Fundamentals of Noise

NOISE

Noise is most often defined as unwanted sound; whether it is loud, unpleasant, unexpected, or otherwise undesirable. Although sound can be easily measured, the perception of noise and the physical response to sound complicate the analysis of its impact on people. People judge the relative magnitude of sound sensation in subjective terms such as "noisiness" or "loudness."

Noise Descriptors

The following are brief definitions of terminology used in this chapter:

- **Sound.** A disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.

- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.

- **Decibel (dB).** A unitless measure of sound, expressed on a logarithmic scale and with respect to a defined reference sound pressure. The standard reference pressure is 20 micropascals (20 μPa).

- **A-Weighted Decibel (dBA).** An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.

- **Equivalent Continuous Noise Level (L_{eq}); also called the Energy-Equivalent Noise Level.** The value of an equivalent, steady sound level which, in a stated time period (often over an hour) and at a stated location, has the same A-weighted sound energy as the time-varying sound. Thus, the L_{eq} metric is a single numerical value that represents the equivalent amount of variable sound energy received by a receptor over the specified duration.

- **Statistical Sound Level (L_n).** The sound level that is exceeded "n" percent of time during a given sample period. For example, the L_{50} level is the statistical indicator of the time-varying noise signal that is exceeded 50 percent of the time (during each sampling period); that is, half of the sampling time, the changing noise levels are above this value and half of the time they are below it. This is called the "median sound level." The L_{10} level, likewise, is the value that is exceeded 10 percent of the time (i.e., near the maximum) and this is often known as the "intrusive sound level." The L_{90} is the sound level exceeded 90 percent of the time and is often considered the "effective background level" or "residual noise level."

- **Day-Night Sound Level (L_{dn} or DNL).** The energy-average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the sound levels occurring during the period from 10:00 PM to 7:00 AM.

- **Community Noise Equivalent Level (CNEL).** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB added from 7:00 PM to 10:00 PM and 10 dB from 10:00 PM to 7:00 AM. NOTE: For general community/environmental noise, CNEL and L_{dn} values rarely differ by more than 1 dB (with the CNEL being only slightly more restrictive – that is, higher than the L_{dn} value). As a matter of practice, L_{dn} and CNEL values are interchangeable and are treated as equivalent in this assessment.

- **Peak Particle Velocity (PPV).** The peak rate of speed at which soil particles move (e.g., inches per second) due to ground vibration.

- **Sensitive Receptor.** Noise- and vibration-sensitive receptors include land uses where quiet environments are necessary for enjoyment and public health and safety. Residences, schools, motels and hotels, libraries, religious institutions, hospitals, and nursing homes are examples.

Characteristics of Sound

When an object vibrates, it radiates part of its energy in the form of a pressure wave. Sound is that pressure wave transmitted through the air. Technically, airborne sound is a rapid fluctuation or oscillation of air pressure above and below atmospheric pressure that creates sound waves.

Sound can be described in terms of amplitude (loudness), frequency (pitch), or duration (time). Loudness or amplitude is measured in dB, frequency or pitch is measured in Hertz [Hz] or cycles per second, and duration or time variations is measured in seconds or minutes.

Amplitude

Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale. Because of the physical characteristics of noise transmission and perception, the relative loudness of sound does not closely match the actual amounts of sound energy. Table 1 presents the subjective effect of changes in sound pressure levels. Ambient sounds generally range from 30 dBA (very quiet) to 100 dBA (very loud). Changes of 1 to 3 dB are detectable under quiet, controlled conditions, and changes of less than 1 dB are usually not discernible (even under ideal conditions). A 3 dB change in noise levels is considered the minimum change that is detectable with human hearing in outside environments. A change of 5 dB is readily discernible to most people in an exterior environment, and a 10 dB change is perceived as a doubling (or halving) of the sound.

Table 1 Noise Perceptibility

Change in dB	Noise Level
± 3 dB	Threshold of human perceptibility
± 5 dB	Clearly noticeable change in noise level
± 10 dB	Half or twice as loud
± 20 dB	Much quieter or louder

Source: Bies, David A. and Colin H. Hansen. 2009. *Engineering Noise Control: Theory and Practice*. 4th ed. New York: Spon Press.

Frequency

The human ear is not equally sensitive to all frequencies. Sound waves below 16 Hz are not heard at all, but are "felt" more as a vibration. Similarly, though people with extremely sensitive hearing can hear sounds as high as 20,000 Hz, most people cannot hear above 15,000 Hz. In all cases, hearing acuity falls off rapidly above about 10,000 Hz and below about 200 Hz.

When describing sound and its effect on a human population, A-weighted (dBA) sound levels are typically used to approximate the response of the human ear. The A-weighted noise level has been found to correlate well with people's judgments of the "noisiness" of different sounds and has been used for many years as a measure of community and industrial noise. Although the A-weighted scale and the energy-equivalent metric are commonly used to quantify the range of human response to individual events or general community sound levels, the degree of annoyance or other response also depends on several other perceptibility factors, including:

- Ambient (background) sound level
- General nature of the existing conditions (e.g., quiet rural or busy urban)
- Difference between the magnitude of the sound event level and the ambient condition
- Duration of the sound event
- Number of event occurrences and their repetitiveness
- Time of day that the event occurs

Duration

Time variation in noise exposure is typically expressed in terms of a steady-state energy level equal to the energy content of the time varying period (called L_{eq}), or alternately, as a statistical description of the sound level that is exceeded over some fraction of a given observation period. For example, the L_{50} noise level represents the noise level that is exceeded 50 percent of the time; half the time the noise level exceeds this level and half the time the noise level is less than this level. This level is also representative of the level that is exceeded 30 minutes in an hour. Similarly, the L_2, L_8 and L_{25} values represent the noise levels that are exceeded 2, 8, and 25 percent of the time or 1, 5, and 15 minutes per hour, respectively. These "n" values are typically used to demonstrate compliance for stationary noise sources with many cities' noise ordinances. Other values typically noted during a noise survey are the L_{min} and L_{max}. These values represent the minimum and maximum root-mean-square noise levels obtained over the measurement period, respectively.

Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law and many local jurisdictions use an adjusted 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL) or Day-Night Noise Level (L_{dn}). The CNEL descriptor requires that an artificial increment (or "penalty") of 5 dBA be added to the actual noise level for the hours from 7:00 PM to 10:00 PM and 10 dBA for the hours from 10:00 PM to 7:00 AM. The L_{dn} descriptor uses the same methodology except that there is no artificial increment added to the hours between 7:00 PM and 10:00 PM. Both descriptors give roughly the same 24-hour level, with the CNEL being only slightly more restrictive (i.e., higher). The CNEL or L_{dn} metrics are commonly applied to the assessment of roadway and airport-related noise sources.

Sound Propagation

Sound dissipates exponentially with distance from the noise source. This phenomenon is known as "spreading loss." For a single-point source, sound levels decrease by approximately 6 dB for each doubling of distance from the source (conservatively neglecting ground attenuation effects, air absorption factors, and barrier shielding). For example, if a backhoe at 50 feet generates 84 dBA, at 100 feet the noise level would be 79 dBA, and at 200 feet it would be 73 dBA. This drop-off rate is appropriate for noise generated by on-site operations from stationary equipment or activity at a project site. If noise is produced by a line source, such as highway traffic, the sound decreases by 3 dB for each doubling of distance over a reflective ("hard site") surface such as concrete or asphalt. Line source noise in a relatively flat environment with ground-level absorptive vegetation decreases by an additional 1.5 dB for each doubling of distance.

Psychological and Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects the entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions, thereby affecting blood pressure and functions of the heart and the nervous system. Extended periods of noise exposure above 90 dBA results in permanent cell damage, which is the main driver for employee hearing protection regulations in the workplace. For community environments, the ambient or background noise problem is widespread, through generally worse in urban areas than in outlying, less-developed areas. Elevated ambient noise levels can result in noise interference (e.g., speech interruption/masking, sleep disturbance, disturbance of concentration) and cause annoyance. Since most people do not routinely work with decibels or A-weighted sound levels, it is often difficult to appreciate what a given sound pressure level number means. To help relate noise level values to common experience, Table 2 shows typical noise levels from familiar sources.

Table 2 Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Onset of physical discomfort	120+	
	110	Rock Band (near amplification system)
Jet Flyover at 1,000 feet		
	100	
Gas Lawn Mower at three feet		
	90	
Diesel Truck at 50 feet, at 50 mph		Food Blender at 3 feet
	80	Garbage Disposal at 3 feet
Noisy Urban Area, Daytime		
	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal speech at 3 feet
Heavy Traffic at 300 feet	60	
		Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (background)
Quiet Suburban Nighttime		
	30	Library
Quiet Rural Nighttime		Bedroom at Night, Concert Hall (background)
	20	
		Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Source: California Department of Transportation (Caltrans). 2013, September. Technical Noise Supplement ("TeNS").

Vibration Fundamentals

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration is normally associated with activities stemming from operations of railroads or vibration-intensive stationary sources, but can also be associated with construction equipment such as jackhammers, pile drivers, and hydraulic hammers. As with noise, vibration can be described by both its amplitude and frequency. Vibration displacement is the distance that a point on a surface moves away from its original static position; velocity is the instantaneous speed that a point on a surface moves; and acceleration is the rate of change of the speed. Each of these descriptors can be used to correlate vibration to human response, building damage, and acceptable equipment vibration levels. During construction, the operation of construction equipment can cause groundborne vibration. During the operational phase of a project, receptors may be subject to levels of vibration that can cause annoyance due to noise generated from vibration of a structure or items within a structure.

Vibration amplitudes are usually described in terms of either the peak particle velocity (PPV) or the root mean square (RMS) velocity. PPV is the maximum instantaneous peak of the vibration signal and RMS is the

square root of the average of the squared amplitude of the signal. PPV is more appropriate for evaluating potential building damage and RMS is typically more suitable for evaluating human response.

As with airborne sound, annoyance with vibrational energy is a subjective measure, depending on the level of activity and the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Persons accustomed to elevated ambient vibration levels, such as in an urban environment, may tolerate higher vibration levels. Table 3 displays the human response and the effects on buildings resulting from continuous vibration (in terms of various levels of PPV).

Table 3 Human Reaction to Typical Vibration Levels

Vibration Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.006–0.019	Threshold of perception, possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08	Vibrations readily perceptible	Recommended upper level of vibration to which ruins and ancient monuments should be subjected
0.10	Level at which continuous vibration begins to annoy people	Virtually no risk of "architectural" (i.e. not structural) damage to normal buildings
0.20	Vibrations annoying to people in buildings	Threshold at which there is a risk to "architectural" damage to normal dwelling – houses with plastered walls and ceilings
0.4–0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage

Source: California Department of Transportation (Caltrans). 2004, June. Transportation- and Construction-Induced Vibration Guidance Manual. Prepared by ICF International.

LOCAL REGULATIONS AND STANDARDS

NOISE ELEMENT

INTRODUCTION

The control of noise is an essential part of preserving the quality of a community. The development of effective strategies to reduce excessive noise in the community is paramount to creating a safe and compatible living and working environment. Since its inception, the City of Santa Fe Springs has made a conscious commitment to the identification and control of noise and its sources throughout the city. A noise element is required by the State to enable cities to limit exposure to excessive noise levels, and is a required element of every general plan.

PURPOSE OF THE NOISE ELEMENT

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. The element expands on the many programs already in place and establishes new goals, policies, and programs to ensure that the residents of Santa Fe Springs will be protected from excessive noise.

RELATIONSHIP TO OTHER GENERAL PLAN ELEMENTS

The General Plan consists of many different elements. Of these, the Land Use, Circulation, Housing, Open Space/Conservation and Safety elements are most closely related to the Noise Element.

When integrated with the Noise Element, the Land Use Element will show land uses in relation to existing and projected noise contours. In this way, compatible and incompatible land uses may be identified. The Noise Element relates to the Circulation Element since the circulation system is the primary source of noise throughout the planning area.

Since residential and public facility (schools, parks, libraries) land uses are noise sensitive, the information provided in the Noise Element will need to be considered in the planning of future housing and public facility developments, as discussed in the Housing Element. The Noise Element also relates to the Open Space Element since excessive noise can have a detrimental impact on the enjoyment of open spaces. Therefore, the information provided in the Noise Element needs to be considered in planning for this type of land use as well. In addition, open space areas can be used as buffers to mitigate noise levels for more noise-sensitive land uses.

Excessive noise can also be detrimental to a person's health or cause hearing loss over long periods of time. Therefore, the Noise Element will need to be considered in the Safety Element when assessing impacts on job-related environments and noise exposure levels at noise-sensitive areas (residential, parks, schools, libraries, and hospitals).

SCOPE AND CONTENT OF THE ELEMENT

The Noise Element follows the State guidelines prepared by the Office of Noise Control, State Department of Health as a result of Senate Bill 860(A) (effective January 1, 1976). The element quantifies the community noise environment in terms of noise exposure contours for both-near- and long-term levels of growth and noise-generating activity. The information is a guideline for the development of goals and policies to achieve noise compatible land uses.

RELATED PLANS AND PROGRAMS

There are several existing plans and programs that are directly applicable to the aims and objectives of this Element. These plans and programs have been enacted through State and local legislation and are administered by agencies that are delegated with powers to enforce State and local laws.

California Environmental Quality Act Law and Guidelines

The State legislature adopted the California Environmental Quality Act (CEQA) in response to a public mandate that called for a thorough environmental analysis of those projects which might have a significant adverse effect on the environment. The CEQA law and guidelines, as amended in 1991, describe the provisions of the law, the review procedure, and any subsequent analysis that is required. CEQA will continue to be instrumental in ensuring that City officials (both appointed and elected) and the general public assess and mitigate the impacts of all potentially significant projects.

California Noise Insulation Standards (Title 24)

The California Department of Housing and Community Development officially adopted noise insulation standards effective August 22, 1974. On November 14, 1988, the Building Standards Commission approved revisions to these standards (Title 24, Part 2, California Code of Regulations). The ruling states that the "Interior noise levels attributable to exterior sources shall not exceed 45 decibels (dB) in any habitable room. The noise metric shall be either ... day-night sound level (Ldn) or ... community noise equivalent level (CNEL), consistent with the noise element of the local general plan." Additionally, the Commission specifies that residential buildings or structures to be located within exterior CNEL (or Ldn) contours of 60 dB or greater of an existing or adopted freeway, expressway, parkway, major street, thoroughfare, rail line, rapid transit line, or industrial noise source shall require an acoustical analysis showing that the building has been designed to limit intruding noise to an interior CNEL (or Ldn) of 45 dB or less.

City of Santa Fe Springs Noise Ordinance

The City's Noise Ordinance provides a basis for controlling excessive and annoying noise from stationary sources such as industrial plants, pumps, compressors, refrigeration units, etc. It provides specific noise standards to be applied for various land uses for both daytime and nighttime hours and describes the manner in which the noise standards are to be enforced.

INVENTORY OF CURRENT AND BUILDOUT CONDITIONS

The inventory contains a detailed description of the current and buildout noise environments within the City of Santa Fe Springs. These descriptions are based on an identification of noise sources and noise sensitive land uses, an existing community noise measurement survey, noise contour maps, and buildout projections of noise.

Sources of Noise

Major noise sources in the City of Santa Fe Springs include freeways, railroads, major and minor arterial roadways and industrial zones. These can be grouped into two basic categories: transportation sources (primarily traffic) and non-transportation sources. Each source and its impact on the noise environment is summarized in the following paragraphs and discussed in greater detail in the Technical Memorandum.

The most significant and common source of noise in urban areas is transportation related. This includes automobiles, trucks, buses, motorcycles, railroads, aircraft and trains. Motor vehicle noise is of concern because of its continuous nature and because of its proximity to noise sensitive areas.

The City of Santa Fe Springs is bisected by several arterial roadways and by two freeways. Some of the major arterials in the area include Telegraph Road, Florence Avenue, Carmenita Road, Imperial Highway, Norwalk Boulevard, Pioneer Boulevard, and Washington Boulevard. Some additional roadways carry significant traffic volumes and are adjacent to noise sensitive land uses.

The Southern Pacific rail line passes through the western portion of the City adjacent to the boundary of the residential area. Currently, there are about 15 unscheduled freight trains per day on this line running intermittently throughout a 24-hour period. There are also typical operations at the Los Nietos Yard, including freight car switching. Future increases in operations on this line are expected to be minimal.

The Achetson and Topeka (A&T) and Santa Fe (SF) Rail Companies have lines running through the commercial/industrial portion of Santa Fe Springs. Traffic consists of both freight and passenger trains. Currently there are about fifty-eight trains per day passing through Santa Fe Springs throughout a 24-hour day. By the year 2012 this will increase to about one hundred thirty-eight trains or about six per hour.

Noise Sensitive Receptors

The most predominant noise sensitive land use in the City of Santa Fe Springs is residential. This land use is especially noise sensitive because: some individuals spend considerable time at home during noise sensitive time periods; a number of activities occur outdoors; and, sleep disturbance is most likely to occur in residential areas.

Additionally, the City of Santa Fe Springs has several public and private educational facilities, churches, a hospital, a library, and extensive park and recreation facilities that are noise sensitive. The General Plan Land Use Map shows the locations of residential areas, schools, and parks.

Community Noise Measurement Survey

A noise measurement survey was conducted from May through October 1993 and was based on the identification of the major noise sources and the location of sensitive receptors. The survey is found in the Technical Memorandum. It identifies existing noise levels at noise sensitive land uses and provides empirical data for the correlation and calibration of the computer modeled noise environment. In addition, the survey provides an accurate description of the ambient noise levels at various locations throughout the city.

The ambient noise measurements provide an indication of the background noise levels at the measurement sites and of the validity of the Federal Highway Association traffic noise model used for the community noise equivalent level (CNEL) noise projections. A total of six 24-hour noise measurements and twenty-five limited duration noise measurements were obtained throughout the City during this period. Figure 1 provides the locations of the measurement sites.

The methodology used to obtain the measurements is summarized in the Technical Memorandum. The actual noise levels, the primary noise sources at each site, and other pertinent data is also presented in the Technical Memorandum.

Community Noise Contours

The noise environment for the City of Santa Fe Springs can be described using noise contours developed for the major noise sources within the area. Noise contours represent lines of equal noise exposure. Figures 2 and 3 present the noise contours for the City of Santa Fe Springs for existing 1992 and future (2012) conditions. The contours shown on the maps with a CNEL of 60 dB to 75 dB represent train and traffic noise. Full size maps are available for inspection at the Department of Planning and Development. The distances to the contour lines are tabulated in the Technical Memorandum.

