60 dBA
Lincoln:					
Bloomfield to Moody	18,700	64.6	54	116	250
Moody to Walker	16,200	64.0	49	106	227
Walker to Valley View	17,400	64.3	51	111	239
Valley View to Holder	18,600	64.6	54	116	249
Valley View:					
Lincoln to Orange	38,800	67.8	88	189	407
Orange to Ball	39,100	67.8	88	190	409
Ball to Cerritos	39,800	67.9	89	192	414
Cerritos to Katella	40,800	68.0	91	195	421
Katella to Orangewood	51,500	69.0	106	228	492
Katella:					
Denni to Valley View	41,300	68.1	91	197	424
Valley View to Holder	31,500	66.9	76	164	354
Holder to Knott	31,200	66.3	76	163	352
Moody:					
Lincoln to Orange	15,900	63.0	40	87	188
Orange to Ball	13,600	62.3	36	78	169
Ball to Cerritos	10,100	61.0	30	64	139
Ball:					
Bloomfield to Denni	18,100	63.4	44	95	204
Denni to Moody	15,300	62.8	39	85	183
Moody to Walker	20,300	64.1	48	102	221
Walker to Valley View	18,400	63.6	44	96	207
Valley View to Holder	18,600	63.7	45	97	208
Cerritos:					
Bloomfield to Denni	23,100	64.6	52	112	240
Denni to Moody	21,800	64.4	50	107	231
Moody to Walker	24,000	64.8	53	115	247
Walker to Valley View	20,600	64.1	48	103	223
Bloomfield:					
Lincoln to Orange	11,400	62.0	32	70	150
Orange to Ball	11,200	61.9	32	69	148
Ball to Cerritos	11,200	61.9	32	69	148
Denni:					
Crescent to Orange	5,800	59.0	21	44	96
Orange to Ball	6,300	59.4	22	47	101
Ball to Katella	5,100	58.5	19	41	88

Table 4.5-6
EXISTING NOISE EXPOSURE ADJACENT TO NEARBY ROADWAYS, 1999
(CONTINUED)

Roadway Segment	ADT[1]	CNEL @[2]	Distance to Contours (Ft.)[3]		
	(Veh/Day)	100 Ft.	70 dBA	65 dBA	60 dBA
Holder:					
Lincoln to Orange	8,300	60.6	26	56	122
Orange to Ball	7,800	60.3	25	54	117
Orange:					
Bloomfield to Denni	7,100	59.9	24	51	109
Denni to Moody	10,600	61.6	31	66	143
Moody to Walker	13,300	62.6	36	77	167
Walker to Valley View	12,900	62.5	35	76	163
Valley View to Holder	13,200	62.6	36	77	166
Walker:					
Crescent to Lincoln	16,600	63.2	42	90	193
Lincoln to Orange	17,100	63.3	42	91	197
Orange to Ball	17,200	63.3	43	92	198
Ball to Cerritos	13,100	62.2	36	77	165
Cerritos to Katella	15,300	62.8	39	85	183

1 ADT means average daily two-way traffic volume.
2 CNEL values are calculated at 100 feet from the centerline.
3 All distances are measured from the centerline.

R/W-Noise contour located with the roadway right-of-way (ROW).
Estimates do not adjust for any existing noise barriers and are for traffic use only.

Insert Exhibit 4.5-3, Existing Noise Contours (1999)

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 is necessary to determine what kinds of mitigation would 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.

The inclusion of an area within a 60 CNEL or 65 CNEL contour on Exhibit 4.5-3 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. As previously mentioned, noise barriers can provide approximately a 5 dBA CNEL noise reduction (additional reduction may be provided with a barrier of appropriate height, material, location and length). Exhibit 4.5-3 shows 60 CNEL contour ranging between approximately 88 feet to 492 feet from the roadway centerline along major roadways modeled throughout the City. The 65 CNEL contour varies between approximately 41 feet to 228 feet from the roadways centerline impacting existing residential neighborhoods.

4.5.3 STANDARDS OF SIGNIFICANCE

SIGNIFICANCE CRITERIA

In accordance with CEQA, the effects of a project are evaluated to determine if they will result in a significant adverse impact on the environment. An EIR is required to focus on these effects and offer mitigation measures to reduce or avoid any significant impacts, which are identified. The criteria, or standards, used to determine the significance of impacts may vary depending on the nature of the project. Noise impacts resulting from the implementation of the proposed General Plan update could be considered significant if they cause any of the following results:

- Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels, and/or

- For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project are to excessive noise levels (refer to Section 7.0, *Effects Found Not To Be Significant*).

