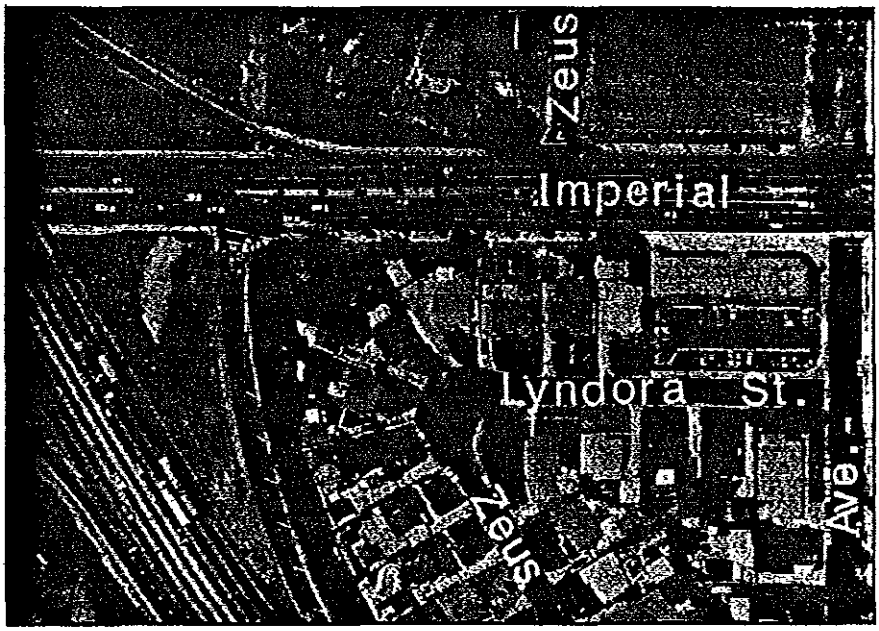
Appendix K Noise and Vibration Analysis

LOCAL REGULATIONS AND STANDARDS

F. Noise



1. Goals and Opportunities

The noise element of a general plan provides information on current noise levels in the City. This information is used to identify the most suitable locations for various land uses, especially those uses that are most sensitive to noise impacts. In addition, the Noise Element provides the basis for the enforcement of noise associated codes and standards protecting the health and well being of the persons living in Norwalk.

The purpose of the Noise Element is to accomplish the following general goals through policies and implementation measures:

- To ensure that all areas of the City are free from excessive noise.

- To reduce the number of people exposed to excessive noise and minimize the future effect of noise in the City.

- To ensure that land uses are compatible with existing and future noise levels.

2. Existing Conditions

Noise is generated by numerous sources. For the purpose of this Noise Element, the City recognized two major categories of noise sources, mobile and stationary. The main noise generators within the City of Norwalk consist of vehicular traffic along the I-5 and I-605 Freeways, major highways and thoroughfares, the Atchison Topeka and Santa Fe Railroad line and the Southern Pacific Railroad line. The City is also exposed to noise emanating from industrial and commercial activities, construction work, and human activities. Diagrams are provided in Section 6 which show the existing and future noise contours in Norwalk.