The noise contours for the City of Santa Fe Springs were developed based upon existing and future traffic conditions, train operations, significant point sources and environmental conditions. The assumptions and methods used to develop the contours are explained in detail in the Technical Memorandum.

The noise contours should be used as a guide for planning. The 60 dB CNEL contour defines the noise impact area. Any proposed noise sensitive land use (i.e., residential, hospitals, schools and churches) within this area should be evaluated on a project specific basis since the project may require mitigation to meet City or State (Title 24) standards. In these areas new or expanded noise sensitive developments will be permitted only if appropriate mitigation measures are included such that the City and State standards are achieved.

Areas of Special Concern

Some areas of special concern are near the I-5 and I-605 freeways. At these locations the existing CNEL ranges from 66 to 68 dB. The City has constructed soundwalls along these freeways which significantly reduce the traffic noise. However, at some locations the exterior noise exposure exceeds the City's 65 dB standard.

Residences next to some major and secondary arterials in the City of Santa Fe Springs are exposed to a CNEL over 65 dB. These arterials include Florence Avenue, Greenleaf Avenue, Los Nietos Road, Orr & Day Road, Pioneer Boulevard and Telegraph Road. Traffic noise levels may increase throughout the City as traffic volumes increase.

Also shown on Figure 2 are the areas within the City that are out of compliance with the City's noise standards. These are residential areas of the City that experience a CNEL of greater than 65 dB. The City considers these areas Noise Study Zones which rate special planning and programs to assist in the mitigation of this problem. Additionally, the City has pledged to retrofit any properties it should acquire within these zones to satisfy current City noise standards.

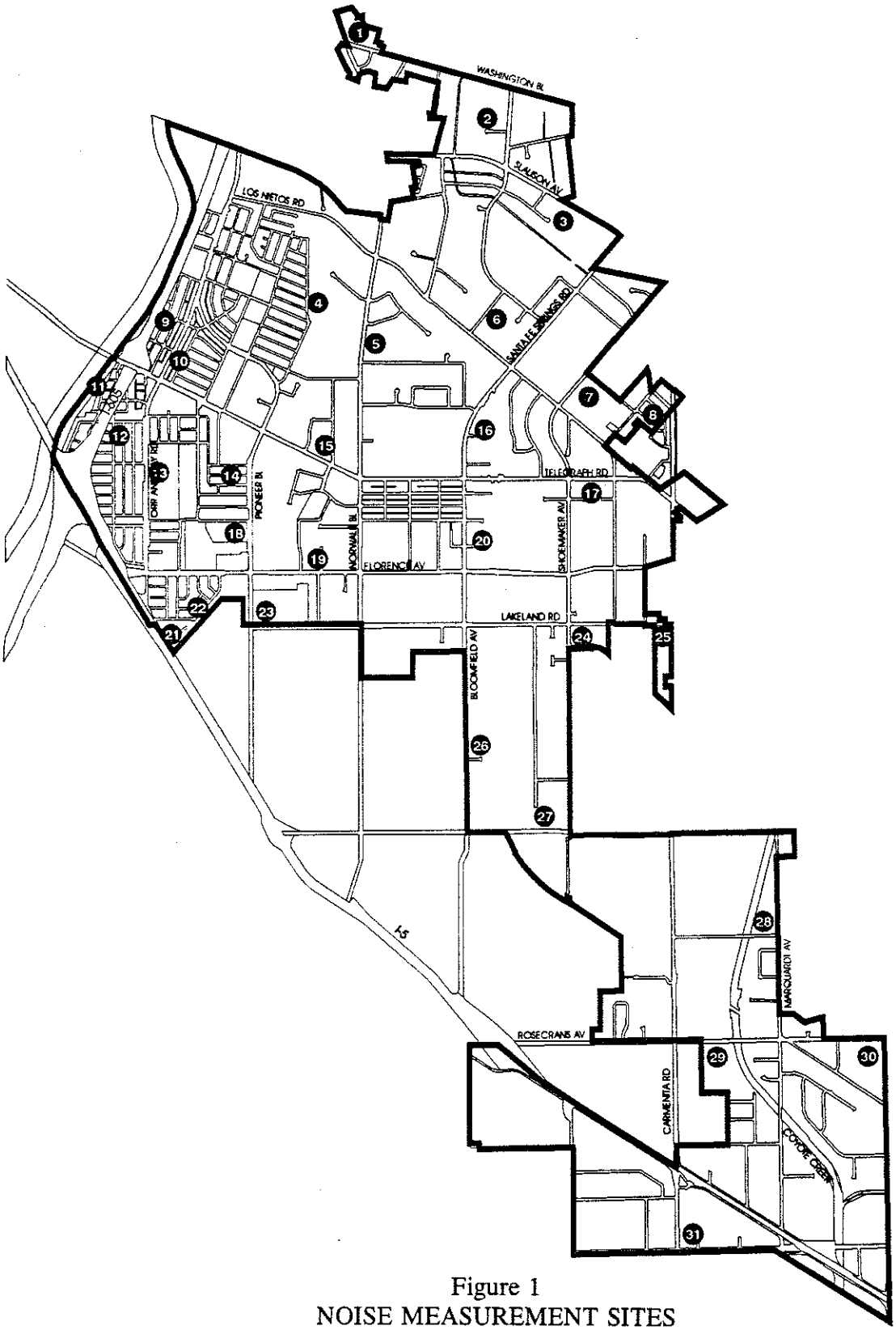


Figure 1
NOISE MEASUREMENT SITES

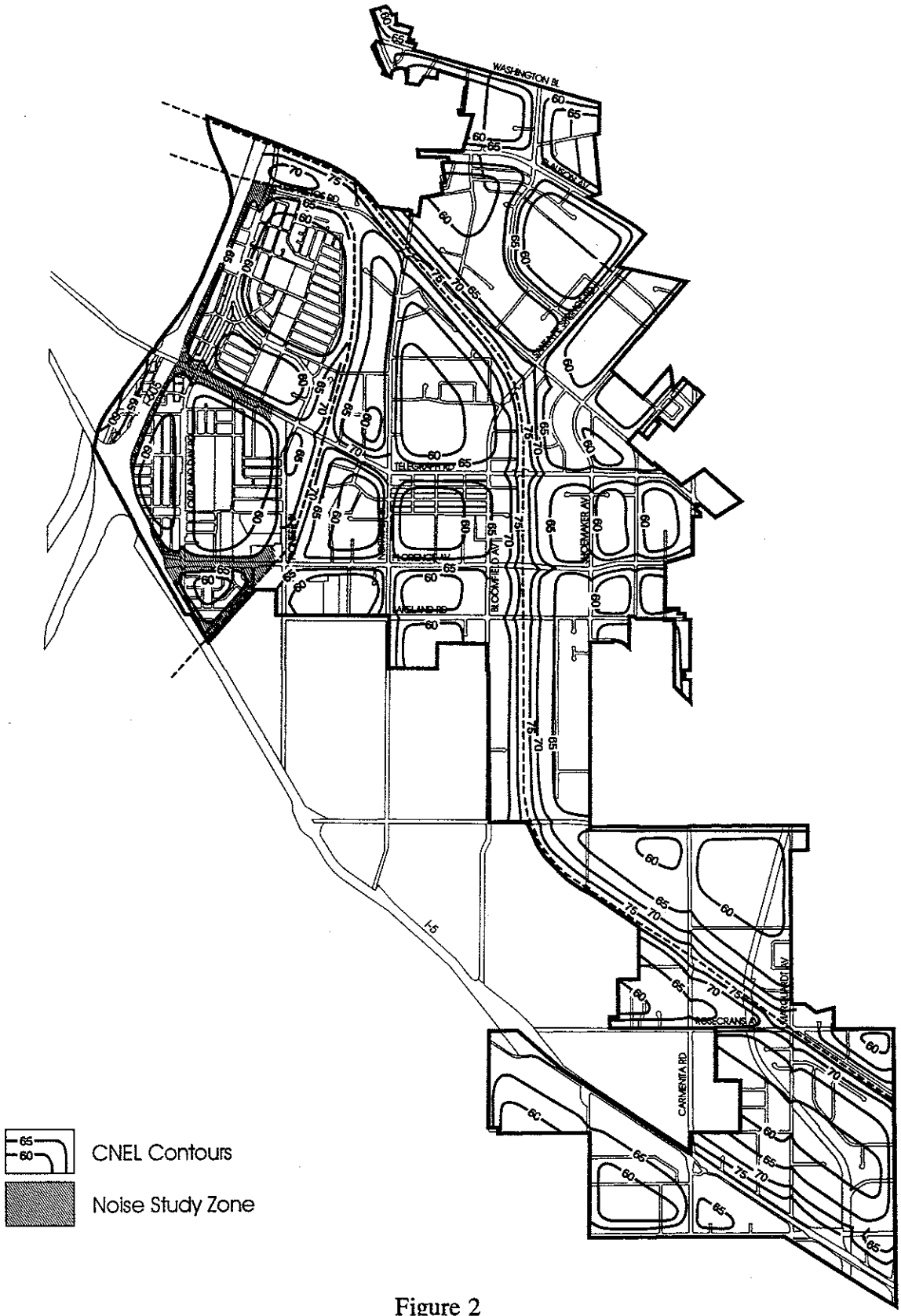


Figure 2
NOISE CONTOUR LEVELS (1992)

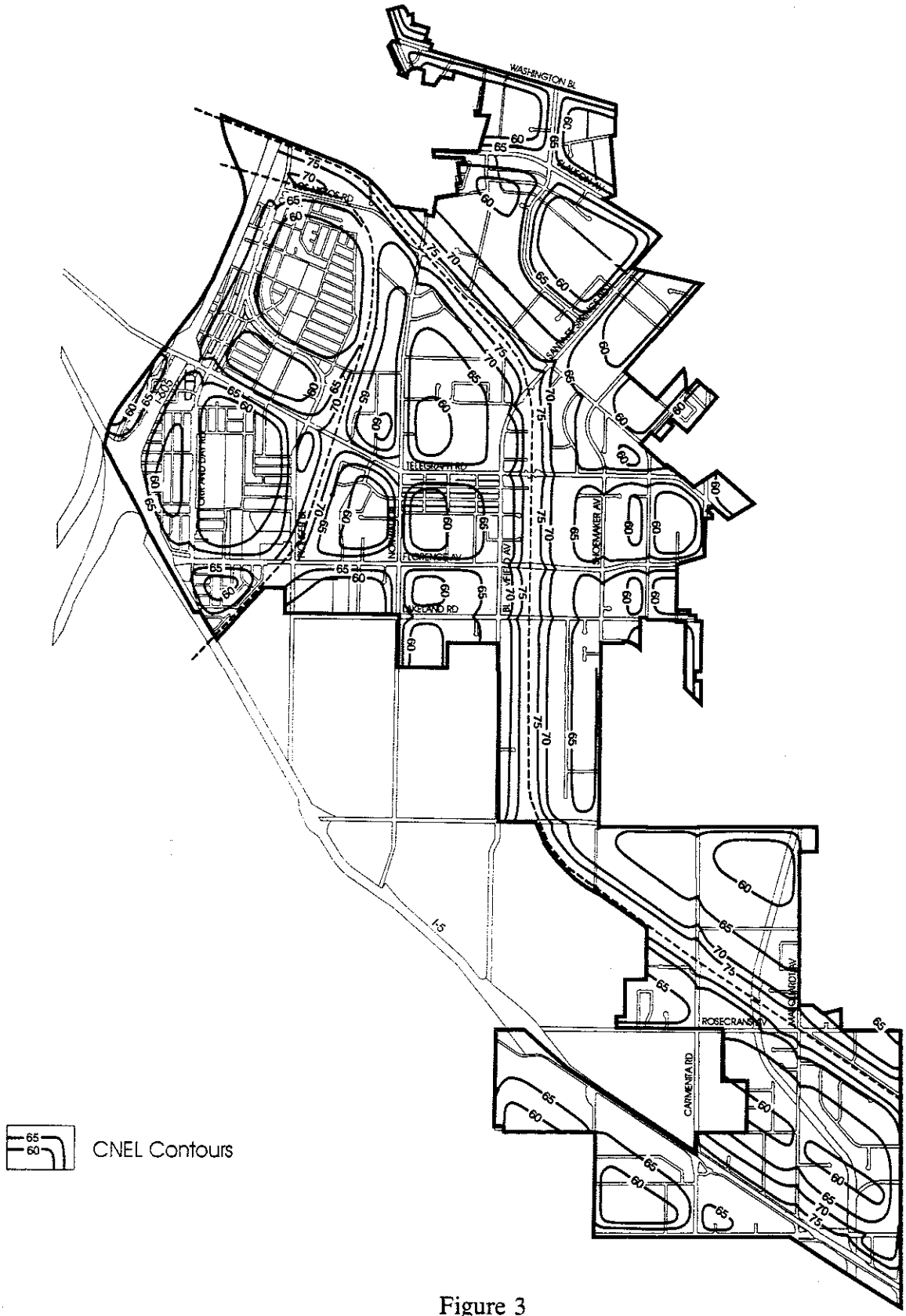


Figure 3
NOISE CONTOUR LEVELS (2012)

Noise Control

A local government has little direct control of transportation noise. 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 through reducing the impact of the noise on the community (i.e., noise barriers and site design review). Mitigation through site planning and the design and construction of a noise barrier (wall, berm, or combination wall/berm) are the most common ways of alleviating traffic noise impacts in existing urban environments. The necessary barrier height, materials, and location are engineered on a project-by-project basis. Setbacks can also be used to provide partial mitigation or full mitigation where a small noise reduction is needed. Mitigating traffic noise within the interior of existing buildings adjacent to major arterials may be achieved by retrofitting the structure to include such items as sound-proof rated windows, insulation in the exterior walls, ventilation, solid roof sheathing, etc.

The standards and criteria shown in Tables 1 and 2 specify acceptable limits of noise for various land uses throughout the city. These standards and criteria will be incorporated into the land use planning process to reduce future noise and land use incompatibilities. Table 1 presents criteria for assessing the compatibility of proposed land uses with the noise environment. These criteria are the basis for the development of the specific noise standards presented in Table 2 and represent City policies related to land uses and acceptable noise levels. These tables are the primary tools that allow the City to ensure integrated planning for compatibility between land uses and outdoor noise.

The noise levels presented in Table 1 represent exterior noise levels. The primary purpose of the noise compatibility matrix is to identify potential conflicts between proposed land uses and the noise environment. The matrix is usually used at the General Plan or Zoning level of approvals. If a project falls within Zone A or Zone B the project is considered compatible with the noise environment. Zone A implies that no mitigation will be needed. Zone B implies that minor soundproofing of the structure may be needed and should be engineered before issuance of building permits. Zone C shows that substantial noise mitigation will be necessary, such as construction of noise barriers and substantial building sound insulation. However, projects in Zone C can be successfully mitigated. The project may be approved for land use and then would be mitigated as necessary to achieve City standards (Table 2) before issuance of grading permits, building permits, or other appropriate milestones. The most effective method to control community noise impacts from non-transportation noise sources is through application of the noise ordinance. The City will review its current ordinance for adequacy and will continue its enforcement.

Table 1

NOISE /LAND USE COMPATIBILITY MATRIX

Land Use Category	CNEL, dB 55	60	65	70	75	80
Residential – Single family, multifamily, duplex	A	A	B	B	C	
Residential – Mobile homes	A	A	B	C	C	
Transient Lodging – Motels, hotels	A	A	B	B	C	C
Schools, Libraries, Churches, Hospitals, Nursing Homes	A	A	B	C	C	
Auditoriums, Concert Halls, Amphitheaters, Meeting Halls	B	B	C	C		
Sports Arenas, Outdoor Spectator Sports, Amusement Parks	A	A	A	B	B	
Playgrounds, Neighborhood Parks	A	A	A	B	C	
Golf Courses, Riding Stables, Cemeteries	A	A	A	A	B	C
Office and Professional Buildings	A	A	A	B	B	C
Commercial Retail, Banks, Restaurants, Theaters	A	A	A	A	B	B
Industrial, Manufacturing, Utilities, Wholesale, Service Stations	A	A	A	A	B	B
Agriculture	A	A	A	A	A	A

Legend

A — NORMALLY ACCEPTABLE
Specified land use is satisfactory based on the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

B — CONDITIONALLY ACCEPTABLE
New construction or development should be undertaken only after a detailed analysis of the noise 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

C — NORMALLY UNACCEPTABLE
New construction or development should generally be discouraged. If it 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.

Source: Taken in part from *Aircraft Noise Impact Planning Guidelines for Local Agencies,* U.S. Dept. of Housing and Urban Development, TE/NA–472, November 1972.

Table 2

INTERIOR AND EXTERIOR NOISE STANDARDS FOR TRANSPORTATION AND IMPACTS ON ADJACENT LAND USES

Land Use	Noise Standards[1]	
	Interior[2,3]	Exterior
Residential - Single family, multifamily, duplex, mobile home	CNEL 45 dB	CNEL 65 dB[4]
Residential - Transient lodging, hotels, motels, nursing homes, hospitals	CNEL 45 dB	CNEL 65 dB[4]
Private offices, church sanctuaries, libraries, board rooms, conference rooms, theaters, auditoriums, concert halls, meeting halls, etc.	Leq(12) 45 dB(A)	-
Schools	Leq(12) 45 dB(A)	Leq(12) 67 dB(A)[5]
General offices, reception, clerical, etc.	Leq(12) 50 dB(A)	-
Bank lobby, retail store, restaurant, typing pool, etc.	Leq(12) 55 dB(A)	-
Manufacturing, kitchen, warehousing, etc.	Leq(12) 65 dB(A)	-
Parks, playgrounds	-	CNEL 65 dB[5]
Golf courses, outdoor spectator sports, amusement parks	-	CNEL 75 dB[5]

NOTES

1. CNEL: Community Noise Equivalent Level.
   Leq(12): The A-weighted equivalent sound level averaged over a 12-hour period (usually the hours of operation).
2. Noise standard with windows closed. Mechanical ventilation shall be provided per UBC requirements to provide a habitable environment.
3. Indoor environment excluding bathrooms, toilets, closets and corridors.
4. Outdoor environment limited to rear yard of single family homes, multifamily patios and balconies (with a depth of 6' or more) and common recreation areas.
5. Outdoor environment limited to playground areas, picnic areas, and other areas of frequent human use.

ISSUES, NEEDS, OPPORTUNITIES AND CONSTRAINTS

This section summarizes the noise-related issues, needs, opportunities, and constraints for the City of Santa Fe Springs. These will form the basis for the Noise Element goals and policies.

