CHAPTER 10
NOISE ELEMENT

1.0 INTRODUCTION

The Noise Element of the General Plan provides a framework to limit noise exposure within the City. Existing and future noise environments and the compatibility of land uses are considered in the Element, as well as sensitive receptors and generators of stationary noise. Projected noise levels are included to help guide future land use policy and prevent high noise levels in sensitive areas at buildout. In addition, noise contours in the form of community noise equivalent level (CNEL) or day-night average level (Ldn) are provided for all referenced sources.

Various measures are described in order to mitigate potential noise conflicts. These measures are designed to lessen impacts from unavoidable noise conflicts within the City of Cerritos. The Noise Element also serves as a guideline for compliance with the State's Noise Insulation Standards.

2.0 AUTHORITY FOR THE ELEMENT

The State of California Government Code Section 65302(f) requires that a General Plan include:

> *"..a noise element which shall identify and appraise noise problems in the community. The Noise Element shall recognize the guidelines established by the Office of Noise Control in the State Department of Health Services and shall analyze and quantify…current and projected noise levels for all of the following sources: (1) highways and freeways; (2) primary arterials and major local streets; (3) passenger and freight on-line railroad operations and ground rapid transit systems; (4) commercial, general aviation, heliport, and military airport operations, aircraft overflights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation; (5) local industrial plants, including but not limited to, railroad classification yards; (6) other ground stationary noise sources identified by local agencies as contributing to the community noise environment."*

3.0 SUMMARY OF EXISTING CONDITIONS

3.1 NOISE SCALES AND DEFINITIONS

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).

3.1.1 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 rating represents the average of 24 hourly readings of equivalent levels, known as Leq's, for a 24-hour period 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."

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.

3.1.2 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.

3.1.3 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 (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.

3.1.4 OTHER NOISE MATRICES

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., L_{90}, L_{50}, L_{10}, etc.). L_{50} equals the level exceeded 50 percent of the time, L_{10} ten percent of the time, etc.

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 sound pressure level is considered a 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.

3.2 NOISE STANDARDS

3.2.1 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 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.

3.2.2 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 CNEL 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, N-3, and N-4 summarize standards adopted by various local, State, and Federal agencies. Table N-3, *Noise and Land Use Compatibility Matrix*, presents criteria used to assess the compatibility of proposed land uses with the noise environment. Table N-4, *State Interior and Exterior Noise Standards*, indicates standards and criteria that specify acceptable limits of noise for various land uses throughout Cerritos. 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 that allow the City to ensure integrated planning for compatibility between land uses and outdoor noise.

Table N-2
Cerritos Noise Standards By Use

Zone or Development Area	Maximum Sound Levels dB(A)
Residential or Agricultural	50
Commercial	60
Industrial	70

Table N-3
Noise and Land Use Compatibility Matrix

Land Use Category	Community Noise Exposure			
	Ldn or CNEL, dBA			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential-Low Density	50-60	55-70	70-75	75-85
Residential- Multiple Family	50-65	60-70	70-75	75-85
Transient Lodging-Motel, Hotels	50-65	60-70	70-80	80-85
Schools, Libraries, Churches, Hospitals, Nursing Homes	50-70	60-65	70-80	80-85
Auditoriums, Concert Halls, Amphitheaters	NA	50-70	NA	65-85
Sports Arenas, Outdoor Spectator Sports	NA	50-75	NA	70-85
Playgrounds, Neighborhood Parks	50-70	NA	67.5-75	72.5-85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50-75	NA	70-80	80-85
Office Buildings, Business Commercial and Professional	50-70	67.5-77.5	75-85	NA
Industrial, Manufacturing, Utilities, Agriculture	50-75	70-80	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 N-4
State 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/Playgrounds	45	65
	Church, Library	45	--
Open Space	Parks	--	65

NOTES:

1. Indoor environmental including: Bathrooms, 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 dBA CNEL.

3.2.3 CITY NOISE STANDARDS

The City of Cerritos maintains a comprehensive Noise Ordinance within the Municipal Code that sets standards for noise levels citywide and provides the means to enforce the reduction of obnoxious or offensive noises. Section 22.80.480 establishes noise standards and enforcement procedures.

CITY NOISE ORDINANCE

The City Noise Ordinance (Section 22.80.480) establishes outdoor and indoor noise standards. The Ordinance is designed to control unnecessary, excessive and annoying sounds generated on one piece of property from impacting an adjacent property, and to protect residential areas from noise sources, including noise generated by traffic. Between the hours of 7:00 p.m. and 7:00 a.m., the noise standards are more stringent than during the day hours of 7:00 a.m. to 7:00 p.m.