Based on these standards, the effects of the proposed project have been categorized as either a "less than significant impact" or "potentially significant impact." Mitigation measures are recommended for potentially significant impact. If a potentially significant impact cannot be reduced to a less than significant level through the application of mitigation, it is categorized as a significant and unavoidable impact.

SIGNIFICANCE OF CHANGES IN AMBIENT NOISE LEVELS

A project is considered to have a significant noise impact where it causes an adopted noise standard to be exceeded for the project site or for adjacent sensitive receptors. In addition to being concerned about the absolute noise level that might occur when a new source is introduced into an area, it is also important to consider the existing noise environment. If the existing noise environment is quiet and the new noise source greatly increases the noise exposure, even though a criterion level might not be exceeded, some impact may occur. However, changes in community noise levels of less than 3 dBA are normally not noticeable and are therefore considered less than significant. Adverse impacts would result if increases in noise levels are audible (increases equal to, or greater than 3 dBA), although the noise level may not exceed the significant impact criteria specified above.

4.5.4 IMPACTS AND MITIGATION MEASURES

CONSTRUCTION NOISE

❍ **DEVELOPMENT ASSOCIATED WITH BUILDOUT OF THE PROPOSED GENERAL PLAN UPDATE MAY INVOLVE CONSTRUCTION-RELATED NOISE AS FUTURE PARCELS ARE DEVELOPED AND/OR RENOVATED.**

Level of Significance Before Policies/Mitigation: Potentially Significant Impact.

Impact Analysis: Typical activities associated with construction are a highly noticeable temporary noise source. Noise from construction activities are generated by two primary sources during construction phases: 1) the transport of workers and equipment to construction sites and 2) the noise related to the construction itself. As currently underutilized or vacant parcels are developed in accordance with the proposed General Plan Update, construction-related activities would generate noise from construction equipment, grading operations, and stationary equipment. These noise sources can be a nuisance to local residents and businesses. However, construction noise impacts are short-term and cease upon completion of each project. Furthermore, the City of Cypress Noise Ordinance regulates the time of day when construction is permitted to occur. Implementation of the Noise Ordinance would serve to reduce short-term construction noise impacts to less than significant levels.

Policies in the Proposed General Plan Update: The Noise Element includes the following policies:

N-1.4: Enforce City, State, and Federal Noise Standards, especially those for automobile mufflers and modified exhaust systems.

N-1.8: Require that new equipment purchased by the City of Cypress comply with noise performance standards.

N-2.4: Require noise-reduction techniques in site planning, architectural design, and construction where noise reduction is necessary.

N-5.4: Reduce noise generated by building activities by requiring sound attenuation devices on construction equipment.

Mitigation Measures: In addition to the policies listed above, the following mitigation measure is recommended to further reduce noise impacts.

4.5.1 Construction-related activities, including construction, repair, remodeling, grading and maintenance of real property, shall be limited to the days and hours specified in the City's Noise Ordinance. In addition, construction equipment is to be equipped with effective muffling devices. Compliance with this measure is subject to field inspections by City staff.

Level of Significance After Policies/Mitigation: Less Than Significant Impact.

TRAFFIC NOISE

❍ **FUTURE TRAFFIC NOISE LEVELS ASSOCIATED WITH BUILDOUT OF THE PROPOSED GENERAL PLAN UPDATE MAY CONTRIBUTE TO AN EXCEEDANCE OF THE CITY'S NOISE STANDARD RESULTING IN POTENTIAL IMPACTS TO SENSITIVE RECEPTORS.**

Level of Significance Before Policies/Mitigation: Potentially Significant Impact.

Impact Analysis: The future noise levels along 42 major surface streets segments within the City of Cypress were modeled to determine the projected location and extent of future vehicular generated noise conditions (refer to Table 4.5-7, *Ultimate Exterior Noise Adjacent to Nearby Roadways, Year 2020* and Exhibit 4.5-4, *General Plan Buildout Noise Contours, 2020*). Exhibit 4.5-4 shows the future noise environment as it would exist at buildout of the proposed General Plan Update (Year 2020). Twelve (12) of the roadway links modeled would generate noise levels between 65 and 70 CNEL at 100 feet from centerline. Thirty (30) roadway links were projected to generate noise levels between 60 CNEL and 65 CNEL. Future planned residential units constructed along Lincoln Avenue may require some level of noise mitigation.