Noise Issues

Through preparation of the Noise Element Technical Memorandum and review of Santa Fe Springs' Noise Ordinance the following noise-related issues are identified. These issues that follow provided the basis for the development of the Noise Element goals.

Transportation Noise Control

- Many residential neighborhoods are located next to heavily traveled arterials, some of which are exposed to excessive ambient noise levels.
- The City of Santa Fe Springs is bisected by two major freeway corridors - I-5 and I-605 - resulting in significant traffic noise levels.
- Increases in traffic volumes may increase noise levels at certain locations throughout Santa Fe Springs.
- Noise from train movements on the Southern Pacific rail line affects nearby residences between I-5 and Florence Avenue.

Noise and Land Use Planning Integration

- Many commercial/industrial and noise sensitive land uses in Santa Fe Springs are located near one another, creating potential noise conflicts between these uses.
- Trucking operations and mechanical equipment associated with commercial/industrial activities impact nearby noise sensitive land uses.

Non-Transportation Noise Control

- The noise impact of construction activity adversely affects noise sensitive land uses when carried on for long periods of time, and on the weekends and in the evenings.
- As in most urban settings, Santa Fe Springs residents are subject to noise from nuisances such as lawn mowers, leaf blowers, radios, parties and sporting events.

Needs

To assess the noise issue, standards should be developed to decide the impact of noise on a specific study area or receptor location. Policies that address the noise generated by major arterials, railroads, and trucking and mechanical operations need to be considered. The policies should identify the actions needed to address the noise issues and the City agency responsible for carrying out each policy.

Opportunities

Some opportunities that are available to reduce the amount of noise experienced within the City of Santa Fe Springs are:

- To include noise control and noise-related compatibility considerations in all new land use developments.

- To enforce the city, state and federal requirements regarding noise control. Specific requirements include the City's noise ordinance regarding intrusive noise, the state vehicle code and provisions regarding mufflers and excessively loud radios, the state noise insulation standards for multi-family developments, and the federal and state requirements regarding noise control in work places.

Constraints

The following constraints may limit the opportunities for reducing noise within the City of Santa Fe Springs:

- Jurisdiction associated with the railroad noise belongs to outside agencies.

- Availability of manpower and expertise needed to perform noise measurements and to identify noise control measures in the enforcement of city, state and federal laws.

GOALS AND POLICIES

The following reflects goals and policies developed to address identified noise issues in the community.

Transportation Noise Control

GOAL 1: Develop measures to control transportation noise impacts.

Policy 1.1: Encourage the rail companies who traverse the City to minimize the level of noise produced by train movements by using improved vehicle system technology and by modifying their schedule to avoid train movements during noise-sensitive times.

Policy 1.2: Encourage, where feasible, noise mitigation measures such as noise barriers and realignments in the design and construction of new freeway projects in the City of Santa Fe Springs.

Policy 1.3: Continue to work with the I-5 Consortium to ensure that the widening of the I-5 freeway, including any type of High Occupancy Vehicle Lanes, does not violate any City noise standards and to require the mitigation, to City standards, of any violations.

Policy 1.4: Use the City's Commercial Enforcement Inspector to enforce the State's Vehicle Code noise standards within the City.

Policy 1.5: Consider noise impacts to residential neighborhoods and other noise sensitive land uses when designating truck routes and major circulation corridors.

Policy 1.6: Continue to work with the Metropolitan Transportation Authority to identify bus routes that meet public transportation needs while minimizing noise impacts in residential and other noise sensitive areas.

Policy 1.7: Encourage the use of alternative fuel vehicles in the provision of public transportation which would result in reduced noise impacts.

Policy 1.8: Develop a program to assist with the retrofitting of existing dwelling units adjacent to the freeways, railroads and arterials where the City's exterior CNEL standard of 65 dB is exceeded.

Policy 1.9: Continue the inspection of garbage trucks that serve the City to ensure that they are in compliance with City noise standards.

Noise and Land Use Planning Integration

GOAL 2: Incorporate noise consideration into land use planning decisions.

Policy 2.1: Adopt planning guidelines that establish acceptable noise standards for various land uses throughout the City of Santa Fe Springs as shown in Table 2.

Policy 2.2: Apply the state's noise insulation standards to the conversion of existing apartments into condominiums.

Policy 2.3: Use noise/land use compatibility standards (Table 1) as a guide for future planning and development.

Policy 2.4: Review proposed projects in terms of compatibility with nearby noise-sensitive land uses.

Policy 2.5: Continue to require new commercial and industrial operations located in proximity to existing or proposed noise sensitive areas to incorporate noise mitigation into the project design.

Policy 2.6: Consider replacing a significant noise source when plans for future use of areas are developed.

Policy 2.7: Using noise contours and other industry methods, identify areas within the City that are out of compliance with current noise standards, and form Noise Study Zones qualifying these areas for special planning and programs for mitigation.

Policy 2.8: Retrofit any properties acquired by the City that are within a Noise Study Zone to satisfy current noise standards.

Non-Transportation Noise Control

GOAL 3: Develop measures to control non-transportation noise impacts.

Policy 3.1: Conduct an annual review of Santa Fe Springs' noise ordinance, and City policies and regulations affecting noise.

Policy 3.2: Continue to minimize the impacts of construction noise on adjacent land uses through limiting the permitted hours of activity.

Policy 3.3: Require City departments to observe state and federal occupational safety and health noise standards.

Policy 3.4: Continue to require new equipment purchased by the City to comply with noise performance standards consistent with available noise reduction technology.

THE NOISE PLAN

To achieve the goals and objectives of the Noise Element, an effective implementation program developed within the constraints of the City's financial and staffing capabilities is necessary. The purpose is to reduce the number of people exposed to excessive noise and to minimize any harmful effect of noise in the City. The following are the actions that the City should consider undertaking to control the impacts of noise in Santa Fe Springs.

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 of noise levels because of state and federal preemption (i.e., State motor vehicle noise standards and Federal air regulations), policies should be focused on reducing the impact of the noise on the community. Cooperative efforts with state and federal offices are essential. Within the City of Santa Fe Springs are several transportation related noise sources including railroad lines, two freeways, major arterials, and collector roadways. These sources are the major contributors of

noise in Santa Fe Springs. Cost effective strategies and their influence on the community noise environment are an essential part of the Noise Element.

Strategy 1
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, the County, and others to provide for acoustical protection of existing noise sensitive land uses affected by these projects. Consideration of soundwalls will be requested as part of any Caltrans and County roadway project.

Strategy 2
Continue to support the efforts of the I-5 Consortium in its plans to widen the I-5 freeway within the existing freeway's right of way. Through the consortium, require that increased noise caused by any potential widening, both in residential and commercial areas, including an elevated High Occupancy Vehicle lane, be mitigated to City noise standards, at Caltrans' expense.

Strategy 3
Encourage the use of walls, berms and other noise attenuation measures in the design of new residential and other noise sensitive land uses that are next to major roads, rail lines, commercial or industrial areas.

Strategy 4
Continue to provide for evaluation of truck and bus movements and routes in the City to provide effective separation from residential or other noise sensitive land uses.

Strategy 5
Use the Commercial Enforcement Officer from the City's Police Services Center to enforce the State Motor Vehicle noise standards for cars, trucks, and motorcycles through coordination with the California Highway Patrol and local law enforcement agencies.

Strategy 6
Encourage the reduction of train noise by requesting that the rail companies use welded track in good repair throughout the City and maintain all street crossings in good condition.

Noise and Land Use Planning Integration

Information about the existing and buildout noise environment within the City of Santa Fe Springs should be integrated into future land use planning decisions. The Element presents the existing and buildout 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. These measures are intended to prevent future noise and land-use incompatibilities.

Strategy 7
Enforce standards that specify acceptable limits of noise for various land uses throughout the City. Table 1 provides 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 2, define City policy related to land uses and acceptable noise levels.

Strategy 8
Incorporate noise reduction features during site planning to mitigate anticipated noise impacts on affected noise sensitive land uses. New developments will be required to comply with the standards contained in this Element, as well as the City's noise ordinance standards.

Strategy 9
Enforce the provisions of the State of California Noise Insulation Standards (California Administrative Code, Title 24) that specify that the indoor noise levels for multi-family residential living spaces shall not exceed 45 dB CNEL (or Ldn) from the combined noise sources. The State requires implementation of this standard when the outdoor noise levels exceed 60 dB CNEL (or Ldn). The noise contour maps can be used to decide when this standard needs to be addressed. The code requires that this standard be applied to all new hotels, apartment houses and dwellings other than detached single family dwellings. The City will also, as a matter of policy, apply this standard to single family dwellings and condominium conversion projects.

Non-Transportation Noise Control

People, and noise sensitive areas, must be protected from excessive noise generated by non-transportation sources, including commercial and industrial centers. These impacts are most effectively controlled through the enforcement of the City Noise Ordinance.

Strategy 10
Review the City's noise ordinance for adequacy and implement changes as needed to address the City's current needs. Continue to apply the noise ordinance to ensure that City residents are not exposed to excessive noise levels from stationary sources. The ordinance protects people from non-transportation related noise sources such as music, machinery and pumps, air conditioners, compressors and truck traffic on private property.

Strategy 11
Require that any proposed development projects show compliance with the City's Noise Element and Ordinance before approval.

Strategy 12
Require construction activity to comply with limits established in the City's Noise Ordinance.

Strategy 13
Designate the Department of Planning and Development to act as the noise control coordinator. This will ensure the continued noise enforcement efforts of the City.

Strategy 14
Limit delivery hours for businesses 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 limits of the noise ordinance.

Strategy 15
Require that the City comply with local, state and federal noise standards. Specifically, require all City departments to comply with the state and federal OSHA noise standards. Any new equipment or vehicle purchases will comply with City, state, and federal noise standards.

Print

Santa Fe Springs Code of Ordinances

§ 155.421 DECLARATION OF POLICY PERTAINING TO NOISE.

It is hereby declared to be the policy of the city to prohibit unnecessary, excessive, and annoying noises from all sources subject to its police power. At certain levels noises are detrimental to the health and welfare of the citizenry and in the public interest shall be systematically proscribed.

('64 Code, § 52.30) (Am. Ord. 712, passed 6-11-87)

§ 155.422 EXEMPTIONS FROM NOISE CONTROL PROVISIONS.

The following activities shall be exempt from noise control provisions of this subchapter:

(A) Activities conducted on public parks, public playgrounds and public or private school grounds including but not limited to school athletics and school entertainment events.

(B) Occasional outdoor gatherings, public dancing shows and sporting and entertainment events provided said events are conducted pursuant to any required permit or City Council authorization.

(C) Any mechanical device, apparatus or equipment when used, related to or connected with emergency work.

(D) Any activity to the extent regulation thereof has been preempted by state or federal law.

('64 Code, § 52.31) (Am. Ord. 712, passed 6-11-87)

§ 155.423 NOISE LEVEL MEASUREMENT PROCEDURES.

Any noise level measurement made pursuant to the provisions of this subchapter shall be measured with a sound level meter in accordance with the following:

(A) Measurements shall be made in decibels (dB) using the A-weighted scale with slow response, following the manufacturer's instructions, except the fast response shall be used for impulsive sounds.

(B) Outdoor noise shall be measured at the lot line and/or at any point with the land parcel receiving the noise, where possible, the microphone shall be positioned at least 10 feet from the nearest reflective surface. For the purpose of this measurement the boundaries of any lease agreement, or operating unit or group of contiguous fee properties operated as a unit, shall be considered as the lot line.

(C) Measurements shall be made with the microphone at a height not less than five feet above the ground or floor level for outdoor measurements and for measurements within a building or on a balcony or deck, respectively.

(D) Measurements within a building for determining the noise level from exterior noises shall be made with the microphone five feet from the window (closed) and/or wall of the structure.

(E) The ambient noise level shall be measured while the alleged intruding noise source is inoperative. If for any reason the alleged intruding noise source cannot be turned off, the ambient noise level shall be estimated, if possible, by performing a measurement in the same general area of the alleged intruding noise source but a sufficient distance such that the noise from the alleged intruding noise source is at least 10 dB below the ambient noise level in order that only the actual ambient noise level be measured. If a difference of 10 dB as specified in the preceding sentence cannot be obtained within the same general area, but the alleged intruding noise source is five to 10 dB below the ambient, then the level of the ambient noise level itself may be reasonably determined by subtracting a one decibel correction to account for the contribution of the alleged intruding noise source.

('64 Code, § 52.32) (Am. Ord. 712, passed 6-11-87)

§ 155.424 PERMITTED NOISE LEVELS.

(A) The noise level caused by any device, instrument, vehicle, machinery, operation, use or activity shall not exceed the levels set forth in the table set out in division (E) of this section except as further provided in this chapter.

(B) In the event the ambient noise level exceeds a permitted noise level set forth in division (E) of this section, the permissible noise level for the corresponding duration and receiving area shall be the ambient level.

(C) Noise of impulsive character (hammering, and the like) or that contains a pure tone (such as a whine, screech, or hum), shall only be permitted at levels five dB(A) less than the permitted levels determined under this section.

(D) At a lot line separating properties with different permitted noise levels, the applicable permitted outdoor noise level shall be the arithmetic mean of the permitted outdoor noise levels set forth in division (E) of this section for the receiving areas on opposite sides of said lot line.

(E) Noise level table.

A-Weighted Sound Level in Decibels (dB(A))										
	Daytime (7:00 a.m. to 10:00 p.m.)					***Nighttime (10:00 p.m. to 7:00 a.m.)***				
	Maximum Cumulative Minutes Duration in Any 1-Hour Period				***Absolute Maximum***	***Maximum Cumulative Minutes Duration in Any 1-Hour Period***				***Absolute Maximum***
Receiving Area	30	15	5	1		30	15	5	1	
Outdoor Noise at Lot Line Of:										
Any school, church or hospital	45	50	55	60	65	45	50	55	60	65
Any other use										
In the A-1, R-1 or R-3 Zone	50	55	60	65	70	45	50	55	60	65
In the C-1 or C-4 Zone	60	65	70	75	80	55	60	65	70	75
1 In the ML, PF or BP Zone	60	65	70	75	80	60	65	70	75	80
In the M-1 or M-2 Zone	70	75	80	85	90	70	75	80	85	90
Residential Building Interior:										
In the A-1 or R-1 Zone	45	50	55	60	65	45	50	55	60	65
In the R-3 Zone	45	50	55	60	65	45	50	55	60	65
Sound levels at or above each decibel level given in the table shall not occur for a duration longer than that given in the corresponding column heading .										

('64 Code, § 52.34) (Am. Ord. 712, passed 6-11-87) Penalty, see § 10.97

§ 155.425 SPECIAL NOISE SOURCES.

The following additional provisions shall apply to certain special noise sources:

(A) *Radios, television sets, and similar devices.* It shall be unlawful for any person within the city to use or operate any radio receiving set, musical instrument, phonograph, television set, or other similar device for the producing or reproducing of sound in any manner or to use bells, whistles, or any device conveying speech content or music as may be generated by sound amplifying equipment so as to create any noise which would cause the noise level to exceed the ambient noise level a maximum of five dB(A) at the boundary of any property within a residential zone or at the boundary of any private residential open space, or within the common outdoor area of any multiple residential development.

(B) *Construction of buildings and projects.* It shall be unlawful for any person within a residential zone, or within a radius of 500 feet therefrom, to operate equipment or perform any outside construction or repair work on buildings, structures, or projects or to operate any pile driver, power shovel, pneumatic hammer, derrick, power hoist, or any other construction type device between the hours of 7:00 p.m. of one day and 7:00 a.m. of the next day.

(C) *Maintenance.* It shall be unlawful for any person, including city and utility crews, to perform maintenance of real property, other than emergency work, between 7:00 p.m. on one day and 7:00 a.m. of the following day, if such

maintenance activity produces noise above the ambient level at any lot line of property within a residential zone.

('64 Code, § 52.35) (Am. Ord. 712, passed 6-11-87) Penalty, see § 10.97

§ 155.426 PROPOSED DEVELOPMENT PROJECT.

If at any time the Director of Planning and Development has reason to believe that a new development project, addition, modification, or any other changes thereto may not conform with the permitted noise level standards of this chapter, the Director of Planning and Development may require as a "condition of approval" an acoustical analysis (noise study) as part of the building permit process or other approval procedures.

('64 Code, § 52.37) (Am. Ord. 712, passed 6-11-87)

§ 155.427 WAIVERS FROM NOISE REQUIREMENTS.

(A) Waivers from the noise control requirements of this chapter may be authorized by a conditional use permit granted in accordance with the provisions of §§ 155.710 through 155.724 for a period not to exceed two years subject to reasonable terms, conditions, and requirements. A waiver may be granted only if the Planning Commission makes the findings that:

(1) Additional time is necessary for the applicant to alter or modify his activity, operation or noise source to comply with this chapter; or

(2) The activity, operation or noise source cannot feasibly be carried on in a manner that would comply with the provisions of this chapter and no other reasonable alternative is available to the applicant.

(B) In granting a waiver, the Planning Commission may prescribe any conditions or requirements it deems necessary to minimize adverse effects upon the community or the surrounding neighborhood.

(C) In granting waivers, the Planning Commission shall consider the magnitude of adverse effect caused by the offensive noise, the uses of property within the area affected by the noise, operations carried on under existing regulations and codes, the time factors related to study, design, financing and construction of remedial work, the economic factors related to age and useful life of the equipment, the general public interest, health and welfare, the feasibility of plans submitted for corrections, and the effect on the community if the waiver is denied.