HOW NOISE IS MEASURED

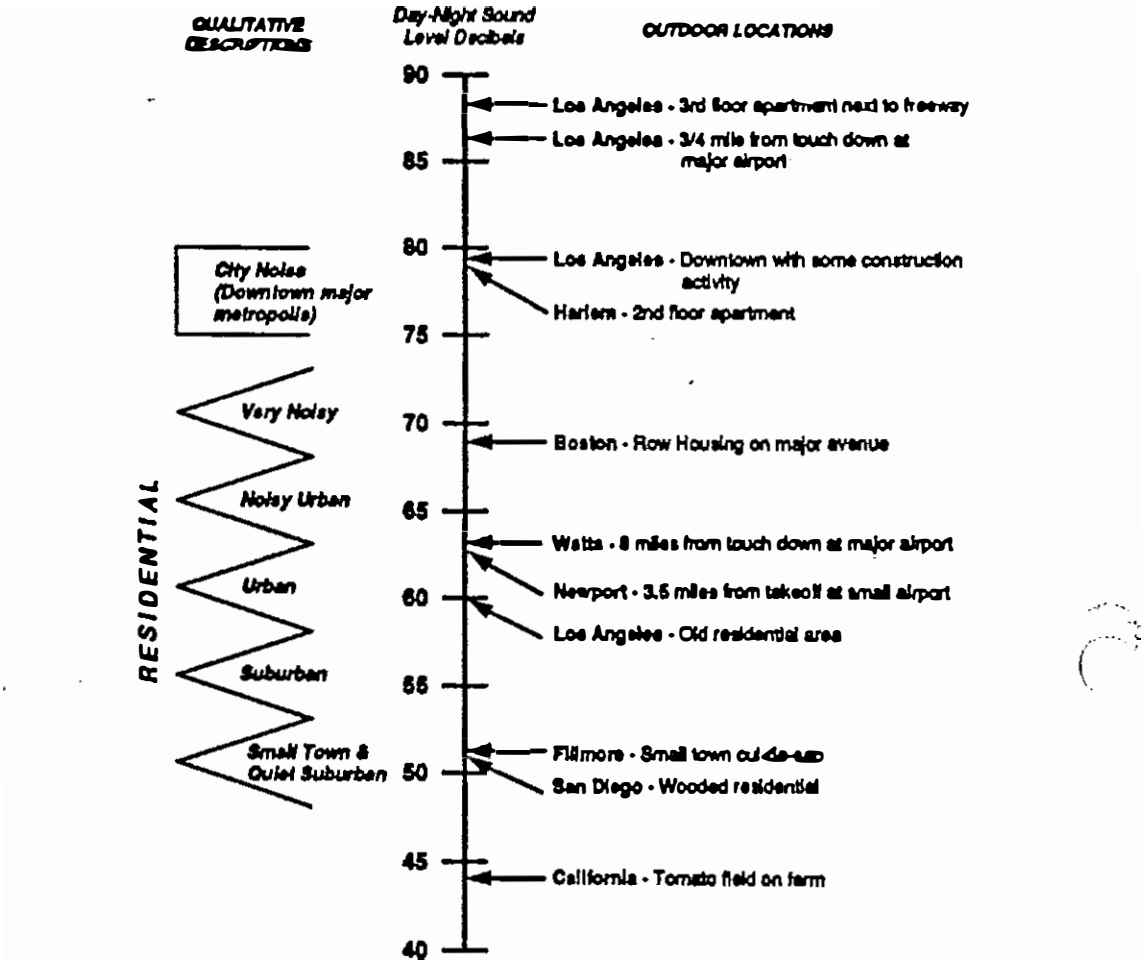
Community Noise levels are measured in terms of the A-weighted decibel, abbreviated dBA. A-weighting is a frequency correction that correlates overall sound pressure levels with the frequency response of the human ear. Several rating scales have been developed for the measurement of community noise. These account for: (1) the parameters of noise that have been shown to contribute to the effects of noise on man, (2) the variety of noises found in the environment, (3) the variations in noise levels that occur as a person moves through the environment, and (4) the variations associated with the time of day. A predominant rating scale now in use in California for land use compatibility assessment is the Day-Night Noise Level (Ldn).

The Ldn scale represents a time weighted 24-hour average noise level based on the A-weighted decibel. Time weighted refers to the fact that noise that occurs during certain sensitive time periods is penalized for occurring at these times. Nighttime (10:00 P.M. to 7:00 A.M.) period noises are penalized by 10 dBA. This time period and penalty was selected to reflect peoples' increased sensitivity to noise during this time period.

To account for the persistence of loudness and variations over time, noise measurements are often expressed by a statistical descriptor such as an exceedance level, L_x, where "x" refers to the percentage of time a noise level is exceeded. L_{10}, L_{50}, and L_{90} are frequently used to describe peak, median, and background noise levels, respectively. In addition to describing noise levels in terms of an exceedance level, noise analysis can utilize a scale of measurement, expressed in terms of dBA, called the equivalent noise level (Leq). The Leq noise level takes into account fluctuations in a noise level over a given period of time based on the acoustical energy content of that sound. A one-hour Leq, for example, averages total noise energy over that period of time.

Noise affects all types of land uses and activities, although some are more sensitive to high noise levels than others. Noise sensitive land uses include residences, convalescent and rest homes, hospitals, libraries, churches, and schools.

RANGE OF TYPICAL OUTDOOR NOISE ENVIRONMENTS EXPRESSED IN TERMS OF DAY-NIGHT SOUND LEVEL (L_{dn}), dB



Source: Guidelines for the Preparation and Content of the Noise Element of the General Plan prepared by the California Department of Health Services.

a. Mobile Noise Sources

Mobile noise sources include vehicular noise from commercial and passenger vehicles and railroad noise.

- **Vehicular Noise** - The Circulation Element identifies the existing average daily traffic flows. The highest traffic volumes occur on the I-605, I-105, I-91, and the I-5 Freeways and major roadways such as Alondra Boulevard, Rosecrans Avenue, Imperial Highway, Firestone Boulevard, Carmenita Road, Bloomfield Avenue, Pioneer Boulevard, San Antonio Drive, Norwalk Boulevard - north of the I-5 Freeway, and Studebaker Road. Future development resulting in increased traffic will have an impact on noise volumes.

- **Railroad Noise** - The Atchison Topeka and Santa Fe Railroad, which runs along Norwalk's eastern boundary, operates freight trains, Amtrak commercial passenger trains, and Metrolink commuter trains.

  The Southern Pacific Transportation Company Railroad, which runs diagonally through Norwalk parallel to the south side of Firestone Boulevard, operates freight trains. This rail line impacts several residential neighborhoods along its length.

c. Stationary Noise Sources

Stationary noise sources are also a cause of noise impact and annoyance. The City contains relatively few sources of stationary noise. The only areas where concentration of

noise may be experienced are in the commercial centers and industrial areas. The primary noise associated with commercial centers is attributed to mobile noise sources, such as automobile and truck traffic. Due to the design of the centers and the associated roadway and parking locations, shopping generated vehicles do not greatly impact the adjacent residential areas.