Table 4.5-8, *Projected Increase in Motor Vehicle Noise,* below, provides a comparison of motor vehicle noise levels between existing and General Plan buildout (year 2020) conditions. This table indicates the anticipated noise level changes adjacent to specific roadways in the planning area as a direct result of implementation of the proposed General Plan Update. As indicated in Table 4.5-8, buildout of the proposed General Plan Update would not generate an audible noise increase (greater than 3.0 dBA) among any of the 42 roadway links modeled. Thirteen (13) roadway links modeled are projected to contribute to a noise increase between 1.0 dBA and 3.0 dBA. Several inaudible noise increases (less than 1.0 dBA) are projected to occur adjacent to the roadway links analyzed within the City. A total of eight of these roadway links are considered to have a potentially significant projected noise increase, as they would contribute to an existing exceedance of the City's 65 CNEL noise standard.

Insert Exhibit 4.5-4, General Plan Buildout Noise Contours (2020)

Table 4.5-7
ULTIMATE EXTERIOR NOISE EXPOSURE ADJACENT TO NEARBY ROADWAYS, YEAR 2020

Roadway Segment	ADT[1] (Veh/Day)	CNEL @[2] 100 Ft.	Distance to Contours (Ft.) [3]		
			70 dBA	65 dBA	60 dBA
Lincoln:					
Bloomfield to Moody	19,500	64.8	55	119	257
Moody to Walker	21,320	65.2	59	127	273
Walker to Valley View	20,860	65.1	58	125	269
Valley View to Holder	22,086	65.3	60	130	279
Valley View:					
Lincoln to Orange	40,798	68.0	91	195	421
Orange to Ball	42,592	68.9	93	201	433
Ball to Cerritos	42,858	68.2	94	202	435
Cerritos to Katella	47,478	68.7	100	216	466
Katella to Orangewood	56,100	69.4	112	242	520
Katella:					
Denni to Valley View	48,652	68.8	102	220	473
Valley View to Holder	33,892	67.2	80	173	372
Holder to Knott	32,312	67.0	78	167	360
Moody:					
Lincoln to Orange	21,206	64.3	49	105	227
Orange to Ball	16,170	63.1	41	88	190
Ball to Cerritos	11,130	61.5	32	69	148
Ball:					
Bloomfield to Denni	20,090	64.0	47	102	219
Denni to Moody	19,388	63.9	46	99	214
Moody to Walker	22,448	64.5	51	110	236
Walker to Valley View	20,520	64.1	48	103	222
Valley View to Holder	18,900	63.8	45	98	210
Cerritos:					
Bloomfield to Denni	24,276	64.8	54	115	249
Denni to Moody	23,038	64.6	52	111	240
Moody to Walker	26,266	65.2	56	122	262
Walker to Valley View	22,214	64.5	50	109	234
Bloomfield:					
Lincoln to Orange	11,400	62.0	32	70	150
Orange to Ball	15,000	63.1	39	84	180
Ball to Cerritos	11,200	61.9	32	69	148
Denni:					
Crescent to Orange	8,014	60.4	26	55	119
Orange to Ball	7,142	60.0	24	51	110
Ball to Katella	8,536	60.7	27	57	124
Holder:					
Lincoln to Orange	8,632	60.7	27	58	125
Orange to Ball	9,230	61.0	28	61	130

Table 4.5-7
ULTIMATE EXTERIOR NOISE EXPOSURE ADJACENT TO NEARBY ROADWAYS, YEAR 2020
(CONTINUED)

Roadway Segment	ADT[1] (Veh/Day)	CNEL @[2] 100 Ft.	Distance to Contours (Ft.) [3] 70 dBA	65 dBA	60 dBA
Orange:					
Bloomfield to Denni	10,866	61.7	31	68	145
Denni to Moody	12,996	62.5	35	76	164
Moody to Walker	15,484	63.3	40	86	184
Walker to Valley View	15,548	63.3	40	86	185
Valley View to Holder	15,570	63.3	40	86	185
Walker:					
Crescent to Lincoln	21,930	64.4	50	108	232
Lincoln to Orange	22,042	64.4	50	108	233
Orange to Ball	21,362	64.3	49	106	228
Ball to Cerritos	18,712	63.7	45	97	209
Cerritos to Katella	21,180	64.2	49	105	227

1 ADT means average daily two-way traffic volume.
2 CNEL values are calculated at 100 feet from the centerline.
3 All distances are measured from the centerline.

R/W-Noise contour located with the roadway right-of-way (ROW).
Estimates do not adjust for any existing noise barriers and are for traffic use only.