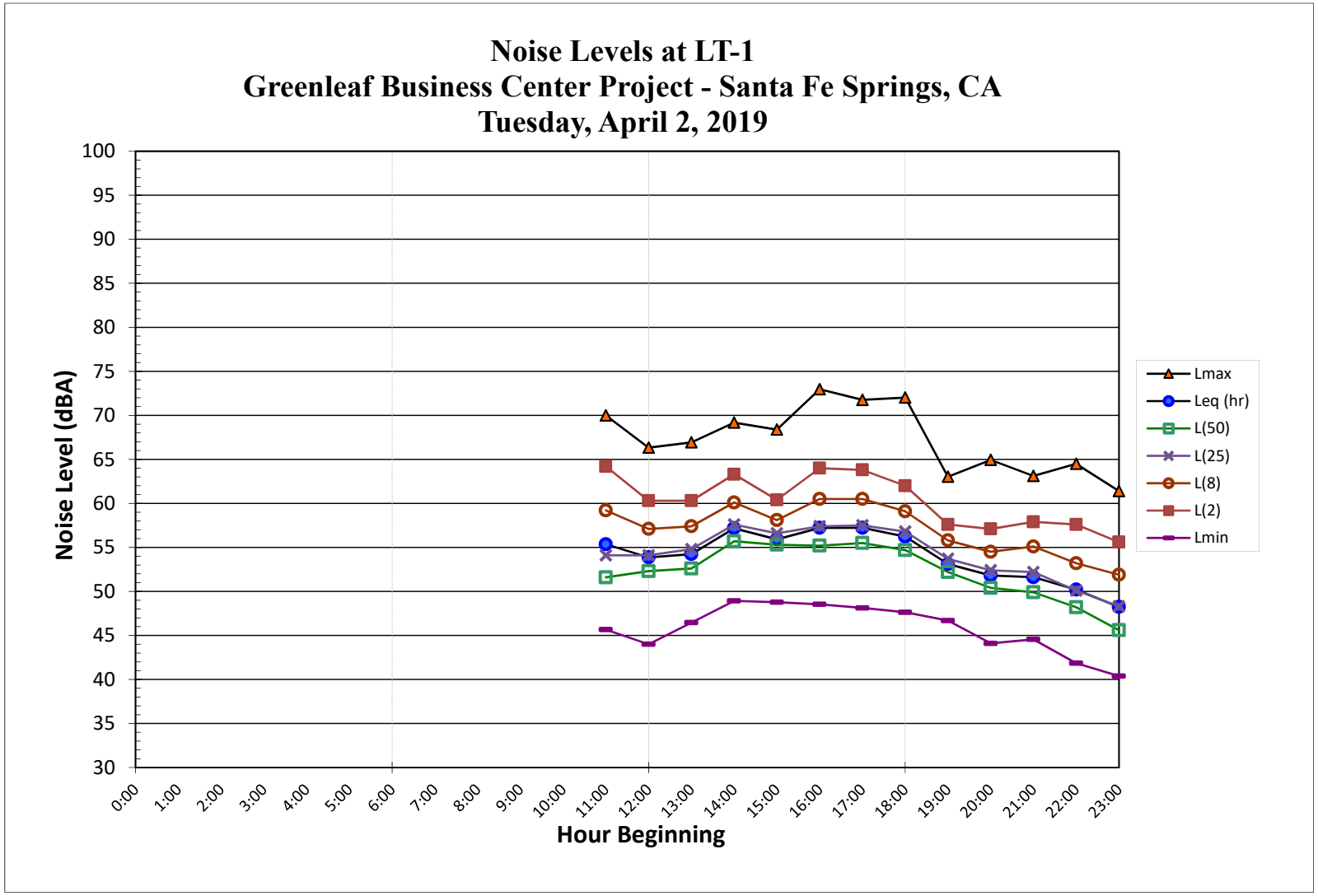
('64 Code, § 52.38) (Am. Ord. 712, passed 6-11-87)

§ 155.428 VIBRATIONS.

Every use shall be so operated that the ground vibration generated by said use is not harmful or injurious to the use or development of surrounding properties. No vibration shall be permitted which is perceptible without instruments at any use alone the property line on which said use is located. For the purpose of this determination, the boundary of any lease agreement or operating unit or properties operating as a unit shall be considered the same as the property line.

('64 Code, § 52.40) (Am. Ord. 712, passed 6-11-87) Penalty, see § 10.97

AMBIENT NOISE MONITORING RESULTS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Greenleaf Business Center Project - Santa Fe Springs, CA
Tuesday, April 2, 2019
Noise Level (dBA)
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95
90
85
80
75
70
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60
55
50
45
40
35
30
0:00
1:00
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3:00
4:00
5:00
6:00
7:00
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9:00
10:00
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12:00
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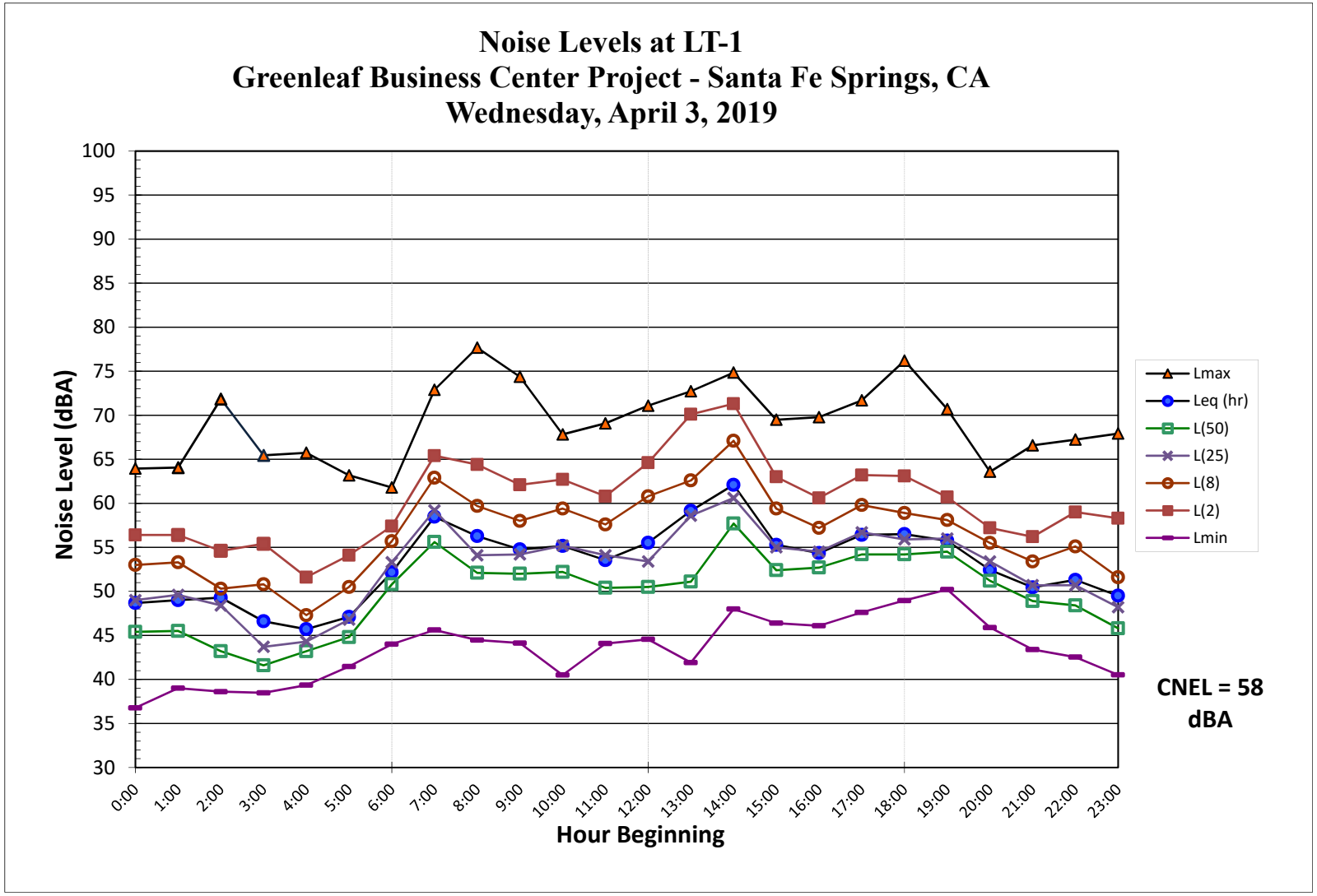
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Greenleaf Business Center Project - Santa Fe Springs, CA
Wednesday, April 3, 2019
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95
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60
55
50
45
40
35
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4:00
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Hour Beginning
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L(50)
L(25)
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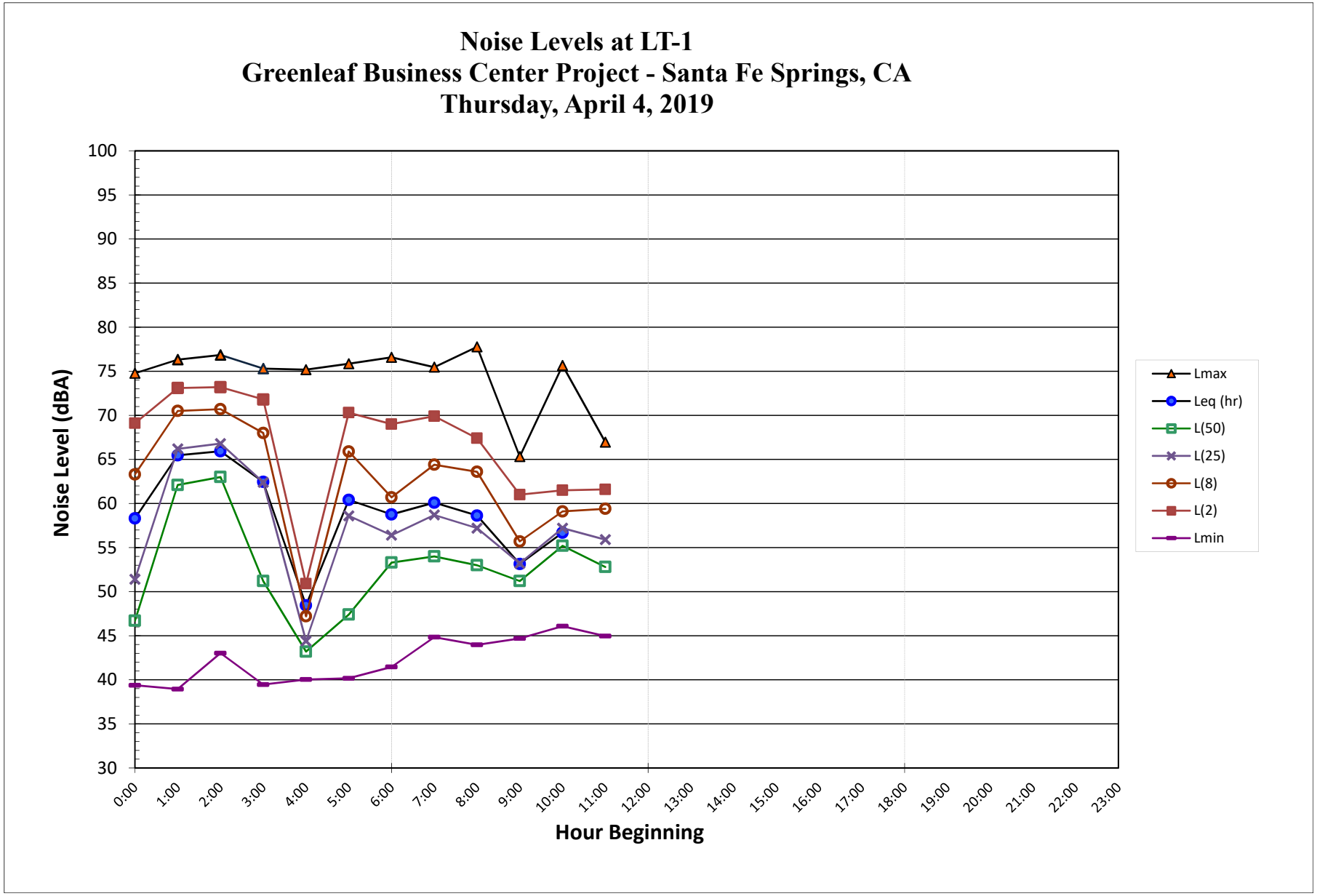
Lmin
CNEL = 58 dBA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Greenleaf Business Center Project - Santa Fe Springs, CA
Thursday, April 4, 2019
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60
55
50
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40
35
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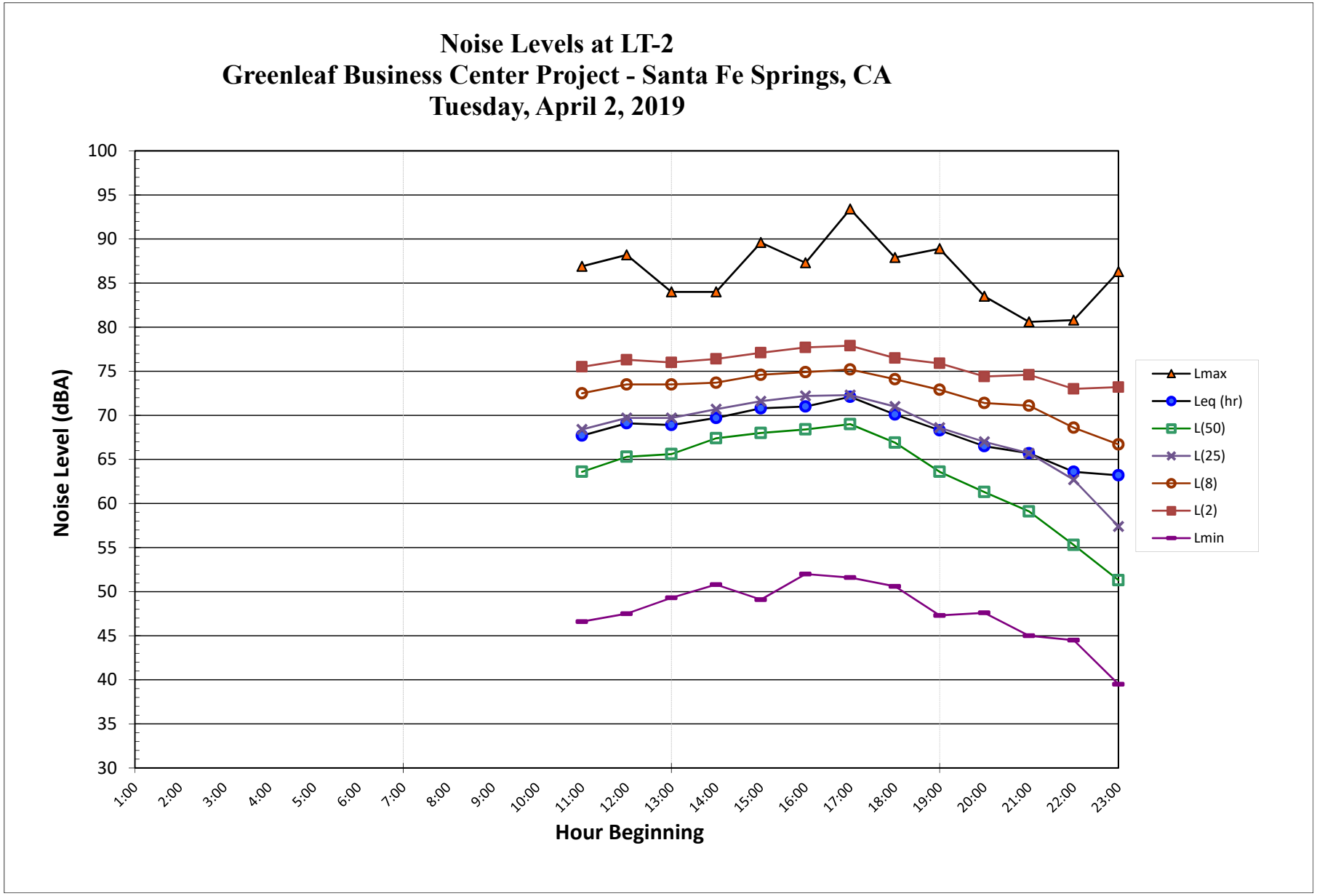
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Tuesday, April 2, 2019
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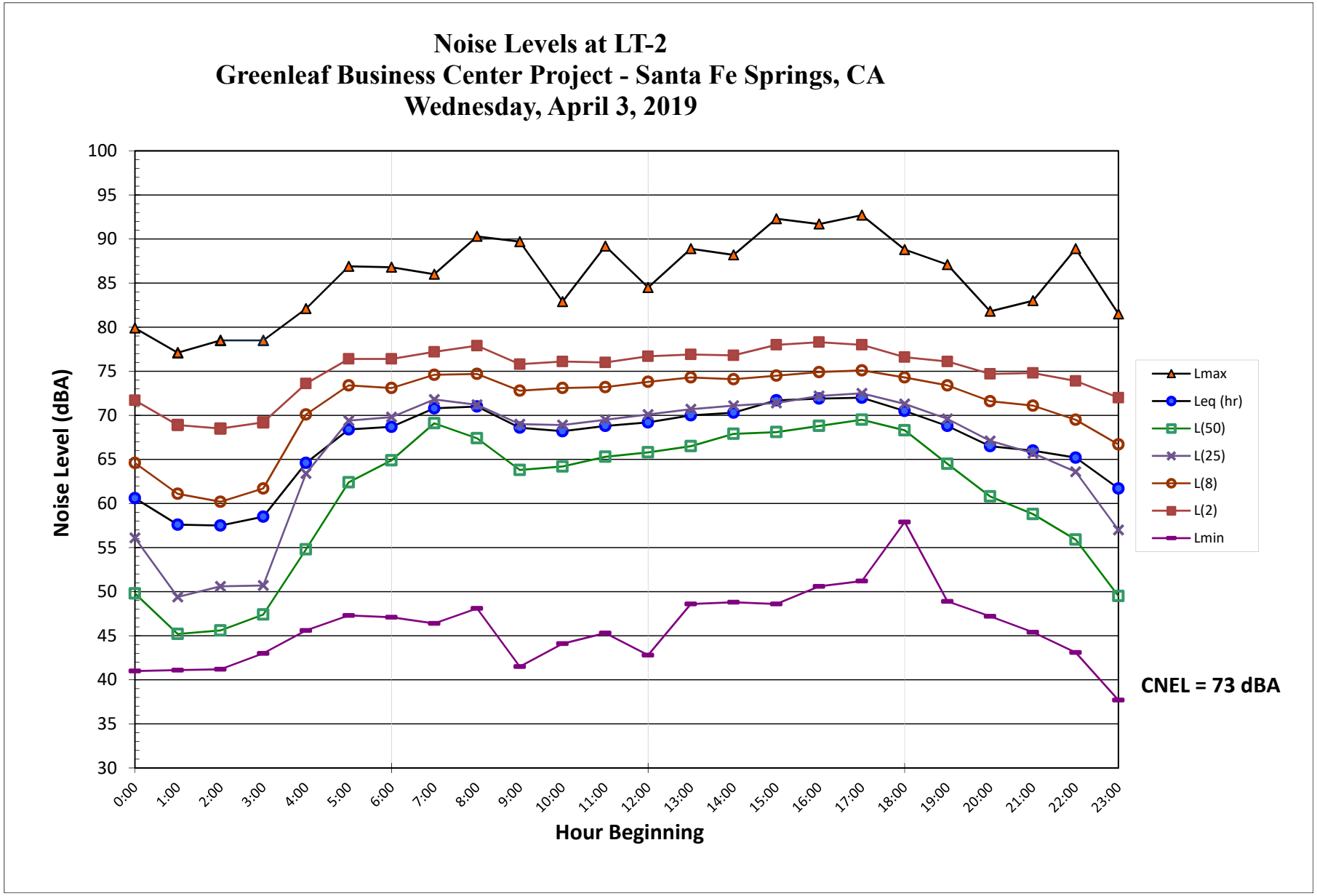
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Wednesday, April 3, 2019
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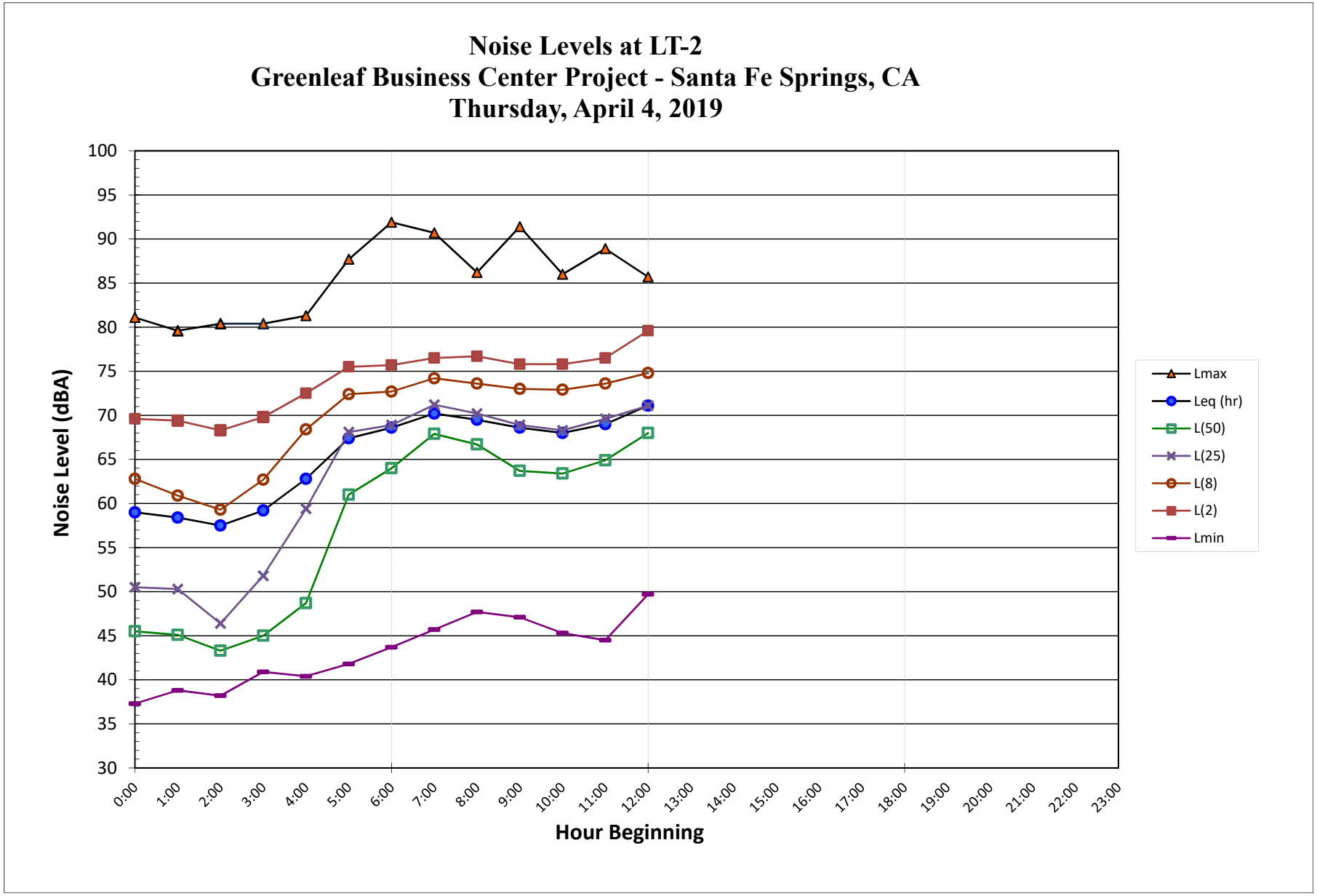
Lmin
CNEL = 73 dBA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Thursday, April 4, 2019
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Hour Beginning
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Leq (hr)
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L(25)
L(8)
L(2)
Lmin