The Noise Ordinance prohibits stationary noise sources to exceed the following during the hours of 7:00 a.m. to 7:00 p.m.:

- ❑ The noise standard plus 5 dBA for a cumulative period of more than 15 minutes in any hour;
- ❑ The noise standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour; or
- ❑ The noise standard plus 15 dBA for a cumulative period of more than one minute in any hour.

The noise environment of Cerritos is dominated by vehicular traffic including vehicular generated noise along Interstate 605 (I-605), Interstate 5 (I-5), State Route 91 (SR-91), and primary and secondary arterials. In addition, a number of other sources contribute to the total noise environment. These noise sources include construction activities, power tools and gardening equipment, loudspeakers, auto repair, radios, children playing and dogs barking. In order to provide a description of the existing noise environment in Cerritos, noise contours were quantified for highway and local street traffic. As referenced in Table N-5, *Field Noise Measurements*, field noise measurements were taken at various locations in the City to reflect ambient noise levels primarily in the vicinity of sensitive uses (i.e., schools, residences, churches, hospitals, etc.).

3.3 EXISTING NOISE CONDITIONS

3.3.1 TRAFFIC NOISE

Traffic noise levels can be reliably predicted using formulas that take into account traffic volume, speed and percentage of trucks. Existing noise contours were calculated for all the City's primary and major arterials, as well as the three freeways (I-605, I-5, and SR-91) that traverse the City. In addition a number of secondary and commuter streets were modeled as well. Noise generation for each roadway segment was calculated and the distance to the 60, 65, and 70 dBA CNEL contours was determined. (A noise contour is a line behind which the noise level does not exceed a certain value. For instance, the 60 dBA CNEL contour indicates that the CNEL between the street and the contour line is equal to, or greater than 60 dBA; the CNEL beyond the contour line - away from the street - is less than 60 dBA). Refer to Exhibit N-1, *Existing Noise Contours*, for the approximate location of existing noise contours based on average daily traffic (ADT).

In an effort to reduce the effects of roadway noise on the local population, the City of Cerritos expended several million dollars and constructed sound walls adjacent to all freeways in the City. These sound walls have been constructed to greater design standards than Caltrans requirements.

3.3.2 STATIONARY NOISE SOURCES

Commercial and industrial land uses located near residential areas currently generate occasional noise impacts. The primary noise sources associated with these facilities are 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. Residential land uses and areas identified as noise-sensitive must be protected from excessive noise from stationary sources including commercial and industrial centers. These impacts are best controlled through effective land use planning and application of the City Noise Ordinance.

3.3.3 OTHER STATIONARY NOISE SOURCES

Los Cerritos Center

The Los Cerritos Center is a retail/commercial mall in the City of Cerritos, and is a major contributor to traffic noise generation. The Center is located along Gridley Road between 183rd Street and South Street, with the I-605

This page intentionally left blank.

Link to Exhibit N-1, *Existing Noise Contours*

This page intentionally left blank.

located adjacent to the west. The facility includes five department stores (Nordstrom, Robinsons-May, Macy's, Mervyn's and Sears) and over 160 specialty shops. Operating hours are from 10:00 a.m. to 9:00 p.m., Monday through Friday; 10:00 a.m. to 8:00 p.m. on Saturdays and 11:00 a.m. to 7:00 p.m. on Sundays.

Cerritos Auto Square

The Cerritos Auto Square is a major auto mall and a significant generator of traffic noise within the City. The Auto Square is located along Studebaker Road between 183rd Street and South Street, with the I-605 freeway located adjacent to the east. The facility includes 15 dealerships offering a total of 23 various makes of vehicles. The Auto Square's close proximity to the Los Cerritos Center increases traffic noise impacts to the surrounding area.

Cerritos Towne Center

The Cerritos Towne Center is a master planned area bounded by Shoemaker Avenue, 183rd Street, Bloomfield Avenue and the Artesia Freeway (SR-91). The project area includes office, retail, hotel and entertainment uses. The Towne Center includes the Cerritos Center for the Performing Arts, a 203-room Sheraton Hotel and more than one million square feet of office space. The retail portion of the project includes seven major tenants (Best Buy, Edwards Stadium 10 theaters, Kohl's, Office Max, Ross Dress for Less, Trader Joe's and Wal-Mart) and over 40 specialty shops and restaurants. Operation hours vary by store.

Cerritos Center for the Performing Arts

The Cerritos Center for the Performing Arts is located between Bloomfield Avenue and Shoemaker Avenue, approximately one-quarter mile south of the SR-91 freeway. The Center hosts a variety of events, including musical performances and theatrical productions and has a capacity of 1,700 patrons. Weekday events occur after 7:00 p.m. while weekday performances range from approximately 2:00 p.m. to 11:00 p.m.