Table 4.5-8
PROJECTED INCREASE IN MOTOR VEHICLE NOISE

Roadway	CNEL@100 Ft.		Project Increase (dBA)
	Existing Condition	General Plan Buildout	
Lincoln:			
Bloomfield to Moody	64.6	64.8	0.2
Moody to Walker	64.0	65.2	1.2
Walker to Valley View	64.3	65.1	0.8
Valley View to Holder	64.6	65.3	0.7
Valley View:			
Lincoln to Orange	67.8	68.0	0.2
Orange to Ball	67.8	68.9	1.1
Ball to Cerritos	67.9	68.2	0.3
Cerritos to Katella	68.0	68.7	0.7
Katella to Orangewood	69.0	69.4	0.4
Katella:			
Denni to Valley View	68.1	68.8	0.7
Valley View to Holder	66.9	67.2	0.3
Holder to Knott	66.8	67.0	0.2
Moody:			
Lincoln to Orange	63.0	64.3	1.3
Orange to Ball	62.3	63.1	0.8
Ball to Cerritos	61.0	61.5	0.5
Ball:			
Bloomfield to Denni	63.6	64.0	0.4
Denni to Moody	62.8	63.9	1.1
Moody to Walker	64.1	64.5	0.4
Walker to Valley View	63.6	64.1	0.5
Valley View to Holder	63.7	63.8	0.1
Cerritos:			
Bloomfield to Denni	64.6	64.8	0.2
Denni to Moody	64.4	64.6	0.2
Moody to Walker	64.8	65.2	0.4
Walker to Valley View	64.1	64.5	0.4
Bloomfield:			
Lincoln to Orange	62.0	62.0	0
Orange to Ball	61.9	63.1	1.2
Ball to Cerritos	61.9	61.9	0
Denni:			
Crescent to Orange	59.0	60.4	1.4
Orange to Ball	59.4	60.0	0.6
Ball to Katella	58.5	60.7	2.2

Table 4.5-8
PROJECTED INCREASE IN MOTOR VEHICLE NOISE - CONTINUED

Roadway	CNEL@100 Ft.		Project Increase (dBA)
	Existing Condition	General Plan Buildout	
Holder:			
Lincoln to Orange	60.6	60.7	0.1
Orange to Ball	60.3	61.0	0.7
Orange:			
Bloomfield to Denni	59.9	61.7	1.8
Denni to Moody	61.6	62.5	0.9
Moody to Walker	62.6	63.3	0.7
Walker to Valley View	62.5	63.3	0.8
Valley View to Holder	62.6	63.3	0.7
Walker:			
Crescent to Lincoln	63.2	64.4	1.2
Lincoln to Orange	63.3	64.4	1.1
Orange to Ball	63.3	64.3	1.0
Ball to Cerritos	62.7	63.7	1.0
Cerritos to Katella	62.8	64.2	1.4

Additionally, when compared to existing conditions, several roadways are projected to exceed the City's noise standard at General Plan buildout. As such, existing sensitive land uses (primarily residential areas) may be exposed to increased noise levels due to traffic increases. However, existing residential uses located along the major streets modeled, including Valley View where the greatest noise increases are projected, have 6- to 8-foot sound walls in place, thus reducing impacts to reduce the projected noise identified in Table 4.5-7 by approximately 5 dBA. Implementation of the following proposed General Plan policies would serve to further reduce noise levels associated with vehicular generate noise within the planning area under future (year 2020) conditions.

Policies in the Proposed General Plan Update: The Noise Element contains the following policies:

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-1.6: 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-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-2.4: Require noise-reduction techniques in site planning, architectural design, and construction where noise reduction is necessary.

Mitigation Measures: No mitigation measures beyond the policies identified in the proposed General Plan Update are required.

Level of Significance After Policies/Mitigation: Less than Significant Impact.

STATIONARY NOISE

❍ **STATIONARY NOISES WITHIN THE CITY MAY IMPACT ADJACENT LAND USES.**

Level of Significance Before Policies/Mitigation: Potentially Significant Impact.

Impact Analysis: A variety of stationary noise sources are located throughout the City, primarily consisting of commercial and light industrial mechanical equipment, air conditioning units, compressors and similar equipment. This equipment is typically fitted with noise muffling devises. In addition, as part of the City approval for any land use involving such stationary noise sources, the City requires an acoustic study to demonstrate that the stationary noise sources would not exceed City Noise Ordinance limits at the adjacent property line. Implementation of the proposed General Plan Update policies below would serve to ensure that stationary noise impacts are reduced to less than significant levels.

Policies in the Proposed General Plan Update: The Noise Element contains the following policies:

N-1.1 Require construction of barriers to shield noise-sensitive uses from excessive noise.