CONSTRUCTION NOISE MODELING

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 07/15/2019
Case Description: CPP-04

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Demolition	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Tractor	No	40	84.0		700.0	0.0
Dozer	No	40		81.7	700.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Tractor	61.1	57.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	58.7	54.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	61.1	59.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 07/15/2019
Case Description: CPP-04

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Site Prep	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Tractor	No	40	84.0		700.0	0.0
Dozer	No	40		81.7	700.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Tractor	61.1	57.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	58.7	54.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	61.1	59.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 07/15/2019
Case Description: CPP-04

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Drilling	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Drill Rig Truck	No	20		79.1	700.0	0.0
Concrete Pump Truck	No	20		81.4	700.0	0.0
Man Lift	No	20		74.7	700.0	0.0
Front End Loader	No	40		79.1	700.0	0.0
Generator	No	50		80.6	700.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Drill Rig Truck	56.2	49.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concrete Pump Truck	58.5	51.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	51.8	44.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	56.2	52.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	57.7	54.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	58.5	58.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 07/15/2019
Case Description: CPP-04

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Grading/Utility Trenching	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Tractor	No	40	84.0		700.0	0.0
Excavator	No	40		80.7	700.0	0.0
Gradall	No	40		83.4	700.0	0.0
Dozer	No	40		81.7	700.0	0.0
Scraper	No	40		83.6	700.0	0.0
Backhoe	No	40		77.6	700.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Tractor	61.1	57.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	57.8	53.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gradall	60.5	56.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	58.7	54.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	60.7	56.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	54.6	50.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	61.1	63.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 07/15/2019
Case Description: CPP-04

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Building Construction	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	700.0	0.0
Tractor	No	40	84.0		700.0	0.0
Man Lift	No	20		74.7	700.0	0.0
Welder / Torch	No	40		74.0	700.0	0.0
Generator	No	50		80.6	700.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	57.6	49.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	61.1	57.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	51.8	44.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	51.1	47.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	57.7	54.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	61.1	59.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 07/15/2019
Case Description: CPP-04

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Paving	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	700.0	0.0
Roller	No	20		80.0	700.0	0.0
Dump Truck	No	40		76.5	700.0	0.0
Roller	No	20		80.0	700.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	54.3	51.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	57.1	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	53.5	49.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	57.1	50.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	57.1	56.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 07/15/2019
Case Description: CPP-04

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Finishing/Landscape	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	700.0	0.0
Front End Loader	No	40		79.1	700.0	0.0
Tractor	No	40	84.0		700.0	0.0
Dump Truck	No	40		76.5	700.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	57.8	53.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	56.2	52.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	61.1	57.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dump Truck	53.5	49.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	61.1	60.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 07/15/2019
Case Description: CPP-04

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Architectural Coating	Residential	65.0	60.0	55.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	700.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	54.7	50.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	54.7	50.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Attenuation Calculation						
	Res		School PL		School Bldg	
Phase	**dBA**	**distance (ft)**	**dBA**	**distance (ft)**	**dBA**	**distance (ft)**
Demo	59	700	63	440	56	1000
Site Prep	59		63		56	
Drilling	59		63		55	
Grading/Utility	63		67		60	
Bldg	60		64		57	
Paving	56		60		53	
Finishing/Landscape	60		64		57	
Arch Coating	51		55		48	

TRAFFIC NOISE INCREASE CALCULATIONS

Traffic Data Summary

Segment	Existing No Project	Existing With Project	Opening Year No Project	Opening Year With Project	Project Noise Increase	Opening Year Increase	ADT Volumes: Existing No Project	ADT Volumes: Existing With Project	ADT Volumes: Opening Year No Project	ADT Volumes: Opening Year With Project
Norwalk Blvd - North of Los Nietos	70.8	70.8	71.0	71.0	0.0	0.1	16,240	16,240	16,810	16,810
Norwalk Blvd - South of Los Neitos	71.6	71.6	71.8	71.8	0.0	0.2	16,195	16,195	16,765	16,765
Los Nietos Rd - East of Norwalk Blvd	69.2	69.3	69.3	69.4	0.0	0.1	10,190	10,295	10,400	10,505
Los Nietos Rd - West of Norwalk Blvd	68.9	68.9	68.9	69.0	0.1	0.1	8,535	8,640	8,705	8,810
Norwalk Blvd - North of Telegraph Road	71.8	71.8	72.0	72.0	0.0	0.2	16,775	16,775	17,700	17,700
Norwalk Blvd - South of Telegraph Road	72.0	72.0	72.1	72.1	0.0	0.1	17,450	17,450	17,940	17,940
Telegraph Rd - West of Norwalk Blvd	73.2	73.7	73.6	74.1	0.5	0.8	27,970	28,225	30,465	30,720
Santa Fe Springs Rd - North of Slauson Ave/Mulberry Dr	69.3	69.3	69.5	69.5	0.0	0.2	16,775	16,775	17,595	17,595
Santa Fe Springs Rd - South of Slauson Ave/Mulberry Dr to Sorensen Ave	69.7	69.7	70.0	70.0	0.0	0.4	15,835	15,965	17,090	17,220
Slauson Ave - West of Santa Fe Springs Rd	73.3	73.3	73.5	73.5	0.0	0.2	27,650	27,755	29,065	29,170
Santa Fe Springs - Sorensen Ave to Slauson Ave	71.1	71.1	71.4	71.5	0.0	0.4	15,430	15,560	16,680	16,810
Santa Fe Springs Rd - Los Nietos Rd to Sorensen Ave	72.5	73.0	72.8	73.3	0.5	0.7	21,510	21,665	22,880	23,035
Sorensen Ave - West of Santa Fe Springs	67.1	67.1	67.2	67.2	0.0	0.1	7,115	7,115	7,260	7,260
Santa Fe Springs Rd - South of Los Nietos Rd	72.3	72.7	72.6	73.1	0.5	0.8	20,260	20,360	21,880	21,980
Los Nietos Rd - West of Santa Fe Springs	70.1	70.1	70.2	70.2	0.0	0.1	12,640	12,750	12,890	13,000
Santa Fe Springs - South of Telegraph Rd	72.2	72.2	72.5	72.5	0.0	0.3	18,100	18,150	19,300	19,350
Telgraph Rd - Bloomfield to Shoemaker Ave	71.8	72.3	72.1	72.6	0.5	0.8	22,085	22,295	23,340	23,550
Telgraph Rd - Bloomfield to Norwalk Blvd	72.3	72.4	72.7	72.7	0.0	0.4	24,885	25,140	26,925	27,180
Greenleaf Ave - North of Mulberry Dr	67.8	67.8	67.9	67.9	0.0	0.1	9,250	9,250	9,435	9,435
Greenleaf Ave - Mulberry Dr to Reis St	69.3	69.3	69.4	69.4	0.0	0.1	9,355	9,435	9,540	9,620
Mulberry Dr - East of Greenleaf Ave	72.7	72.7	72.9	72.9	0.0	0.2	27,295	27,400	28,180	28,285
Mulberry Dr - Greenleaf Ave to Santa Fe Springs Rd.	72.7	72.7	72.9	72.9	0.0	0.1	27,280	27,305	28,175	28,200
Reis St - East of Greenleaf Ave	58.8	58.8	58.9	58.9	0.0	0.1	2,210	2,210	2,255	2,255
Greenleaf Ave - Barton Rd to Reis St	68.8	68.9	68.9	69.0	0.0	0.1	9,340	9,420	9,520	9,600
Barton Rd - East of Geenleaf Ave	54.9	54.9	55.0	55.0	0.0	0.1	780	780	790	790
Greenleaf Ave - Los Nietos Rd to Barton Rd	68.7	69.3	68.8	69.4	0.6	0.7	9,080	9,395	9,260	9,575
Los Nietos Rd - East of Greenleaf Ave	68.9	68.9	69.0	69.0	0.0	0.1	10,600	10,655	10,805	10,860
Los Nietos Rd - Greenleaf Ave to Santa Fe Springs	70.2	70.8	70.4	70.9	0.5	0.7	14,520	14,835	15,075	15,390
Shoemaker Ave/Greenleaf - Telegraph Rd to Los Nietos Rd	70.3	71.2	70.5	71.4	0.9	1.1	9,930	10,515	10,390	10,975
Shoemaker Ave - South of Telegraph Rd	71.7	72.0	71.8	72.2	0.4	0.5	11,550	11,765	11,970	12,185
Telegraph Rd - East of Shoemaker Ave	70.7	71.3	71.0	71.6	0.6	0.9	19,400	19,560	20,745	20,905
					0.9	1.1				

VOLUME SUMMARY
EXISTING CONDITIONS

No.	N/S Street	E/W Street	Existing Conditions - ADT												ADT Segment Volumes				Time of Day												Volume check							
			Northbound			Southbound			Eastbound			Westbound							Daytime (7 am to 7 pm)				Evening (7 pm to 10 pm)				Nighttime (10 pm to 7 am)											
			NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg								
1	Norwalk Boulevard	Los Nietos Road	905	5,555	925	1,185	6,455	765	380	1,935	1,330	1,025	3,220	1,900	16,240	16,195	10,190	8,535	12,992	12,956	8,152	6,828	1,786	1,781	1,121	939	1,462	1,458	917	768	16,240	0	16,195	0	10,190	0	8,535	0
2	Norwalk Boulevard	Telegraph Road	1,315	6,075	2,270	1,880	5,250	930	865	12,825	855	1,685	11,180	1,775	16,775	17450	31615	27970	13,420	13,960	25,292	22,376	1,845	1,920	3,478	3,077	1,510	1,571	2,845	2,517	16775	0	17451	1	31615	0	27970	0
3	Santa Fe Springs Road	Slauson Avenue/Mulberry Drive	905	5,225	1,050	1,115	6,165	1,690	1,305	11,370	1,180	1,310	11,200	1,275	16,775	15835	27320	27650	13,420	12,668	21,856	22,120	1,845	1,742	3,005	3,042	1,510	1,425	2,459	2,489	16775	0	15835	0	27320	0	27651	1
4	Santa Fe Springs Road	Sorensen Avenue	3,310	7,210	0	0	7,885	220	115	0	3,470	0	0	0	15,430	21875	0	7115	12,344	17,500	0	5,692	1,697	2,406	0	783	1,389	1,969	0	640	15430	0	21875	0	0	0	7115	0
5	Santa Fe Springs Road	Los Nietos Road	1,220	7,635	700	1,830	8,260	955	580	3,680	1,290	1,155	4,915	2,250	21,510	20260	14530	12640	17,208	16,208	11,624	10,112	2,366	2,229	1,598	1,390	1,936	1,823	1,308	1,138	21510	0	20260	0	14530	0	12640	0
6	Santa Fe Springs Road	Telegraph Road	870	6,850	740	795	7,930	2,195	1,770	9,515	1,225	485	9,310	1,240	20,780	18100	22085	24885	16,624	14,480	17,668	19,908	2,286	1,991	2,429	2,737	1,870	1,629	1,988	2,240	20780	0	18100	0	22085	0	24885	0
7	Greenleaf Avenue	Mulberry Drive	1,175	2,430	1,050	1,165	2,900	1,115	660	11,895	1,015	785	11,420	980	9,250	9355	27295	27280	7,400	7,484	21,836	21,824	1,018	1,029	3,002	3,001	833	842	2,457	2,455	9251	1	9355	0	27295	0	27280	0
8	Greenleaf Avenue	Reis Street	165	4,015	255	685	4,805	115	120	35	90	410	55	770	10,510	9740	2210	580	8,408	7,792	1,768	464	1,156	1,071	243	64	946	877	199	52	10510	0	9740	0	2210	0	580	0
9	Greenleaf Avenue	Barton Road	0	4,205	205	260	4,665	0	0	0	0	105	0	210	9,340	9180	780	0	7,472	7,344	624	0	1,027	1,010	86	0	841	826	70	0	9340	0	9180	0	780	0	0	0
10	Greenleaf Avenue	Los Nietos Road	2,135	2,680	245	735	2,700	1,330	760	3,550	1,915	365	4,830	875	9,080	10040	10600	14520	7,264	8,032	8,480	11,616	999	1,104	1,166	1,597	817	904	954	1,307	9080	0	10040	0	10600	0	14520	0
11	Greenleaf Avenue	Telegraph Road	1,385	3,920	350	400	3,950	555	745	8,465	1,450	495	9,330	360	9,930	11550	19400	21930	7,944	9,240	15,520	17,544	1,092	1,271	2,134	2,412	894	1,040	1,746	1,974	9930	0	11551	1	19400	0	21930	0
																			80%				11%				9%											