AMBIENT NOISE

In order to describe the ambient or background noise level throughout the City, noise measurement samples were taken. The locations included a mix of public schools, private schools, preschools (childcare centers), churches, hospitals, parks and a senior day activity center. The numerous locations shown in Exhibit N-2, *Noise Sensitive Land Uses*, are distributed throughout the City in order to provide an overall understanding of the noise environment. Noise monitoring equipment used for the ambient noise survey consisted of a Larson Davis Laboratories Model LDL 820 sound level analyzer equipped with a Bruel & Kjaer (B&K) Type 4176 ½" microphone.

This page intentionally left blank.

Link to Exhibit N-2, *Noise Sensitive Land Us*es

This page intentionally left blank.

The instrumentation was calibrated prior to use with a B&K Type 4230 acoustical calibrator to ensure the accuracy of the measurements, and complies with applicable requirements of the American National Standards Institute (ANSI) for Type I (precision) sound level meters.

The noise measurement locations also functioned as noise sensitive indicators. These noise sensitive indicators are uses such as schools and hospitals, which have a lower tolerance for noise than do industrial and commercial activities or normal residential uses. Noise levels measured at these locations are reported in Table N-5, *Field Noise Measurements*.

Table N-5
Field Noise Measurements

Site No.	Sensitive Receptor	Leq dBA	Lmax dBA
1	Bragg Elementary School	74.6	89.1
2	Carver Elementary School	72.5	85.9
3	Cerritos Elementary School	75.1	89.8
4	Gonsalves Elementary School	68.7	89.1
5	Juarez Elementary School	72.5	81.6
6	Leal Elementary School	72.0	93.9
7	Nixon Elementary School	77.8	97.3
8	Stowers Elementary School	71.5	93.5
9	Wittman Elementary School	68.7	82.2
10	Carmenita Middle School	73.2	86.0
11	Haskell Middle School	74.1	85.7
12	Tetzlaff Middle School	77.9	89.9
13	Cerritos High School	79.2	95.6
14	Gahr High School	78.7	94.7
15	Tracy High School	78.7	88.5
16	Whitney High School	73.2	84.7
17	Concordia Lutheran School	73.3	86.1
18	Joy Preschool	73.8	89.9
19	Valley Christian High School	75.8	96.4
20	Valley Christian Middle School	75.8	96.4
21	Desert Reign Preschool	78.2	97.0
22	Desert Reign Middle School	78.2	97.0
23	ABC Adult School	78.7	88.5
24	Cerritos College	80.3	95.6
25	Cerritos First Assembly of God	78.2	97.0
26	Cerritos Baptist Church	77.9	89.8
27	Cerritos Church of the Nazarene	80.3	98.3
28	Cerritos Mission Church	73.8	89.9

Table N-5
Field Noise Measurements - Continued

Site No.	Sensitive Receptor	Leq dBA	Lmax dBA
29	Chinese Church of Christ	73.8	89.9
30	Church /Institute of Latter Day Saints	82.1	96.0
31	Church of Latter Day Saints	80.7	92.0
32	Concordia Lutheran Church	73.3	86.1
33	Desert Reign Assembly of God	78.2	97.0
34	Korean Hope Christian Church	82.1	104.9
35	Living Water Mission Church	78.4	91.3
36	St. John Lutheran Church	79.0	95.6
37	Berean Chapel	78.2	97.0
38	Cerritos Park East	78.7	96.2
39	Heritage Park	79.2	95.6
40	Liberty Park	74.7	88.8
41	Brookhaven Park	76.2	96.5
42	Gonsalves Park	73.2	86.0
43	Cerritos Regional County Park	73.5	86.7
44	Ecology Park	77.1	90.9
45	Friendship Park	69.6	91.3
46	Frontier Park	79.6	101.2
47	Gridley Park	65.3	86.6
48	Jacob Park	68.0	82.3
49	Loma Park	72.8	88.2
50	Reservoir Hill Park	79.4	92.4
51	Rosewood Park	74.1	90.6
52	Saddleback Park	72.8	95.2
53	Satellite Park	64.5	81.6
54	Sunshine Park	58.5	66.9
55	Westgate Park	70.9	87.7
56	Cerritos Senior Center at Pat Nixon Park	83.4	93.3

Source: Noise monitoring survey conducted by RBF Consulting on October 2 and 3, 2000.

4.0 NOISE CONTOURS

Exhibits N-1 and N-3 provide existing and expected 2020 noise contours along many of the City's major and secondary arterials and the two freeways that traverse the City. Tables are included in the General Plan Environmental Impact Report that indicate traffic volumes on designated roadway segments.