The types of industrial uses characteristically locating in Norwalk include research and development, light industry, wholesale, and warehouse facilities. Heavy machinery type industries have not located in the City. Therefore, the noise generation is primarily associated with transportation activities. Industrial centers are typically located adjacent to arterial and secondary streets with easy access to freeways, resulting in minimal effects on residential areas.

Other stationary noise sources that should be considered include but are not limited to air conditioning or compressor units, or soil remediation equipments. Though smaller in size, this type of equipment can also create noise impacts.

4. Land Use Compatibility

Noise compatibility standards establish an acceptable limit for noise exposure for various land uses with in the City. New buildings and developments, not including modifications or additions to existing structures, should be reviewed to determine if the project lies in one of the following noise classifications:

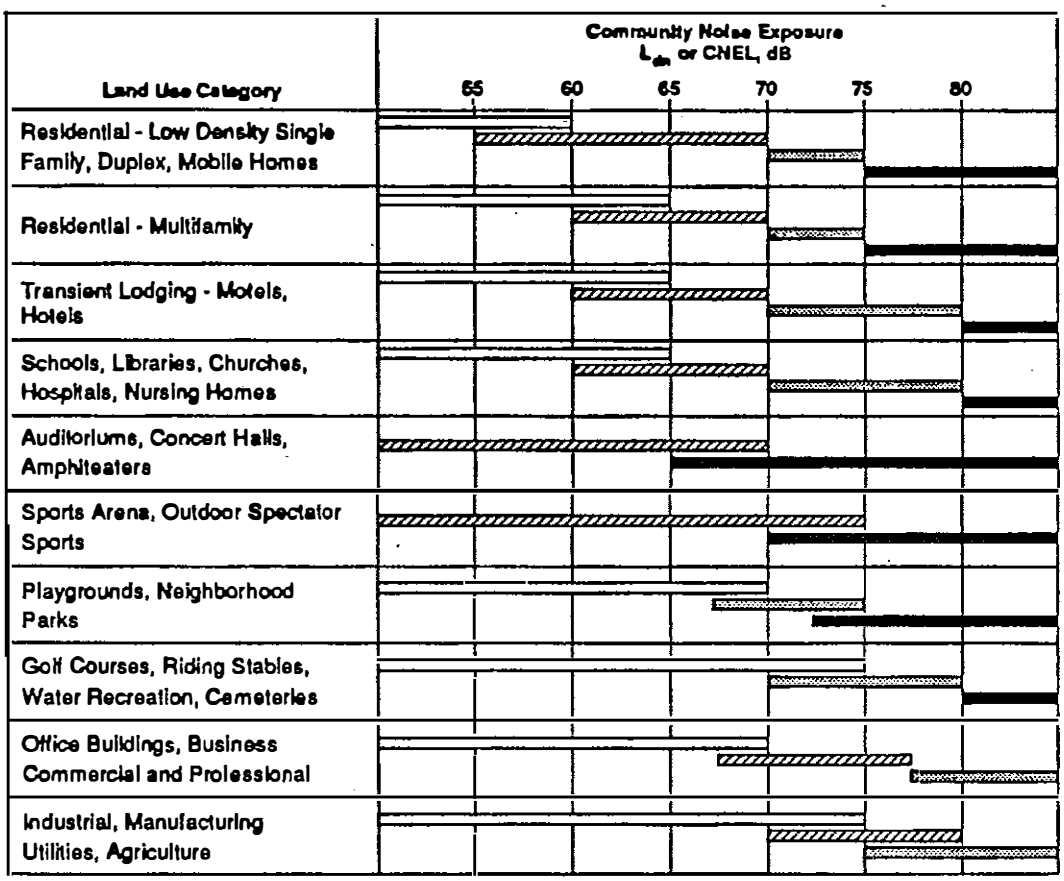
- *Clearly Acceptable* - Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

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

- *Normally Unacceptable* - New consruction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

- *Clearly Unacceptable* - New development should generally not be undertaken. If the proposed development is intended for storage or other uses where persons will not be exposed to excessive noise levels, and a detailed analysis provides for adequate noise insulation features, the new development or construction may occur.

Using the future noise contour map in Section 6, the worst case scenario noise levels should be identified. After identifying the proposed location, land use, and CNEL level, the following table should be referred to:



Legend:

Clearly Acceptable
Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

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

Normally Unacceptable
New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Unacceptable
New construction or development should generally not be undertaken.

Considerations in Determination of Noise-Compatible Land Use

a. **Suitable Interior Environments**
One objective of locating residential units relative to a known noise source is to maintain a suitable interior noise environment at no greater than 45 dB CNEL of L_{dn}. This requirement, coupled with the measured or calculated noise reduction performance of the type of structure under construction, should govern the minimum acceptable distance to a noise source.

b. **Acceptable Outdoor Environments**
Another consideration, which in some communities is an overriding factor, is the desire for an acceptable outdoor noise environment. When this is the case, more restrictive standards for land use compatibility, typically below the maximum considered "normally acceptable" for that land use category, may be appropriate.

Source: Guidelines for the Preparation and Content of the Noise Element of the General Plan prepared by the California Department of Health Services.