VOLUME SUMMARY
EXISTING PLUS PROPOSED PROJECT CONDITIONS

No.	N/S Street	E/W Street	Existing Plus Proposed Project Conditions - ADT												ADT Segment Volumes				Time of Day												Volume check							
			Northbound			Southbound			Eastbound			Westbound							Daytime (7 am to 7 pm)				Evening (7 pm to 10 pm)				Nighttime (10 pm to 7 am)											
			NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg								
1	Norwalk Boulevard	Los Nietos Road	905	5,555	925	1,185	6,455	765	380	1,990	1,330	1,025	3,270	1,900	16,240	16,195	10,295	8,640	12,992	12,956	8,236	6,912	1,786	1,781	1,132	950	1,462	1,458	927	778	16,240	0	16,195	0	10,295	0	8,640	0
2	Norwalk Boulevard	Telegraph Road	1,315	6,075	2,270	1,880	5,250	930	865	12,965	855	1,685	11,295	1,775	16,775	17450	31870	28225	13,420	13,960	25,496	22,580	1,845	1,920	3,506	3,105	1,510	1,571	2,868	2,540	16775	0	17451	1	31870	0	28225	0
3	Santa Fe Springs Road	Slauson Avenue/Mulberry Drive	955	5,225	1,060	1,115	6,165	1,690	1,305	11,370	1,235	1,325	11,200	1,275	16,775	15965	27345	27755	13,420	12,772	21,876	22,204	1,845	1,756	3,008	3,053	1,510	1,437	2,461	2,498	16775	0	15965	0	27345	0	27755	0
4	Santa Fe Springs Road	Sorensen Avenue	3,310	7,270	0	0	7,955	220	115	0	3,470	0	0	0	15,560	22005	0	7115	12,448	17,604	0	5,692	1,712	2,421	0	783	1,400	1,980	0	640	15560	0	22005	0	0	0	7115	0
5	Santa Fe Springs Road	Los Nietos Road	1,220	7,690	700	1,830	8,305	980	610	3,710	1,290	1,155	4,940	2,250	21,665	20360	14585	12750	17,332	16,288	11,668	10,200	2,383	2,240	1,604	1,403	1,950	1,832	1,313	1,148	21665	0	20360	0	14585	0	12751	1
6	Santa Fe Springs Road	Telegraph Road	870	6,875	740	795	7,955	2,215	1,795	9,630	1,225	485	9,405	1,240	20,875	18150	22295	25140	16,700	14,520	17,836	20,112	2,296	1,997	2,452	2,765	1,879	1,634	2,007	2,263	20875	0	18151	1	22295	0	25140	0
7	Greenleaf Avenue	Mulberry Drive	1,175	2,430	1,090	1,165	2,900	1,115	660	11,905	1,015	825	11,435	980	9,250	9435	27400	27305	7,400	7,548	21,920	21,844	1,018	1,038	3,014	3,004	833	849	2,466	2,457	9251	1	9435	0	27400	0	27305	0
8	Greenleaf Avenue	Reis Street	165	4,055	255	685	4,845	115	120	35	90	410	55	770	10,590	9820	2210	580	8,472	7,856	1,768	464	1,165	1,080	243	64	953	884	199	52	10590	0	9820	0	2210	0	580	0
9	Greenleaf Avenue	Barton Road	0	4,245	205	260	4,705	0	0	0	0	105	0	210	9,420	9260	780	0	7,536	7,408	624	0	1,036	1,019	86	0	848	833	70	0	9420	0	9260	0	780	0	0	0
10	Greenleaf Avenue	Los Nietos Road	2,275	2,850	245	735	2,845	1,330	760	3,575	2,035	365	4,860	875	9,395	10615	10655	14835	7,516	8,492	8,524	11,868	1,033	1,168	1,172	1,632	846	955	959	1,335	9395	0	10615	0	10655	0	14835	0
11	Greenleaf Avenue	Telegraph Road	1,385	4,035	350	475	4,050	650	860	8,465	1,450	495	9,330	445	10,515	11765	19560	22140	8,412	9,412	15,648	17,712	1,157	1,294	2,152	2,435	946	1,059	1,760	1,993	10515	0	11765	0	19560	0	22140	0
																			80%				11%				9%											

VOLUME SUMMARY
OPENING YEAR 2020 CONDITIONS

No.	N/S Street	E/W Street	Opening Year 2020 Conditions - ADT												ADT Segment Volumes				Time of Day												Volume check							
			Northbound			Southbound			Eastbound			Westbound							Daytime (7 am to 7 pm)				Evening (7 pm to 10 pm)				Nighttime (10 pm to 7 am)											
			NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg								
1	Norwalk Boulevard	Los Nietos Road	920	5,775	945	1,210	6,720	780	390	1,975	1,355	1,050	3,285	1,935	16,810	16,765	10,400	8,705	13,448	13,412	8,320	6,964	1,849	1,844	1,144	958	1,513	1,509	936	783	16,810	0	16,765	0	10,400	0	8,705	0
2	Norwalk Boulevard	Telegraph Road	1,355	6,255	2,315	2,000	5,410	1,095	1,050	13,915	890	1,715	12,160	1,890	17,700	17940	33995	30465	14,160	14,352	27,196	24,372	1,947	1,973	3,739	3,351	1,593	1,615	3,060	2,742	17700	0	17940	0	33995	0	30465	0
3	Santa Fe Springs Road	Slauson Avenue/Mulberry Drive	1,175	5,475	1,130	1,135	6,465	1,815	1,405	11,690	1,440	1,405	11,540	1,300	17,595	17090	28200	29065	14,076	13,672	22,560	23,252	1,935	1,880	3,102	3,197	1,584	1,538	2,538	2,616	17595	0	17090	0	28200	0	29065	0
4	Santa Fe Springs Road	Sorensen Avenue	3,380	7,815	0	0	8,525	225	115	0	3,540	0	0	0	16,680	23260	0	7260	13,344	18,608	0	5,808	1,835	2,559	0	799	1,501	2,093	0	653	16680	0	23260	0	0	0	7260	0
5	Santa Fe Springs Road	Los Nietos Road	1,245	8,070	1,070	2,075	8,695	975	590	3,755	1,315	1,485	5,010	2,475	22,880	21880	15870	12890	18,304	17,504	12,696	10,312	2,517	2,407	1,746	1,418	2,059	1,969	1,428	1,160	22880	0	21880	0	15870	0	12890	0
6	Santa Fe Springs Road	Telegraph Road	1,080	7,180	785	915	8,265	2,535	2,135	9,950	1,455	535	9,770	1,385	22,415	19300	23340	26925	17,932	15,440	18,672	21,540	2,466	2,123	2,567	2,962	2,017	1,737	2,101	2,423	22415	0	19300	0	23340	0	26925	0
7	Greenleaf Avenue	Mulberry Drive	1,200	2,475	1,070	1,185	2,960	1,140	675	12,290	1,035	800	11,835	1,000	9,435	9540	28180	28175	7,548	7,632	22,544	22,540	1,038	1,049	3,100	3,099	849	859	2,536	2,536	9435	0	9540	0	28180	0	28175	0
8	Greenleaf Avenue	Reis Street	170	4,095	265	700	4,900	115	120	35	90	415	55	785	10,715	9935	2255	585	8,572	7,948	1,804	468	1,179	1,093	248	64	964	894	203	53	10715	0	9935	0	2255	0	585	0
9	Greenleaf Avenue	Barton Road	0	4,285	210	265	4,760	0	0	0	0	105	0	210	9,520	9360	790	0	7,616	7,488	632	0	1,047	1,030	87	0	857	842	71	0	9520	0	9360	0	790	0	0	0
10	Greenleaf Avenue	Los Nietos Road	2,320	2,735	250	745	2,755	1,360	775	3,620	2,075	375	4,925	890	9,260	10510	10805	15075	7,408	8,408	8,644	12,060	1,019	1,156	1,189	1,658	833	946	972	1,357	9260	0	10510	0	10805	0	15075	0
11	Greenleaf Avenue	Telegraph Road	1,480	3,995	375	530	4,030	565	760	8,925	1,570	520	9,885	510	10,390	11970	20745	23185	8,312	9,576	16,596	18,548	1,143	1,317	2,282	2,550	935	1,077	1,867	2,087	10390	0	11970	0	20745	0	23185	0
																			80%				11%				9%											

VOLUME SUMMARY
OPENING YEAR 2020 PLUS PROPOSED PROJECT CONDITIONS

No.	N/S Street	E/W Street	Opening Year 2020 Plus Proposed Project Conditions - ADT												ADT Segment Volumes				Time of Day												Volume check							
			Northbound			Southbound			Eastbound			Westbound							Daytime (7 am to 7 pm)				Evening (7 pm to 10 pm)				Nighttime (10 pm to 7 am)											
			NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg								
1	Norwalk Boulevard	Los Nietos Road	920	5,775	945	1,210	6,720	780	390	2,030	1,355	1,050	3,335	1,935	16,810	16,765	10,505	8,810	13,448	13,412	8,404	7,048	1,849	1,844	1,156	969	1,513	1,509	945	793	16,810	0	16,765	0	10,505	0	8,810	0
2	Norwalk Boulevard	Telegraph Road	1,355	6,255	2,315	2,000	5,410	1,095	1,050	14,055	890	1,715	12,275	1,890	17,700	17940	34250	30720	14,160	14,352	27,400	24,576	1,947	1,973	3,768	3,379	1,593	1,615	3,083	2,765	17700	0	17940	0	34251	1	30720	0
3	Santa Fe Springs Road	Slauson Avenue/Mulberry Drive	1,225	5,475	1,140	1,135	6,465	1,815	1,405	11,690	1,495	1,420	11,540	1,300	17,595	17220	28225	29170	14,076	13,776	22,580	23,336	1,935	1,894	3,105	3,209	1,584	1,550	2,540	2,625	17595	0	17220	0	28225	0	29170	0
4	Santa Fe Springs Road	Sorensen Avenue	3,380	7,875	0	0	8,595	225	115	0	3,540	0	0	0	16,810	23390	0	7260	13,448	18,712	0	5,808	1,849	2,573	0	799	1,513	2,105	0	653	16810	0	23390	0	0	0	7260	0
5	Santa Fe Springs Road	Los Nietos Road	1,245	8,125	1,070	2,075	8,740	1,000	620	3,785	1,315	1,485	5,035	2,475	23,035	21980	15925	13000	18,428	17,584	12,740	10,400	2,534	2,416	1,752	1,430	2,073	1,978	1,433	1,170	23035	0	21980	0	15925	0	13000	0
6	Santa Fe Springs Road	Telegraph Road	1,080	7,205	785	915	8,290	2,555	2,160	10,065	1,455	535	9,865	1,385	22,510	19350	23550	27180	18,008	15,480	18,840	21,744	2,476	2,129	2,591	2,990	2,026	1,742	2,120	2,446	22510	0	19351	1	23551	1	27180	0
7	Greenleaf Avenue	Mulberry Drive	1,200	2,475	1,110	1,185	2,960	1,140	675	12,300	1,035	840	11,850	1,000	9,435	9620	28285	28200	7,548	7,696	22,628	22,560	1,038	1,058	3,111	3,102	849	866	2,546	2,538	9435	0	9620	0	28285	0	28200	0
8	Greenleaf Avenue	Reis Street	170	4,135	265	700	4,940	115	120	35	90	415	55	785	10,795	10015	2255	585	8,636	8,012	1,804	468	1,187	1,102	248	64	972	901	203	53	10795	0	10015	0	2255	0	585	0
9	Greenleaf Avenue	Barton Road	0	4,325	210	265	4,800	0	0	0	0	105	0	210	9,600	9440	790	0	7,680	7,552	632	0	1,056	1,038	87	0	864	850	71	0	9600	0	9440	0	790	0	0	0
10	Greenleaf Avenue	Los Nietos Road	2,460	2,905	250	745	2,900	1,360	775	3,645	2,195	375	4,955	890	9,575	11085	10860	15390	7,660	8,868	8,688	12,312	1,053	1,219	1,195	1,693	862	998	977	1,385	9575	0	11085	0	10860	0	15390	0
11	Greenleaf Avenue	Telegraph Road	1,480	4,110	375	605	4,130	660	875	8,925	1,570	520	9,885	595	10,975	12185	20905	23395	8,780	9,748	16,724	18,716	1,207	1,340	2,300	2,573	988	1,097	1,881	2,106	10975	0	12185	0	20905	0	23395	0
																			80%				11%				9%											

VOLUME SUMMARY
EXISTING CONDITIONS

No.	N/S Street	E/W Street	Existing Conditions - AM Peak Hour											
			Northbound			Southbound			Eastbound			Westbound		
			NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Norwalk Boulevard	Los Nietos Road	60	369	77	127	728	79	48	186	165	76	229	162
2	Norwalk Boulevard	Telegraph Road	104	513	174	201	568	85	78	1361	85	217	1039	200
3	Santa Fe Springs Road	Slauson Avenue/Mulberry Drive	69	353	44	111	739	210	104	867	142	163	1461	131
4	Santa Fe Springs Road	Sorensen Avenue	282	540	0	0	935	27	4	0	385	0	0	0
5	Santa Fe Springs Road	Los Nietos Road	117	590	66	195	955	101	43	299	165	154	509	202
6	Santa Fe Springs Road	Telegraph Road	100	586	72	47	877	211	199	743	135	48	1121	177
7	Greenleaf Avenue	Mulberry Drive	110	172	68	124	339	148	36	842	129	120	1477	102
8	Greenleaf Avenue	Reis Street	25	354	26	53	593	13	7	2	5	68	6	80
9	Greenleaf Avenue	Barton Road	0	368	13	36	537	0	0	0	0	17	0	24
10	Greenleaf Avenue	Los Nietos Road	187	235	29	73	297	189	57	293	183	43	511	67
11	Greenleaf Avenue	Telegraph Road	152	363	33	35	429	53	88	560	155	66	1170	36

No.	Truck AM Peak Hour Volume												Truck Percentages				Average Trucks				Autos			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg	North Leg	South Leg	East Leg	West Leg
1	12	25	9	8	34	2	5	12	15	13	10	11	6%	7%	7%	7%	5%	7%	6%	7%	95%	93%	94%	93%
2	14	50	23	33	26	9	8	94	6	15	59	20	9%	8%	8%	7%	7%	7%	6%	5%	93%	93%	94%	95%
3	10	9	1	1	17	5	4	31	14	3	23	2	2%	4%	2%	3%	2%	3%	2%	3%	98%	97%	98%	97%
4	19	28	0	0	30	2	0	0	27	0	0	0	4%	5%	0%	7%	4%	4%	0%	5%	96%	96%	100%	95%
5	11	29	2	17	41	3	4	15	11	10	42	17	5%	5%	7%	7%	4%	4%	6%	6%	96%	96%	94%	94%
6	9	37	3	9	36	12	6	37	6	2	49	9	5%	5%	5%	5%	5%	5%	4%	4%	95%	95%	96%	96%
7	14	12	6	1	8	0	0	24	7	0	18	3	3%	5%	2%	2%	2%	5%	2%	2%	98%	95%	98%	98%
8	0	20	2	3	10	0	0	0	0	1	0	5	3%	3%	5%	0%	4%	3%	5%	0%	96%	97%	95%	100%
9	0	21	3	1	9	0	0	0	0	0	0	1	3%	4%	6%	0%	4%	4%	6%	0%	96%	96%	94%	100%
10	21	15	3	0	9	2	1	15	12	2	38	4	3%	6%	6%	6%	4%	7%	5%	5%	96%	93%	95%	95%
11	25	34	2	1	31	4	7	22	17	15	29	1	8%	10%	4%	5%	7%	9%	3%	5%	93%	91%	97%	95%

No.	N/S Street	E/W Street	Existing Conditions - PM Peak Hour											
			Northbound			Southbound			Eastbound			Westbound		
			NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Norwalk Boulevard	Los Nietos Road	121	742	108	110	563	74	28	201	101	129	415	218
2	Norwalk Boulevard	Telegraph Road	159	702	280	175	482	101	95	1204	86	120	1197	155
3	Santa Fe Springs Road	Slauson Avenue/Mulberry Drive	112	692	166	112	494	128	157	1407	94	99	779	124
4	Santa Fe Springs Road	Sorensen Avenue	380	902	0	0	642	17	19	0	309	0	0	0
5	Santa Fe Springs Road	Los Nietos Road	127	937	74	171	697	90	73	437	93	77	474	248
6	Santa Fe Springs Road	Telegraph Road	74	784	76	112	709	228	155	1160	110	49	741	71
7	Greenleaf Avenue	Mulberry Drive	125	314	142	109	241	75	96	1537	74	37	807	94
8	Greenleaf Avenue	Reis Street	8	449	25	84	368	10	17	5	13	14	5	74
9	Greenleaf Avenue	Barton Road	0	473	28	16	396	0	0	0	0	4	0	18
10	Greenleaf Avenue	Los Nietos Road	240	301	20	74	243	77	95	417	200	30	455	108
11	Greenleaf Avenue	Telegraph Road	125	421	37	45	361	58	61	1133	135	33	696	36

No.													Truck Percentages			
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	North Leg	South Leg	East Leg	West Leg
1	12	13	8	8	35	0	0	14	27	9	10	4	3%	6%	4%	7%
2	7	33	16	11	21	4	2	34	9	14	49	15	5%	5%	4%	4%
3	7	9	2	4	5	3	2	26	18	4	18	3	2%	3%	2%	3%
4	13	34	0	0	19	3	1	0	10	0	0	0	4%	3%	0%	4%
5	7	36	4	5	23	2	4	33	4	1	13	10	4%	4%	4%	5%
6	7	31	2	7	32	5	5	37	9	2	22	11	4%	5%	4%	3%
7	7	8	4	0	9	0	0	23	12	4	16	0	2%	5%	2%	2%
8	0	15	1	3	17	0	0	0	0	1	0	8	4%	4%	6%	0%
9	0	20	1	2	14	0	0	0	0	0	0	1	4%	4%	6%	0%
10	14	17	6	0	13	2	1	20	21	3	11	3	4%	7%	4%	5%
11	16	26	0	1	27	3	5	24	23	1	27	3	7%	8%	3%	4%

VOLUME SUMMARY
EXISTING CONDITIONS

No.	N/S Street	E/W Street	Existing Conditions - AM Peak Hour											
			Northbound			Southbound			Eastbound			Westbound		
			NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Norwalk Boulevard	Los Nietos Road	60	360	77	127	728	79	48	186	160	76	229	162
2	Norwalk Boulevard	Telegraph Road	104	513	174	201	566	85	78	1361	85	217	1039	200
3	Santa Fe Springs Road	Slauson Avenue/Mulberry Drive	69	353	44	111	739	210	104	867	142	163	1461	131
4	Santa Fe Springs Road	Sorensen Avenue	282	540	0	0	935	27	4	0	385	0	0	0
5	Santa Fe Springs Road	Los Nietos Road	117	590	66	195	955	101	43	269	165	154	509	202
6	Santa Fe Springs Road	Telegraph Road	100	586	72	47	877	211	199	743	135	48	1121	177
7	Greenleaf Avenue	Mulberry Drive	110	172	68	124	339	148	36	842	129	120	1477	102
8	Greenleaf Avenue	Reis Street	25	354	28	53	593	13	7	2	5	68	6	80
9	Greenleaf Avenue	Barton Road	0	368	13	36	537	0	0	0	0	17	0	24
10	Greenleaf Avenue	Los Nietos Road	187	235	29	73	297	189	97	293	183	43	511	87
11	Greenleaf Avenue	Telegraph Road	153	383	33	35	429	53	69	565	155	68	1175	35