The exhibits display the average daily traffic (ADT) volume noise levels at 100 feet from the roadway centerline and the distance from the roadway centerline to the 70, 65 and 60 dBA CNEL contours. Tables in the Circulation Element indicate traffic volumes on designated street segments. Surface traffic noise has the greatest impact on the noise environment of Cerritos' residential and sensitive-receptor properties. Contours between 55 and 60 dBA CNEL are common along City collector streets, while 65 dBA CNEL or great contours are common along major streets.

The inclusion of an area within a 60 or 65 CNEL contour on Exhibit N-1 or N-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.

Exhibit N-3 shows projected 60 dB contours ranging between approximately 74 feet and 334 feet from the roadway centerlines. The 65 dB contour ranges between 34 feet and 155 feet along the roadways modeled. This impacts existing residential neighborhoods and school facilities located throughout the City, as identified below:

- Along Artesia Boulevard from Bloomfield to Shoemaker;
- Along Artesia Boulevard from Shoemaker to Carmenita; and
- Along Carmenita Road north of 166th.

In the City of Cerritos, soundwalls are adjacent to residential or other noise-sensitive uses along major thoroughfares. These soundwalls serve as a noise barrier and as noise attenuation. The three roadway segments along Artesia Boulevard and Carmenita that exceed the noise thresholds are adjacent to residential areas and have soundwalls that exceed six feet in height and block the line-of-sight from the residences to the roadway. Since the walls along Artesia Boulevard and Carmenita Road are over six feet tall, attenuation levels are expected to be between 3 – 5 dBA. All other noise impacts are located within commercial or industrial areas in the City, which are not identified as sensitive receptors.

5.0 DESCRIPTION OF NOISE PLAN

Transportation noise is the most serious noise problem in Cerritos. 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.

TYPICAL NOISE ATTENUATION TECHNIQUES

Noise impacts can be mitigated in three basic ways: by reducing the sound level of the noise generator, by increasing the distance between the source and receiver, and by insulating the receiver.

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.

Noise reduction through reduction of traffic volumes can also be accomplished with incentive programs for use of public transit facilities and high-occupancy vehicles, staggering of work hours and land use controls. Vehicle trips can be turned into pedestrian trips with integration of housing and employment into the same project or area, construction of high-density, affordable housing in proximity to employment, shopping and public transit facilities and other techniques.

NOISE AND LAND USE PLANNING INTEGRATION

Information relative to the existing and future noise environments within Cerritos 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.

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), the City should focus on reducing the impact of the noise on the community.

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.

6.0 PLANNING FACTORS, GOALS AND POLICIES

TRANSPORTATION NOISE IMPACTS

Planning Factor

Noise impacts resulting from transportation sources are difficult to mitigate at the source. The City has little control over reducing transportation noise due to State and Federal noise standards preemption.

Goal	*N-1*	*Reduction in noise impacts from transportation sources.*
Policies	N-1.1	Mitigate transportation equipment impacts at construction sites.
	N-1.2	Ensure noise mitigation measures are included in the design of new developments.
	N-1.3	Encourage programs to retrofit existing homes to reduce noise impacts in the homes.
	N-1.4	Encourage the use of double-paned windows for residential uses adjacent to the freeways and along major arterials.

NON-TRANSPORTATION NOISE IMPACTS

Planning Factor

Commercial and industrial uses, construction activity and other non-transportation related sources of noise can contribute negatively to the noise environment. Identifying and mitigating these potential noise sources will reduce negative impacts.

Goal	*N-2*	*Develop measures to control non-transportation noise impacts.*

Policies

N-2.1 Continuously review the Noise Ordinance to ensure noise generating uses are adequately addressed.

N-2.2 Strive to resolve existing and potential conflicts between noise generating uses and human activities.

N-2.3 Ensure noise mitigation techniques are incorporated into all construction-related activities.

N-2.4 Consider developing maximum noise standards for ventilation systems (i.e., air conditioning units) in residential areas.

N-2.5 Consider developing regulations to prohibit the use of public address systems and encourage the use of alternative (noise sensitive) communication devices (i.e., walkie-talkies, hand-held phones, or other similar methods).

LAND USE PLANNING

Planning Factor

Land use planning decisions directly relate to potential noise impacts. Therefore, careful consideration of noise impacts should be a part of all land use decisions.

Goal

N-3 Include noise considerations as a part of land use planning decisions.

Policies

N-3.1 Enforce noise standards, as contained in the City's Noise Ordinance.

N-3.2 Ensure Community Noise Equivalent Levels (CNEL) levels for noise sensitive land uses meet or exceed normally acceptable levels, as defined by State of California standards.

N-3.3 Incorporate noise reduction measures into all development proposals, as necessary.

N-3.4 Consider noise impacts associated with the development of non-residential uses in the vicinity of residential uses.

This page intentionally left blank.

Link to Exhibit N-3, *2020 Noise Contours*