When using the table, the stricter noise classification shall apply. In addition to any acoustical analysis that may be performed, the State of California Noise Insulation Standards require that interior noise levels attributable to exterior sources shall not exceed 45 dB in any habitable room. Any new development must conform with this standard, and all other requirements of the State of California Noise Insulation Standards.

5. Objectives and Policies

Objectives

- To have noise levels in all areas of the City meet the minimum standards of land use compatibility established in the Noise Element, especially adjacent to noise sensitive uses.

- To promote the reduction of noise impacts from existing transportation to a level of compatibility with adjoining land uses.

Policies

- Encourage compliance with state and federal legislation designed to abate and control noise pollution.

- Existing noise sources that exceed the appropriate maximum standard shall be encouraged to reduce their noise level to at least the land use compatibility standards of the noise element.

- Discourage truck traffic from using local residential streets.

- Encourage the use of acoustical materials in a new residential and community development where noise levels exceed the compatibility standards of the Noise Element.

- Encourage railroads to institute noise reduction techniques to reduce impacts on adjoining land uses.

- Encourage the California Department of Transportation (Caltrans) to continue programs which lead to the reduction of noise levels on I-5, I-605, I-105, and the I-91.

- Ensure that proposed noise sources are reduced below a level of significance and properly muffled to prevent noise impacts on neighboring properties.

5. Implementation Programs

- Require noise study reports to be prepared for new projects that are not clearly compatible with the future noise level at the site, and identify measures necessary to reduce noise levels to meet the City standard.

- Implement the mitigation measures identified by noise study reports through imposing appropriate conditions of approval on development proposals and Building Permits.

- Update the highway/railroad noise contour

maps concurrently with future updates of the Circulation Element.

- Establish a priority system for erecting sound walls along freeway routes, and encourage the construction of sound walls by the California Department of Transportation pursuant to Section 215.5 of the California Streets and Highways Code.

- Encourage or require new development to provide for adequate sound barriers from railroad noise.

- Condition discretionary actions for projects adjacent to any property designated, developed, or occupied by noise sensitive land uses. Developer may be required to submit a construction noise mitigation plan to the City Engineer for review and approval prior to the issuance of a grading or building permit. The plan must show how the noise from construction would be mitigated, through the use of such methods as:

    - Time of operation
    - Temporary noise attenuation fences
    - Location of construction equipment
    - Use of current technology and noise suppression equipment

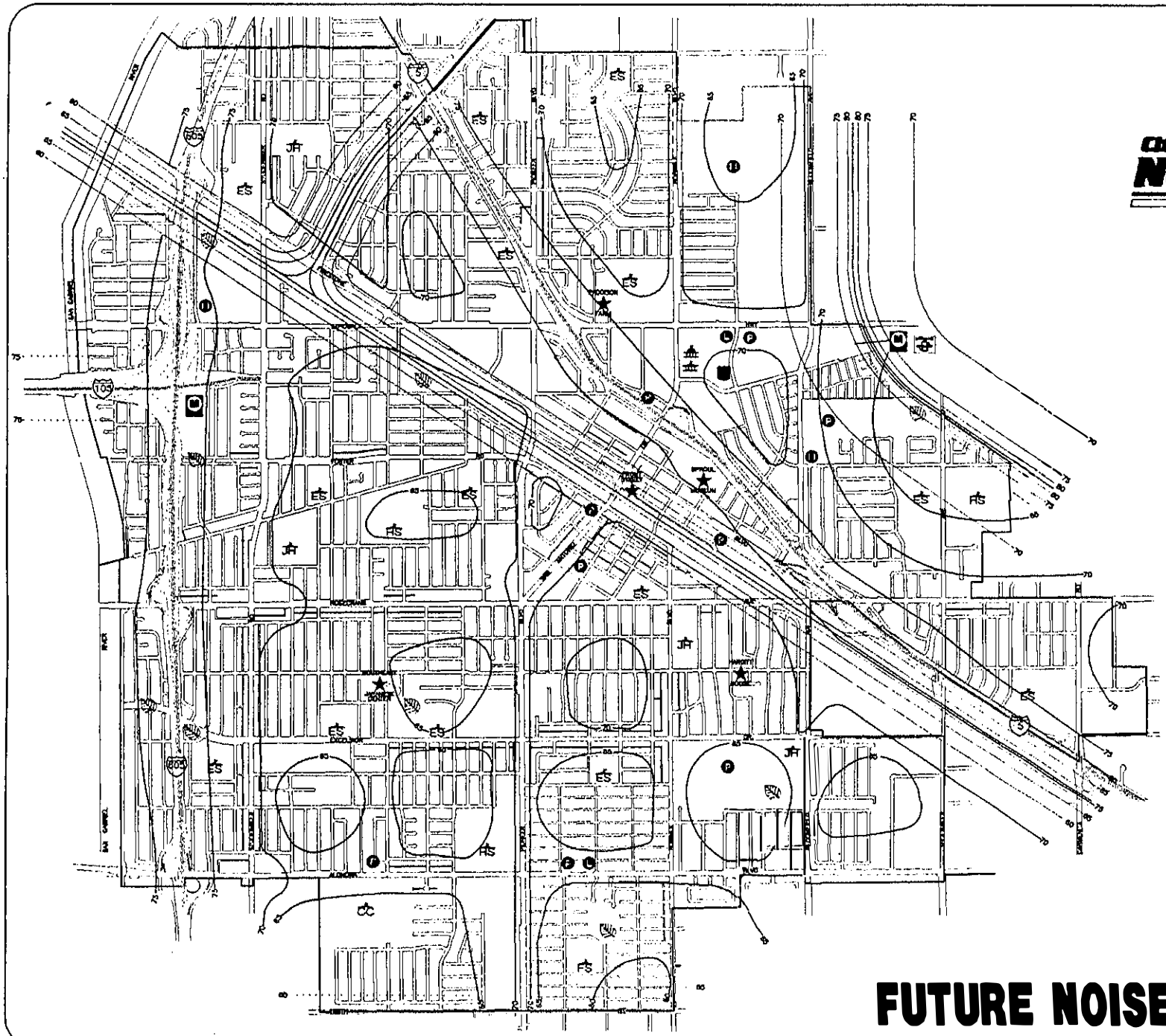
- Revise noise related zoning regulations to be consistent with the Noise Element.