No.	N/S Street	E/W Street	Existing Conditions - PM Peak Hour											
			Northbound			Southbound			Eastbound			Westbound		
			NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Norwalk Boulevard	Los Nietos Road	121	742	108	110	563	74	28	201	101	129	415	216
2	Norwalk Boulevard	Telegraph Road	159	792	280	175	482	101	95	1204	86	126	1197	155
3	Santa Fe Springs Road	Slauson Avenue/Mulberry Drive	112	692	155	112	494	128	157	1407	94	99	779	124
4	Santa Fe Springs Road	Sorensen Avenue	380	902	0	0	642	17	19	0	309	0	0	0
5	Santa Fe Springs Road	Los Nietos Road	127	937	74	171	697	96	73	437	93	77	474	248
6	Santa Fe Springs Road	Telegraph Road	74	784	70	112	709	228	155	1160	110	49	741	71
7	Greenleaf Avenue	Mulberry Drive	120	314	142	109	241	75	96	1037	74	37	807	94
8	Greenleaf Avenue	Reis Street	8	449	25	84	368	10	17	5	13	14	5	74
9	Greenleaf Avenue	Barton Road	5	473	28	16	396	0	0	0	5	4	0	18
10	Greenleaf Avenue	Los Nietos Road	246	307	20	74	243	77	95	417	206	30	455	108
11	Greenleaf Avenue	Telegraph Road	125	421	37	45	361	58	61	1133	135	33	696	36

Truck AM Peak Hour Volume

No.	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	12	25	9	8	34	2	5	12	15	13	10	11
2	14	50	23	33	26	9	8	94	6	15	59	20
3	10	9	1	1	17	5	4	31	14	3	23	2
4	19	28	0	0	30	2	0	0	27	0	0	0
5	11	29	2	17	41	3	4	15	11	10	42	17
6	9	37	3	9	36	12	6	37	6	2	49	9
7	14	12	6	1	8	0	0	24	7	0	18	3
8	0	20	2	3	10	0	0	0	0	1	0	5
9	0	21	3	1	9	0	0	0	0	0	0	1
10	21	15	3	0	9	2	1	15	12	2	38	4
11	25	34	2	1	31	4	7	22	17	15	29	1

Project Truck AM Peak Hour Volume

No.	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	0	0	0	0	0	0	0	3	0	0	1	0
2	0	0	0	0	0	0	0	7	0	0	0	0
3	0	0	0	0	0	0	0	0	3	1	0	0
4	0	1	0	0	4	0	0	0	0	0	0	0
5	0	3	0	0	0	1	2	2	0	0	1	0
6	0	1	0	0	0	0	1	6	0	0	0	0
7	0	0	1	0	0	0	0	0	0	2	1	0
8	0	1	0	0	2	0	0	0	0	0	0	0
9	0	1	0	0	2	0	0	0	0	0	0	0
10	7	9	0	0	2	0	0	1	1	0	2	0
11	0	6	0	2	2	0	6	0	0	0	0	5

Total Truck AM Peak Hour Volume

No.	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	12	25	9	8	34	2	5	15	15	13	11	11
2	14	50	23	33	26	9	8	101	6	15	59	20
3	11	9	1	1	17	5	4	31	17	4	23	2
4	19	29	0	0	34	2	0	0	27	0	0	0
5	11	32	2	17	41	4	6	17	11	10	43	17
6	9	38	3	9	36	12	7	43	6	2	49	9
7	14	12	7	1	8	0	0	24	7	2	19	3
8	0	21	2	3	12	0	0	0	0	1	0	5
9	0	22	3	1	11	0	0	0	0	0	0	1
10	28	24	3	0	11	2	1	16	13	2	40	4
11	25	40	2	3	33	4	13	22	17	15	29	6

Truck Percentages

No.	North Leg	South Leg	East Leg	West Leg
1	6%	7%	8%	8%
2	9%	8%	8%	7%
3	2%	4%	2%	3%
4	4%	5%	0%	7%
5	5%	5%	7%	7%
6	5%	5%	5%	5%
7	3%	5%	2%	2%
8	4%	3%	5%	0%
9	4%	4%	6%	0%
10	5%	8%	6%	7%
11	10%	11%	4%	5%

Average Trucks

No.	North Leg	South Leg	East Leg	West Leg
1	5%	7%	6%	7%
2	7%	7%	6%	6%
3	2%	3%	2%	3%
4	4%	4%	0%	5%
5	5%	5%	5%	4%
6	5%	5%	5%	5%
7	2%	5%	2%	2%
8	4%	4%	5%	0%
9	4%	4%	6%	0%
10	5%	9%	5%	6%
11	9%	10%	4%	5%

Autos

No.	North Leg	South Leg	East Leg	West Leg
1	95%	93%	94%	93%
2	93%	93%	94%	94%
3	98%	97%	98%	97%
4	96%	96%	100%	95%
5	95%	95%	94%	94%
6	95%	95%	95%	96%
7	98%	95%	98%	98%
8	96%	96%	95%	100%
9	96%	96%	94%	100%
10	95%	91%	95%	94%
11	91%	90%	95%	95%

Truck AM Peak Hour Volume

No.	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	12	13	8	8	35	0	0	14	27	9	10	4
2	7	33	16	11	21	4	2	34	9	14	49	15
3	7	9	2	4	5	3	2	26	18	4	18	3
4	13	34	0	0	19	3	1	0	10	0	0	0
5	7	36	4	5	23	2	4	33	4	1	13	10
6	7	31	2	7	32	5	5	37	9	2	22	11
7	7	8	4	0	9	0	0	23	12	4	16	0
8	0	15	1	3	17	0	0	0	0	1	0	8
9	0	20	1	2	14	0	0	0	0	0	0	1
10	14	17	6	0	13	2	1	20	21	3	11	3
11	16	26	0	1	27	3	5	24	23	1	27	3

Project Truck AM Peak Hour Volume

No.	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	0	0	0	0	0	0	0	1	0	0	2	0
2	0	0	0	0	0	0	0	3	0	0	8	0
3	0	0	0	0	0	0	0	0	1	0	0	0
4	0	2	0	0	1	0	0	0	0	0	0	0
5	0	1	0	0	3	1	1	1	0	0	1	0
6	0	1	0	0	1	2	1	2	0	0	6	0
7	0	0	2	0	0	0	0	0	0	1	0	0
8	0	2	0	0	1	0	0	0	0	0	0	0
9	0	2	0	0	1	0	0	0	0	0	0	0
10	3	3	0	0	8	0	0	1	7	0	1	0
11	0	2	0	3	5	6	2	0	0	0	0	2

Total Truck AM Peak Hour Volume

No.	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	12	13	8	8	35	0	0	15	27	9	12	4
2	7	33	16	11	21	4	2	37	9	14	57	15
3	9	9	2	4	5	3	2	26	19	4	18	3
4	13	36	0	0	20	3	1	0	10	0	0	0
5	7	37	4	5	26	3	5	34	4	1	14	10
6	7	32	2	7	33	7	6	39	9	2	28	11
7	7	8	6	0	9	0	0	23	12	5	16	0
8	0	17	1	3	18	0	0	0	0	1	0	8
9	0	22	1	2	15	0	0	0	0	0	0	1
10	17	20	6	0	21	2	1	21	28	3	12	3
11	16	28	0	4	32	9	7	24	23	1	27	5

Truck Percentages

No.	North Leg	South Leg	East Leg	West Leg
1	3%	6%	5%	7%
2	5%	5%	5%	4%
3	2%	3%	2%	3%
4	4%	4%	0%	4%
5	4%	4%	5%	5%
6	5%	5%	4%	4%
7	2%	5%	2%	2%
8	5%	4%	6%	0%
9	4%	4%	6%	0%
10	5%	9%	4%	5%
11	9%	9%	3%	5%

Traffic Noise Calculator: FHWA 77-108 **Project Title: CPP-04 Existing No Project**

	Output						Inputs														Auto Inputs	
	dBA at 50 feet			Distance to CNEL Contour																		
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	Segment	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever	Ground Absorption	Lane Distance
1	67.7	70.3	70.8	60	191	603	Norwalk Blvd	North of Los Nietos	16,240	40	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
2	68.5	71.1	71.6	73	231	730	Norwalk Blvd	South of Los Neitos	16,195	40	0.0%	93.0%	0.0%	7.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
3	66.1	68.7	69.2	42	132	419	Los Nietos	East of Norwalk Blvd	10,190	40	0.0%	94.0%	0.0%	6.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
4	65.7	68.3	68.9	38	122	385	Los Nietos	West of Norwalk Blvd	8,535	40	0.0%	93.0%	0.0%	7.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
5	68.7	71.3	71.8	76	239	756	Norwalk Blvd	North of Telegraph Road	16,775	40	0.0%	93.0%	0.0%	7.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
6	68.9	71.4	72.0	79	249	786	Norwalk Blvd	South of Telegraph Road	17,450	40	0.0%	93.0%	0.0%	7.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
7	71.1	73.7	74.2	132	417	1320	Telegraph Rd	East of Norwalk Blvd	31,615	40	0.0%	94.0%	0.0%	6.0%	80.0%	11.0%	9.0%	5	Hard	50	0	56
8	70.1	72.7	73.2	106	334	1055	Telegraph Rd	West of Norwalk Blvd	27,970	40	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	5	Hard	50	0	56
9	66.2	68.7	69.3	42	134	423	Santa Fe Springs Rd	North of Slauson Ave/Mulberry Dr	16,775	40	0.0%	98.0%	0.0%	2.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
10	66.5	69.1	69.7	46	146	462	Santa Fe Springs Rd	South of Slauson Ave/Mulberry Dr to Sorensen A	15,835	40	0.0%	97.0%	0.0%	3.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
11	69.5	72.1	72.6	92	290	916	Slauson Ave	East of Santa Fe Springs Rd	27,320	45	0.0%	98.0%	0.0%	2.0%	80.0%	11.0%	9.0%	5	Hard	50	0	56
12	70.2	72.8	73.3	107	339	1072	Slauson Ave	West of Santa Fe Springs Rd	27,650	45	0.0%	97.0%	0.0%	3.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68
13	68.0	70.6	71.1	64	204	644	Santa Fe Springs	Sorensen Ave to Slauson Ave	15,430	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
14	69.5	72.1	72.6	91	289	913	Santa Fe Springs	Sorensen to Los Nietos Rd	21,875	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
16	64.0	66.6	67.1	26	82	259	Sornsen Ave	West of Santa Fe Springs	7,115	40	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
17	69.4	72.0	72.5	90	284	898	Santa Fe Springs Rd	Los Nietos Rd to Sorensen Ave	21,510	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
18	69.2	71.7	72.3	85	267	846	Santa Fe Springs Rd	South of Los Nietos Rd	20,260	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
19	67.6	70.1	70.7	59	185	585	Los Nietos	Santa Fe Springs to Greenleaf Ave	14,530	40	0.0%	94.0%	0.0%	6.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
20	67.0	69.5	70.1	51	161	509	Los Nietos	West of Santa Fe Springs	12,640	40	0.0%	94.0%	0.0%	6.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
21	69.7	72.3	72.8	96	303	958	Santa Fe Springs	North of Telegraph Rd	20,780	45	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
22	69.1	71.7	72.2	83	264	835	Santa Fe Springs	South of Telegraph Rd	18,100	45	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
23	68.7	71.3	71.8	76	240	760	Telegraph Rd	Bloomfield to Shoemaker Ave	22,085	40	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68
24	69.2	71.8	72.3	86	271	856	Telegraph Rd	Bloomfield to Norwalk Blvd	24,885	40	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68
25	64.7	67.2	67.8	30	95	299	Greenleaf Ave	North of Mulberry Dr	9,250	45	0.0%	98.0%	0.0%	2.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
26	66.2	68.7	69.3	42	134	423	Greenleaf Ave	Mulberry Dr to Reis St	9,355	45	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
27	69.6	72.2	72.7	93	295	934	Mulberry Dr	East of Greenleaf Ave	27,295	45	0.0%	98.0%	0.0%	2.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68
28	69.6	72.2	72.7	93	295	934	Mulberry Dr	Greenleaf Ave to Santa Fe Springs Rd.	27,280	45	0.0%	98.0%	0.0%	2.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68
29	66.2	68.8	69.3	43	136	430	Greenleaf Ave	Reis St to Mulberry Dr	10,510	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
30	65.4	68.0	68.5	36	113	357	Greenleaf Ave	Reis St to Barton Rd	9,740	45	0.0%	97.0%	0.0%	3.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
31	55.7	58.3	58.8	4	12	38	Reis St	East of Greenleaf Ave	2,210	25	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
33	65.7	68.3	68.8	38	121	382	Greenleaf Ave	Barton Rd to Reis St	9,340	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
34	65.6	68.2	68.8	38	119	376	Greenleaf Ave	Barton Rd to Los Nietos Rd	9,180	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
35	51.8	54.4	54.9	2	5	16	Barton Rd	East of Geenleaf Ave	780	25	0.0%	94.0%	0.0%	6.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
37	65.6	68.2	68.7	37	118	372	Greenleaf Ave	Los Nietos Rd to Barton Rd	9,080	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
38	67.2	69.8	70.3	54	171	540	Greenleaf Ave	Los Nietos Rd to Telegraph Rd	10,040	45	0.0%	93.0%	0.0%	7.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
39	65.8	68.3	68.9	39	122	386	Los Nietos	East of Greenleaf Ave	10,600	40	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
40	67.1	69.7	70.2	53	167	528	Los Nietos	Greenleaf Ave to Santa Fe Springs	14,520	40	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
41	67.2	69.8	70.3	54	170	538	hoemaker Ave/Greenlea	Telegraph Rd to Los Nietos Rd	9,930	45	0.0%	93.0%	0.0%	7.0%	80.0%	11.0%	9.0%	3	Hard	50	0	32
42	68.6	71.1	71.7	73	232	735	Shomaker Ave	South of Telegraph Rd	11,550	45	0.0%	91.0%	0.0%	9.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
43	67.6	70.2	70.7	59	186	587	Telegraph Rd	East of Shoemaker Ave	19,400	40	0.0%	97.0%	0.0%	3.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68
44	69.2	71.7	72.3	84	267	844	Telegraph Rd	Shoemaker Ave to Bloomfield Ave	21,930	40	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68

Traffic Noise Calculator: FHWA 77-108 **Project Title: CPP-04 Existing Plus Project**

	Output						Inputs														Auto Inputs	
	dBA at 50 feet			Distance to CNEL Contour																		
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	Segment	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever	Ground Absorption	Lane Distance
1	67.7	70.3	70.8	60	191	603	Norwalk Blvd	North of Los Nietos	16,240	40	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
2	68.5	71.1	71.6	73	231	730	Norwalk Blvd	South of Los Neitos	16,195	40	0.0%	93.0%	0.0%	7.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
3	66.2	68.7	69.3	42	134	423	Los Nietos	East of Norwalk Blvd	10,295	40	0.0%	94.0%	0.0%	6.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
4	65.8	68.4	68.9	39	123	389	Los Nietos	West of Norwalk Blvd	8,640	40	0.0%	93.0%	0.0%	7.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
5	68.7	71.3	71.8	76	239	756	Norwalk Blvd	North of Telegraph Road	16,775	40	0.0%	93.0%	0.0%	7.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
6	68.9	71.4	72.0	79	249	786	Norwalk Blvd	South of Telegraph Road	17,450	40	0.0%	93.0%	0.0%	7.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
7	71.1	73.7	74.3	133	421	1331	Telgraph Rd	East of Norwalk Blvd	31,870	40	0.0%	94.0%	0.0%	6.0%	80.0%	11.0%	9.0%	5	Hard	50	0	56
8	70.6	73.2	73.7	118	373	1179	Telgraph Rd	West of Norwalk Blvd	28,225	40	0.0%	94.0%	0.0%	6.0%	80.0%	11.0%	9.0%	5	Hard	50	0	56
9	66.2	68.7	69.3	42	134	423	Sana Fe Springs Rd	North of Slauson Ave/Mulberry Dr	16,775	40	0.0%	98.0%	0.0%	2.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
10	66.6	69.2	69.7	47	147	466	Sana Fe Springs Rd	South of Slauson Ave/Mulberry Dr to Sorensen A	15,965	40	0.0%	97.0%	0.0%	3.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
11	69.5	72.1	72.6	92	290	917	Slason Ave	East of Santa Fe Springs Rd	27,345	45	0.0%	98.0%	0.0%	2.0%	80.0%	11.0%	9.0%	5	Hard	50	0	56
12	70.2	72.8	73.3	108	340	1076	Slason Ave	West of Santa Fe Springs Rd	27,755	45	0.0%	97.0%	0.0%	3.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68
13	68.0	70.6	71.1	65	205	650	Sana Fe Springs	Sorensen Ave to Slauson Ave	15,560	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
14	69.5	72.1	72.6	92	290	919	Sana Fe Springs	Sorensen to Los Nietos Rd	22,005	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
16	64.0	66.6	67.1	26	82	259	Sornsen Ave	West of Santa Fe Springs	7,115	40	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
17	69.9	72.5	73.0	100	316	999	Sana Fe Springs Rd	Los Nietos Rd to Sorensen Ave	21,665	45	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
18	69.6	72.2	72.7	94	297	939	Sana Fe Springs Rd	South of Los Nietos Rd	20,360	45	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
19	67.6	70.2	70.7	59	186	588	Los Nietos	Santa Fe Springs to Greenleaf Ave	14,585	40	0.0%	94.0%	0.0%	6.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
20	67.0	69.6	70.1	51	162	514	Los Nietos	West of Santa Fe Springs	12,750	40	0.0%	94.0%	0.0%	6.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
21	69.7	72.3	72.8	96	304	963	Sana Fe Springs	North of Telegraph Rd	20,875	45	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
22	69.1	71.7	72.2	84	265	837	Sana Fe Springs	South of Telegraph Rd	18,150	45	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
23	69.2	71.8	72.3	86	271	859	Telraph Rd	Bloomfield to Shoemaker Ave	22,295	40	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68
24	69.3	71.8	72.4	86	273	865	Telraph Rd	Bloomfield to Norwalk Blvd	25,140	40	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68
25	64.7	67.2	67.8	30	95	299	Grenleaf Ave	North of Mulberry Dr	9,250	45	0.0%	98.0%	0.0%	2.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
26	66.2	68.8	69.3	43	135	427	Grenleaf Ave	Mulberry Dr to Reis St	9,435	45	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
27	69.6	72.2	72.7	94	297	938	Mulerry Dr	East of Greenleaf Ave	27,400	45	0.0%	98.0%	0.0%	2.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68
28	69.6	72.2	72.7	93	296	935	Mulerry Dr	Greenleaf Ave to Santa Fe Springs Rd.	27,305	45	0.0%	98.0%	0.0%	2.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68
29	66.3	68.8	69.4	43	137	433	Grenleaf Ave	Reis St to Mulberry Dr	10,590	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
30	65.9	68.5	69.1	40	127	402	Grenleaf Ave	Reis St to Barton Rd	9,820	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
31	55.7	58.3	58.8	4	12	38	Rei St	East of Greenleaf Ave	2,210	25	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
33	65.8	68.3	68.9	39	122	386	Grenleaf Ave	Barton Rd to Reis St	9,420	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
34	65.7	68.3	68.8	38	120	379	Grenleaf Ave	Barton Rd to Los Nietos Rd	9,260	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
35	51.8	54.4	54.9	2	5	16	Baron Rd	East of Geenleaf Ave	780	25	0.0%	94.0%	0.0%	6.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
37	66.2	68.8	69.3	42	134	425	Grenleaf Ave	Los Nietos Rd to Barton Rd	9,395	45	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
38	68.1	70.7	71.2	66	209	662	Grenleaf Ave	Los Nietos Rd to Telegraph Rd	10,615	45	0.0%	91.0%	0.0%	9.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
39	65.8	68.4	68.9	39	123	388	Los Nietos	East of Greenleaf Ave	10,655	40	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
40	67.7	70.2	70.8	60	189	598	Los Nietos	Greenleaf Ave to Santa Fe Springs	14,835	40	0.0%	94.0%	0.0%	6.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
41	68.1	70.7	71.2	66	209	661	Shomaker Ave/Greenlea	Telegraph Rd to Los Nietos Rd	10,515	45	0.0%	91.0%	0.0%	9.0%	80.0%	11.0%	9.0%	3	Hard	50	0	32
42	68.9	71.5	72.0	80	253	800	Shomaker Ave	South of Telegraph Rd	11,765	45	0.0%	90.0%	0.0%	10.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
43	68.2	70.8	71.3	67	213	673	Telgraph Rd	East of Shoemaker Ave	19,560	40	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68
44	69.2	71.8	72.3	85	270	853	Telraph Rd	Shoemaker Ave to Bloomfield Ave	22,140	40	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68