N-3.1: Enforce the 65 dBA 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-4.1: 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.

N-5.1: Review the City's existing noise ordinance and revise as necessary to better regulate noise-generating uses.

N-5.3: Where possible, resolve existing and potential conflicts between various noise sources and other human activities.

City Conditions of Approval: Future development projects shall be subject to the following conditions of approval:

COA-CD50 All roof mounted equipment, such as heating and air conditioning units, shall be adequately screened from public view subject to the approval of City staff. Commercial or industrial developments which adjoin residentially zoned areas shall construct noise baffles and/or deflectors on all mechanical equipment mounted outdoors, to the satisfaction of City staff.

COA-CD54 The intercom speaker box for the drive-thru restaurant shall be located and equipped with a noise attenuation device to the satisfaction of City staff, so that noise shall not be directed toward adjoining businesses and properties.

COA-CD61 Outside public address speakers, telephone bells, buzzers and similar devices which are audible on adjoining properties are hereby prohibited.

COA-CD68 The City Council shall maintain the right to review the restaurant's hours of operation and may, subject to a public hearing, limit the business hours should substantiated complaints be received that the business hours are creating an adverse impact upon neighboring properties.

COA-CD69 The business hours of operation in relation to truck dock activity shall be limited to the days and hours specified in the Conditions of Approval. Late night or early morning deliveries shall be specifically prohibited.

COA-B8 An acoustical report shall be submitted with the plans for plan check. Report shall meet the requirements of the Uniform Building Code and Title 24 of the State Administrative Code.

Mitigation Measures: No mitigation measures beyond the policies identified in the proposed General Plan Update or standard City conditions of approval are required.

Level of Significance After Policies/Mitigation: Less Than Significant Impact.

AIRCRAFT NOISE

❍ **OPERATION OF THE JOINT FORCES TRAINING CENTER (JFTC) LOS ALAMITOS WILL CONTINUE TO PROVIDE A NOISE SOURCE TO SURROUNDING LAND USES.**

Level of Significance Before Policies/Mitigation: Potentially Significant Impact.

Impact Analysis: As indicated in the Airport Environs Land Use Plan (AELUP) for the Joint Forces Training Center (JFTC) Los Alamitos, the southeast portion of the City, primarily the Cypress Business Park and a residential neighborhood, are impacted by the 60 CNEL and 65 CNEL noise contours (refer to Exhibit 4.5-1, *Joint Forces Training Center (JFTC) Los Alamitos Airfield Impact Zones*). While aircraft activity at the JFTC is not anticipated to significantly increase, future aircraft operations will be required to comply with provisions contained within the AELUP. Additionally, renovation of existing housing within the 65 CNEL noise impact zone as defined in the AELUP will be required to be designed and

constructed to meet state interior noise standards. Implementation of the proposed General Plan policies would ensure that noise impacts associated with the JFTC, Los Alamitos operations would remain less than significant under future conditions.

Policies in the Proposed General Plan Update:

LU-12: Establish land use patterns that protect the public from impacts (noise, potential accidents) associated with the Joint Forces Training Center (JFTC) Los Alamitos.

LU-12.2: Consult with the Airport Land Use Commission to ensure consistency with the scope and intent of the Airport Land Use Commission Law (Public Utilities Code Section 21670, et. seq.).

LU-12.3: Continue to prohibit new residential development on existing vacant land within the 65 CNEL contour of the Joint Forces Training Center (JFTC) Los Alamitos.

City Conditions of Approval: Future development projects shall be subject to the following conditions of approval:

COA-CD67 Prior to the issuance of building permits for any habitable building proposed for construction within the 60 CNEL contour from the Joint Forces Training Center (JFTC) Los Alamitos, the project proponent shall submit to the City of Cypress an acoustical analysis report. The report shall describe the acoustical design features of the structures required to satisfy the Airport Environs Land Use Plan and State interior noise standards along with evidence that sound attenuation measures specified in the report have been incorporated with the design of the project.

Mitigation Measures: No additional mitigation measures beyond the policies identified in the proposed General Plan Update or adherence with provisions contained within the Airport Environs Land Use Plan are required.

Level of Significance After Policies/Mitigation: Less Than Significant Impact.

4.5.5 UNAVOIDABLE SIGNIFICANT IMPACTS

All noise impacts associated with implementation of the proposed General Plan Update would be less than significant by adherence to/compliance with policies in the proposed General Plan Update and standard City conditions of approval, and with the imposition of mitigation measures. No unavoidable significant impacts would occur as a result of buildout of the proposed General Plan Update.