- Continue to include in the City's codes, restrictions on the hours of operation of

construction equipment, site maintenance equipment (leaf blowers, power mowers, etc.), trash collection, and truck deliveries.

- Disseminate to the public and developers information regarding City noise regulations and programs, the adverse effects of high noise levels, and means of mitigating such levels.

- The City will act to reduce noise levels by making noise levels of equipment a consideration when making purchases.



City of NORWALK

NORTH

NOISE LEGEND

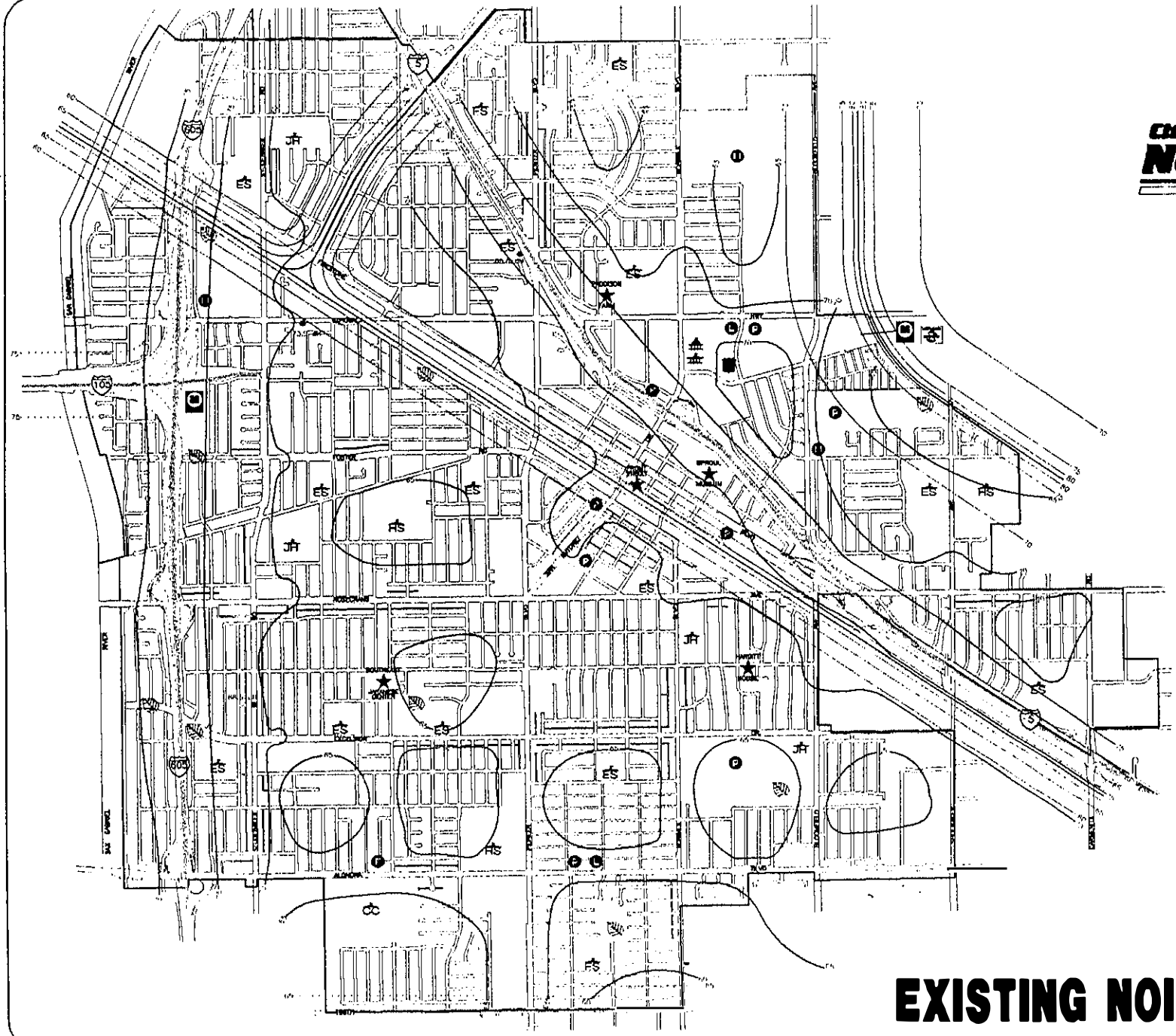
- TRAFFIC NOISE CONTOURS CNEL
- RAILROAD NOISE CONTOURS CNEL