Traffic Noise Calculator: FHWA 77-108 **Project Title: CPP-04 Opening Year No Project**

	Output						Inputs															Auto Inputs	
	dBA at 50 feet			Distance to CNEL Contour																			
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	Segment	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever	Ground Absorption	Lane Distance
1	67.8	70.4	71.0	62	197	624	Norwalk Blvd	North of Los Nietos	16,810	40	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
2	68.7	71.3	71.8	76	239	755	Norwalk Blvd	South of Los Neitos	16,765	40	0.0%	93.0%	0.0%	7.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
3	66.2	68.8	69.3	43	135	427	Los Nietos	East of Norwalk Blvd	10,400	40	0.0%	94.0%	0.0%	6.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
4	65.8	68.4	68.9	39	124	392	Los Nietos	West of Norwalk Blvd	8,705	40	0.0%	93.0%	0.0%	7.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
5	68.9	71.5	72.0	80	252	798	Norwalk Blvd	North of Telegraph Road	17,700	40	0.0%	93.0%	0.0%	7.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
6	69.0	71.6	72.1	81	256	808	Norwalk Blvd	South of Telegraph Road	17,940	40	0.0%	93.0%	0.0%	7.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
7	71.4	74.0	74.5	142	449	1419	Telgraph Rd	East of Norwalk Blvd	33,995	40	0.0%	94.0%	0.0%	6.0%	80.0%	11.0%	9.0%	5	Hard	50	0	56
8	70.5	73.1	73.6	115	363	1149	Telgraph Rd	West of Norwalk Blvd	30,465	40	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	5	Hard	50	0	56
9	66.4	68.9	69.5	44	140	444	Sana Fe Springs Rd	North of Slauson Ave/Mulberry Dr	17,595	40	0.0%	98.0%	0.0%	2.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
10	66.9	69.5	70.0	50	158	499	Sana Fe Springs Rd	South of Slauson Ave/Mulberry Dr to Sorensen A	17,090	40	0.0%	97.0%	0.0%	3.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
11	69.7	72.2	72.8	95	299	946	Slason Ave	East of Santa Fe Springs Rd	28,200	45	0.0%	98.0%	0.0%	2.0%	80.0%	11.0%	9.0%	5	Hard	50	0	56
12	70.4	73.0	73.5	113	356	1127	Slason Ave	West of Santa Fe Springs Rd	29,065	45	0.0%	97.0%	0.0%	3.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68
13	68.3	70.9	71.4	70	220	696	Sana Fe Springs	Sorensen Ave to Slauson Ave	16,680	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
14	69.8	72.3	72.9	97	307	971	Sana Fe Springs	Sorensen to Los Nietos Rd	23,260	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
16	64.1	66.7	67.2	26	84	264	Sornsen Ave	West of Santa Fe Springs	7,260	40	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
17	69.7	72.3	72.8	96	302	955	Sana Fe Springs Rd	Los Nietos Rd to Sorensen Ave	22,880	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
18	69.5	72.1	72.6	91	289	913	Sana Fe Springs Rd	South of Los Nietos Rd	21,880	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
19	68.0	70.5	71.1	64	202	639	Los Nietos	Santa Fe Springs to Greenleaf Ave	15,870	40	0.0%	94.0%	0.0%	6.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
20	67.1	69.6	70.2	52	164	519	Los Nietos	West of Santa Fe Springs	12,890	40	0.0%	94.0%	0.0%	6.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
21	70.0	72.6	73.2	103	327	1034	Sana Fe Springs	North of Telegraph Rd	22,415	45	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
22	69.4	72.0	72.5	89	281	890	Sana Fe Springs	South of Telegraph Rd	19,300	45	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
23	68.9	71.5	72.1	80	254	803	Telraph Rd	Bloomfield to Shoemaker Ave	23,340	40	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68
24	69.6	72.1	72.7	93	293	926	Telraph Rd	Bloomfield to Norwalk Blvd	26,925	40	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68
25	64.7	67.3	67.9	31	97	305	Grenleaf Ave	North of Mulberry Dr	9,435	45	0.0%	98.0%	0.0%	2.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
26	66.2	68.8	69.4	43	136	431	Grenleaf Ave	Mulberry Dr to Reis St	9,540	45	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
27	69.7	72.3	72.9	96	305	965	Mulerry Dr	East of Greenleaf Ave	28,180	45	0.0%	98.0%	0.0%	2.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68
28	69.7	72.3	72.9	96	305	964	Mulerry Dr	Greenleaf Ave to Santa Fe Springs Rd.	28,175	45	0.0%	98.0%	0.0%	2.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68
29	66.3	68.9	69.4	44	139	439	Grenleaf Ave	Reis St to Mulberry Dr	10,715	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
30	65.5	68.1	68.6	36	115	364	Grenleaf Ave	Reis St to Barton Rd	9,935	45	0.0%	97.0%	0.0%	3.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
31	55.8	58.4	58.9	4	12	39	Rei St	East of Greenleaf Ave	2,255	25	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
33	65.8	68.4	68.9	39	123	390	Grenleaf Ave	Barton Rd to Reis St	9,520	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
34	65.7	68.3	68.8	38	121	383	Grenleaf Ave	Barton Rd to Los Nietos Rd	9,360	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
35	51.9	54.4	55.0	2	5	16	Baron Rd	East of Geenleaf Ave	790	25	0.0%	94.0%	0.0%	6.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
37	65.7	68.3	68.8	38	120	379	Grenleaf Ave	Los Nietos Rd to Barton Rd	9,260	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
38	67.4	70.0	70.5	57	179	565	Grenleaf Ave	Los Nietos Rd to Telegraph Rd	10,510	45	0.0%	93.0%	0.0%	7.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
39	65.8	68.4	69.0	39	124	393	Los Nietos	East of Greenleaf Ave	10,805	40	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
40	67.3	69.9	70.4	55	173	549	Los Nietos	Greenleaf Ave to Santa Fe Springs	15,075	40	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
41	67.4	70.0	70.5	56	178	563	Shomaker Ave/Greenlea	Telegraph Rd to Los Nietos Rd	10,390	45	0.0%	93.0%	0.0%	7.0%	80.0%	11.0%	9.0%	3	Hard	50	0	32
42	68.7	71.3	71.8	76	241	761	Shomaker Ave	South of Telegraph Rd	11,970	45	0.0%	91.0%	0.0%	9.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
43	67.9	70.5	71.0	63	199	628	Telgraph Rd	East of Shoemaker Ave	20,745	40	0.0%	97.0%	0.0%	3.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68
44	69.4	72.0	72.5	89	282	893	Telraph Rd	Shoemaker Ave to Bloomfield Ave	23,185	40	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68

Traffic Noise Calculator: FHWA 77-108 **Project Title: CPP-04 Opening Year With Project**

	Output						Inputs														Auto Inputs	
	dBA at 50 feet			Distance to CNEL Contour																		
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	Segment	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever	Ground Absorption	Lane Distance
1	67.8	70.4	71.0	62	197	624	Norwalk Blvd	North of Los Nietos	16,810	40	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
2	68.7	71.3	71.8	76	239	755	Norwalk Blvd	South of Los Neitos	16,765	40	0.0%	93.0%	0.0%	7.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
3	66.2	68.8	69.4	43	137	432	Los Nietos	East of Norwalk Blvd	10,505	40	0.0%	94.0%	0.0%	6.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
4	65.9	68.5	69.0	40	126	397	Los Nietos	West of Norwalk Blvd	8,810	40	0.0%	93.0%	0.0%	7.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
5	68.9	71.5	72.0	80	252	798	Norwalk Blvd	North of Telegraph Road	17,700	40	0.0%	93.0%	0.0%	7.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
6	69.0	71.6	72.1	81	256	808	Norwalk Blvd	South of Telegraph Road	17,940	40	0.0%	93.0%	0.0%	7.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
7	71.5	74.0	74.6	143	452	1430	Telgraph Rd	East of Norwalk Blvd	34,250	40	0.0%	94.0%	0.0%	6.0%	80.0%	11.0%	9.0%	5	Hard	50	0	56
8	71.0	73.6	74.1	128	406	1283	Telgraph Rd	West of Norwalk Blvd	30,720	40	0.0%	94.0%	0.0%	6.0%	80.0%	11.0%	9.0%	5	Hard	50	0	56
9	66.4	68.9	69.5	44	140	444	Sana Fe Springs Rd	North of Slauson Ave/Mulberry Dr	17,595	40	0.0%	98.0%	0.0%	2.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
10	66.9	69.5	70.0	50	159	503	Sana Fe Springs Rd	South of Slauson Ave/Mulberry Dr to Sorensen A	17,220	40	0.0%	97.0%	0.0%	3.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
11	69.7	72.2	72.8	95	299	946	Slason Ave	East of Santa Fe Springs Rd	28,225	45	0.0%	98.0%	0.0%	2.0%	80.0%	11.0%	9.0%	5	Hard	50	0	56
12	70.4	73.0	73.5	113	358	1131	Slason Ave	West of Santa Fe Springs Rd	29,170	45	0.0%	97.0%	0.0%	3.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68
13	68.4	70.9	71.5	70	222	702	Sana Fe Springs	Sorensen Ave to Slauson Ave	16,810	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
14	69.8	72.4	72.9	98	309	976	Sana Fe Springs	Sorensen to Los Nietos Rd	23,390	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
16	64.1	66.7	67.2	26	84	264	Sornsen Ave	West of Santa Fe Springs	7,260	40	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
17	70.2	72.7	73.3	106	336	1062	Sana Fe Springs Rd	Los Nietos Rd to Sorensen Ave	23,035	45	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
18	70.0	72.5	73.1	101	321	1014	Sana Fe Springs Rd	South of Los Nietos Rd	21,980	45	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
19	68.0	70.5	71.1	64	203	642	Los Nietos	Santa Fe Springs to Greenleaf Ave	15,925	40	0.0%	94.0%	0.0%	6.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
20	67.1	69.7	70.2	52	166	524	Los Nietos	West of Santa Fe Springs	13,000	40	0.0%	94.0%	0.0%	6.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
21	70.1	72.6	73.2	104	328	1038	Sana Fe Springs	North of Telegraph Rd	22,510	45	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
22	69.4	72.0	72.5	89	282	892	Sana Fe Springs	South of Telegraph Rd	19,350	45	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
23	69.5	72.0	72.6	91	287	907	Telraph Rd	Bloomfield to Shoemaker Ave	23,550	40	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68
24	69.6	72.2	72.7	93	296	935	Telraph Rd	Bloomfield to Norwalk Blvd	27,180	40	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68
25	64.7	67.3	67.9	31	97	305	Grenleaf Ave	North of Mulberry Dr	9,435	45	0.0%	98.0%	0.0%	2.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
26	66.3	68.9	69.4	43	138	435	Grenleaf Ave	Mulberry Dr to Reis St	9,620	45	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
27	69.8	72.3	72.9	97	306	968	Mulerry Dr	East of Greenleaf Ave	28,285	45	0.0%	98.0%	0.0%	2.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68
28	69.7	72.3	72.9	97	305	965	Mulerry Dr	Greenleaf Ave to Santa Fe Springs Rd.	28,200	45	0.0%	98.0%	0.0%	2.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68
29	66.3	68.9	69.5	44	140	442	Grenleaf Ave	Reis St to Mulberry Dr	10,795	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
30	66.0	68.6	69.1	41	130	410	Grenleaf Ave	Reis St to Barton Rd	10,015	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
31	55.8	58.4	58.9	4	12	39	Rei St	East of Greenleaf Ave	2,255	25	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
33	65.8	68.4	69.0	39	124	393	Grenleaf Ave	Barton Rd to Reis St	9,600	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
34	65.8	68.3	68.9	39	122	386	Grenleaf Ave	Barton Rd to Los Nietos Rd	9,440	45	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
35	51.9	54.4	55.0	2	5	16	Baron Rd	East of Geenleaf Ave	790	25	0.0%	94.0%	0.0%	6.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
37	66.3	68.8	69.4	43	137	433	Grenleaf Ave	Los Nietos Rd to Barton Rd	9,575	45	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
38	68.3	70.9	71.4	69	219	691	Grenleaf Ave	Los Nietos Rd to Telegraph Rd	11,085	45	0.0%	91.0%	0.0%	9.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
39	65.9	68.4	69.0	40	125	395	Los Nietos	East of Greenleaf Ave	10,860	40	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
40	67.8	70.4	70.9	62	196	620	Los Nietos	Greenleaf Ave to Santa Fe Springs	15,390	40	0.0%	94.0%	0.0%	6.0%	80.0%	11.0%	9.0%	2	Hard	50	0	20
41	68.3	70.9	71.4	69	218	690	Shomaker Ave/Greenlea	Telegraph Rd to Los Nietos Rd	10,975	45	0.0%	91.0%	0.0%	9.0%	80.0%	11.0%	9.0%	3	Hard	50	0	32
42	69.1	71.7	72.2	83	262	828	Shomaker Ave	South of Telegraph Rd	12,185	45	0.0%	90.0%	0.0%	10.0%	80.0%	11.0%	9.0%	4	Hard	50	0	44
43	68.5	71.0	71.6	72	227	719	Telgraph Rd	East of Shoemaker Ave	20,905	40	0.0%	96.0%	0.0%	4.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68
44	69.4	72.0	72.6	90	285	901	Telraph Rd	Shoemaker Ave to Bloomfield Ave	23,395	40	0.0%	95.0%	0.0%	5.0%	80.0%	11.0%	9.0%	6	Hard	50	0	68

TRUCK LOADING DOCK NOISE CALCULATIONS

Santa Fe Springs Warehouse : CPP-04 Loading Dock/Truck Noise Calculations

Receptor: Residences and School								
			Distance Attenuation, ft		Barrier Attenuation			
		Reference Adjusted (@ 50 ft)	14 docks		Residences	School		
Noise Metric	Ref @ 50 ft	14 trucks	350	250	-8 dB	-3dB		
L50	40.0	51.5	34.6	37.5	26.6	34.5		
L25	42.0	53.5	36.6	39.5	28.6	36.5		
L8	53.0	64.5	47.6	50.5	39.6	47.5		
L25	54.0	65.5	48.6	51.5	40.6	48.5		
Lmax	75.0	86.5	69.6	72.5	61.6	69.5		

RCNM Appendix A: Practices for Calculating Estimated Shielding (fwha.dot.gov)

Atten (dB)	Instance
3	If a noise barrier or other obstruction (like a dirt mound) just barely breaks the line-of-sight between the noise source and the receptor
5	If the noise source is in a enclosure and/or barrier that has some gaps in it
5	If a noise source is enclosed or shielded with heavy vinyl noise curtain material (e.g., SoundSeal BBC-13-2" or equivalent)
8	If the noise source is completely enclosed OR completely shielded with a solid barrier located close to the source
10	If the noise source is completely enclosed AND completely shielded with a solid barrier located close to the source

References

1. Roadway Construction Noise Model User's Guide. Federal Highway Administration. FHWA-HEP-05-054.January 2006

2. Construction Noise Control Specification 721.560, Central Artery/Tunnel Project, Massachusetts Turnpike Authority, Boston, MA, 2002.

3. Thalheimer, Erich. "Construction Noise Control Program and Mitigation Strategy at the Central Artery/Tunnel Project". Noise Control Engineering Journal, Vol. 48, No. 5, pp 157-165, September - October 2000.

4. "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety", Environmental Protection Agency, ONAC 550/9-74-004. Washington, DC, March 1974.

5. "Power Plant Construction Noise Guide". Bolt, Beranek, and Newman Inc. and Empire State Electric Energy Research Corp., Report No. 3321. New York, NY May 1977.

Santa Fe Springs Warehouse : CPP-04 Loading Dock/Truck Noise Calculations

Receptor: Residences and School							
			Distance Attenuation, ft	Barrier Attenuation			
		Reference Adjusted (@ 50 ft)	1 docks		School		
Noise Metric	Ref @ 50 ft	1 trucks	100		-8dB		
L50	40.0	40.0	34.0		26.0		
L25	42.0	42.0	36.0		28.0		
L8	53.0	53.0	47.0		39.0		
L25	54.0	54.0	48.0		40.0		
Lmax	75.0	75.0	69.0		61.0		

RCNM Appendix A: Practices for Calculating Estimated Shielding (fwha.dot.gov)

Atten (dB)	Instance
3	If a noise barrier or other obstruction (like a dirt mound) just barely breaks the line-of-sight between the noise source and the receptor
5	If the noise source is in a enclosure and/or barrier that has some gaps in it
5	If a noise source is enclosed or shielded with heavy vinyl noise curtain material (e.g., SoundSeal BBC-13-2" or equivalent)
8	If the noise source is completely enclosed OR completely shielded with a solid barrier located close to the source
10	If the noise source is completely enclosed AND completely shielded with a solid barrier located close to the source

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