LEGEND

- CITY HALL
- COURT HOUSE
- POLICE / SHERIFF
- COMMUNITY COLLEGE
- HIGH SCHOOL
- JUNIOR HIGH SCHOOL
- ELEMENTARY SCHOOL
- FIRE STATION
- HEALTH CENTER
- OTHER PUBLIC FACILITY
- PARK
- LIBRARY
- HISTORIC / CULTURAL SITE
- TRANSPORTATION CENTER
- TRANSPORTATION CORRIDOR

SOURCE: ENVIRONMENTAL NOISE ANALYSIS, INC.
CITY OF DOWNEY NOISE ELEMENT
CITY OF SANTA FE SPRINGS NOISE ELEMENT
CITY OF ARTESIA NOISE ELEMENT

FUTURE NOISE CONTOURS



City of NORWALK

NORTH

NOISE LEGEND

- TRAFFIC NOISE CONTOURS CNEL
- RAILROAD NOISE CONTOURS CNEL
- MEASURED NOISE LEVELS CNEL

LEGEND

- CITY HALL
- COURT HOUSE
- POLICE / SHERIFF
- COMMUNITY COLLEGE
- HIGH SCHOOL
- JUNIOR HIGH SCHOOL
- ELEMENTARY SCHOOL
- FIRE STATION
- HEALTH CENTER
- OTHER PUBLIC FACILITY
- PARK
- LIBRARY
- HISTORIC / CULTURAL SITE
- TRANSPORTATION CENTER
- TRANSPORTATION CORRIDOR

SOURCE: ENVIRONMENTAL IMPACT ASSESSMENT FOR CITY OF NORWALK GENERAL PLAN UPDATE, CITY OF NORWALK PLANNING DEPARTMENT, CITY OF NORWALK PUBLIC WORKS DEPARTMENT

EXISTING NOISE CONTOURS

Article III. Noise

9.04.100 Noise prohibited.

No person shall make, continue or cause to be made or continued, any loud, unnecessary or unusual noise, or any noise which either annoys, disturbs, injures or endangers the comfort, repose, health, peace or safety of others within the limits of the City. (Ord. 21-1722 § 2; prior code § 5-17.1)

9.04.110 General definitions.

As used in this article:

“A band level” means the total sound level of all noise as measured with a sound-level meter using the A weighting network. The unit is dbA.

“Day” means the time period from 7:00 a.m. to 10:00 p.m.

“Decibel (db)” means a unit of level which denotes the ratio between two quantities which are proportional to power; the number of decibels corresponding to the ratio to two amounts of power is ten (10) times the logarithm to the base ten (10) of this ratio.

“Emergency work” means work made necessary to restore property to a safe condition following a public calamity, work required to protect persons or property from an imminent exposure to danger, or work by private or public utility service.

“Night” means the time period from 10:00 p.m. to 7:00 a.m.

“Noise level in decibels” means the A-weighted sound pressure level as measured using the slow dynamic characteristic for sound level meters specified in ASA S1 4-1961, American Standard Specification for General Purpose Sound Level Meters, or latest revision. The reference pressure is twenty (20) micronewtons/square meter (2 x 10-4 microbar).

“Person” means a person, firm, association, copartnership, joint venture, corporation or any entity, public or private in nature.

“Sound level meter” means an instrument including a microphone, an amplifier, an output meter and frequency weighting networks for the measurement of noise and sound levels in a specified manner as specified in ASA S1 4-1961, American Standard Specification for General Purpose Sound Level Meters, or latest revision. (Ord. 21-1722 § 2; prior code § 5-17.2)

9.04.120 Ambient noise level.

A. “Ambient noise” means the all-encompassing noise associated with a given environment being usually a composite of sounds with many sources near and far, without inclusion of intruding noises from isolated identifiable sources.

B. Unless sound-level meter readings determine the ambient noise level in a given environment to be higher, the ambient noise levels in Norwalk are presumed to be as follows:

Decibels	Time	Zone
45 dbA	Night	Residential
55 dbA	Day	Residential
60 dbA	Anytime	Commercial
65 dbA	Anytime	All other zones

(Ord. 21-1722 § 2; prior code § 5-17.3)

9.04.130 Decibel measurement criteria.

A. Any decibel measurement made pursuant to provisions of article shall be based on a reference sound pressure of 0.0002 microbars as measured in any octave band with center frequency, in cycles per second, as follows: 63, 125, 250, 500,1000, 2000, 4000 and 8000 or as measured with a sound-level meter using the A weighting network, and using the slow meter response.

B. Measurements shall be taken with the microphone located at any point on the property line, but no closer than three feet from any wall and not less than three feet above the ground.

C. A minimum of three readings shall be taken at two minute intervals. The sound level shall be the average of these readings. (Ord. 21-1722 § 2; prior code § 5-17.4)

9.04.140 General noise regulations.

A. Use Restricted. Notwithstanding any other provision of this article and in addition to this article, it is unlawful for any person to wilfully make or continue, or cause to be made or continued, any loud, unnecessary or unusual noise which disturbs the peace or quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person of normal sensitiveness residing in the area.

B. Prima Facie Violation. An average noise level reading measured pursuant to Section 9.04.130 which exceeds the ambient noise level at the property line of any residential land (or if a condominium or apartment house, within any adjoining apartment) by more than five decibels shall be deemed to be prima fade evidence of a violation of the provisions of this article. (Ord. 21-1722 § 2; prior code § 5-17.5)

9.04.150 Particular acts.

In addition to the provisions of Section 9.04.140, the following specific acts are declared to be unlawful:

A. Radios, Television Sets and Similar Devices.

1. Use Restricted. It is unlawful for any person within the City to use or operate any radio receiving set, musical instrument, phonograph, television set, or other machine or device for the producing or reproducing of sound at any time in such a manner as to produce noise levels on residential land which would disturb the peace, quiet and comfort of neighboring residents or any reasonable person of normal sensitiveness residing in the area.

2. Prima Facie Violation. An average noise level reading measured pursuant to Section 9.04.130 which exceeds the ambient noise level at the property line of any residential land (or if a condominium or apartment) by more than five decibels shall be deemed to be prima facie evidence of a violation of the provisions of this article;

B. Horns, Signaling Devices, Etc. The sounding of any horn or signaling device on any vehicle on any street or public place except as a danger warning, or as required by law, or by safe driving practices; the creation by means of any such horn or signaling device of any unreasonably loud or prolonged or harsh sound; the use of any horn or signaling device operated by means other than by hand or electricity;

C. Loud Speaker and Amplifiers for Advertising. The using, operating or permitting to be played, used or operated of any machine or device for the producing or reproducing of sound which is broadcast upon the public streets for the purpose of commercial advertising or attracting the attention of the public to any building, structure or activity, except in compliance with the terms and conditions of a permit sought from and issued by the City;

D. Exhausts. The discharge into the open air of the exhaust of any steam engine, stationary internal combustion engine, motor boat or motor vehicle, except through a muffler or other device which effectively prevents loud or explosive noises;

E. Construction or Repairing of Buildings. The erection (including excavation), demolition, alteration, construction or repair of any building other than between the hours of 7:00 a.m. and 6:00 p.m. or sunset, whichever is later, except in the case of urgent necessity in the interest of public health and safety, and then only with a permit from the Building Official or Director of Community Development, which permit may be granted for a period not to exceed three days while the emergency condition continues, and which permit may be renewed for periods of three days or less while the emergency continues; if the Building Official or Director of Community Development should determine that public health, safety, comfort and convenience will not be impaired by the erection, demolition, alteration or repair of any building or the excavation of sites other than streets and highways within the hours of 6:00 p.m. or sunset, whichever is later, and 7:00 a.m., or any part, and that substantial loss or inconvenience would result to any party in interest denied permission to do so, he or she may grant permission for such work, or any part, to be done, within the hours of 6:00 p.m. or sunset, whichever is later, and 7:00 a.m., or any day, or at such times within such hours as he or she shall fix in accordance with such determination;

F. Hawkers and Peddlers. The shouting and crying, or the use of any sound-making device to attract attention, by peddlers, hawkers, itinerant merchants or itinerant vendors in any residential neighborhood, which disturbs the peace and quiet, or between the hours of 9:00 p.m. and 8:00 a.m.;

G. Pile Drivers, Hammers, Etc. The operation between the hours of 6:00 p.m. or sunset, whichever is later, and 7:00 a.m. of any pile driver, steam shovel, pneumatic hammer, derrick, hoist, or other appliances, the use of which is attended by loud or unusual noise, unless the Director of Building and Safety grants permission pursuant to the standards provided in subsection E of this section;

H. Engines and Motors. The operation of any electric motor or engine, the starting or running of which is attended by sudden, loud or unusual noise, unless such motor is enclosed within a sound-insulated structure so as to prevent such noise from being plainly audible at a distance of fifty (50) feet from such structure, or within ten (10) feet of any residence;

I. Motor Vehicles. Racing the motor of any motor vehicle or needlessly bringing to a sudden start or stop any motor vehicle. (Ord. 21-1722 § 2; amended during 1999 codification; prior code § 5-17.6)

9.04.160 Public utility company.

No permit shall be required to perform emergency work as defined in Section 9.04.110 nor shall the provisions of this article apply to those activities or undertakings of a public utility company and which relate to the normal maintenance and/or construction activities of the utility. (Ord. 21-1722 § 2; prior code § 5-17.7)

CONSTRUCTION NOISE AND VIBRATION MODELING

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 04/21/2022
Case Description: PRIM-01.0

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Asphalt Demolition	Commercial	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20	89.6	50.0	0.0	
Dozer	No	40	81.7	50.0	0.0	
Mounted Impact Hammer (hoe ram)	Yes	20	90.3	50.0	0.0	

Results

Equipment	Calculated (dBA) Lmax	Calculated (dBA) Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Concrete Saw	89.6	82.6	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	81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mounted Impact Hammer (hoe ram)	90.3	83.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	90.3	86.6	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: 04/21/2022
Case Description: PRIM-01.0

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Asphalt Demolition and Rough Grading	Commercial	60.0	55.0	50.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Concrete Saw	No	20	89.6	50.0	0.0	
Grader	No	40	85.0	50.0	0.0	
Mounted Impact Hammer (hoe ram)	Yes	20	90.3	50.0	0.0	

Results

	Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	89.6	82.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mounted Impact Hammer (hoe ram)	90.3	83.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	90.3	87.2	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: 04/21/2022
Case Description: PRIM-01.0

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Site Preparation and Rough Grading	Commercial	60.0	55.0	50.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Dozer	No	40		81.7	50.0	0.0
Tractor	No	40	84.0		50.0	0.0
Grader	No	40	85.0		50.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq	Noise Limit Exceedance (dBA) Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq
Dozer	81.7	77.7	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	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85.0	84.6	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: 04/15/2022
Case Description: PRIM-01.0

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Rough Grading and Fine Grading	Commercial	60.0	55.0	50.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Grader	No	40	85.0		50.0	0.0
Dozer	No	40		81.7	50.0	0.0
Tractor	No	40	84.0		50.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq	Noise Limit Exceedance (dBA) Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq
Grader	85.0	81.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	81.7	77.7	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	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	85.0	84.6	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: 05/02/2022
Case Description: PRIM-01.0

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Commerical/Exisitng Parking Garage	Commercial	60.0	55.0	50.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Tractor	No	40	84.0		50.0	0.0
Impact Pile Driver	Yes	20	101.3		50.0	0.0
Mounted Impact Hammer (hoe ram)	Yes	20	90.3		50.0	0.0

Results

	Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
	Calculated (dBA)		Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Tractor	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Impact Pile Driver	101.3	94.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mounted Impact Hammer (hoe ram)	90.3	83.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	101.3	94.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 05/02/2022
Case Description: PRIM-01.0

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Building A & Parking Garage	Commercial	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Tractor	No	40	84.0		50.0	0.0
Impact Pile Driver	Yes	20	101.3		50.0	0.0
Mounted Impact Hammer (hoe ram)	Yes	20	90.3		50.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq	Noise Limit Exceedance (dBA) Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq
Tractor	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Impact Pile Driver	101.3	94.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mounted Impact Hammer (hoe ram)	90.3	83.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	101.3	94.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 05/02/2022
Case Description: PRIM-01.0

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Building B Parking Garage	Commercial	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Tractor	No	40	84.0		50.0	0.0
Impact Pile Driver	Yes	20		101.3	50.0	0.0
Mounted Impact Hammer (hoe ram)	Yes	20		90.3	50.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq	Noise Limit Exceedance (dBA) Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq
Tractor	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Impact Pile Driver	101.3	94.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mounted Impact Hammer (hoe ram)	90.3	83.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	101.3	94.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 05/02/2022
Case Description: PRIM-01.0

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Building A & B Construction (No Garage)	Commercial	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Generator	No	50		80.6	50.0	0.0
Tractor	No	40		84.0	50.0	0.0
Mounted Impact Hammer (hoe ram)	Yes	20		90.3	50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Generator	80.6	77.6	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	84.0	80.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mounted Impact Hammer (hoe ram)	90.3	83.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	90.3	85.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 04/18/2022
Case Description: PRIM-01.0

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Paving	Commercial	60.0	55.0	50.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Paver	No	50	77.2	50.0	0.0	
Roller	No	20	80.0	50.0	0.0	
Pavement Scarafier	No	20	89.5	50.0	0.0	

Results

	Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	77.2	74.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	80.0	73.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Scarafier	89.5	82.5	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	89.5	83.5	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: 04/15/2022
Case Description: PRIM-01.0

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Architectural Coating	Commercial	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	50.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)				Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	77.7	73.7	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	77.7	73.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 05/02/2022
Case Description: PRIM-01.0

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Pile Driving	Commercial	60.0	55.0	50.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Impact Pile Driver	Yes	20		101.3	50.0	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
Impact Pile Driver	101.3	94.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	101.3	94.3	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: 05/02/2022
Case Description: PRIM-01.0

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Rock Crushing	Commercial	60.0	55.0	50.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Mounted Impact Hammer (hoe ram)	Yes	20	90.3	50.0		0.0

Results

Equipment	Calculated (dBA) Lmax	Calculated (dBA) Leq	Noise Limits (dBA) Day Lmax	Noise Limits (dBA) Day Leq	Noise Limits (dBA) Evening Lmax	Noise Limits (dBA) Evening Leq	Noise Limits (dBA) Night Lmax	Noise Limits (dBA) Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Noise Limit Exceedance (dBA) Day Leq	Noise Limit Exceedance (dBA) Evening Lmax	Noise Limit Exceedance (dBA) Evening Leq	Noise Limit Exceedance (dBA) Night Lmax	Noise Limit Exceedance (dBA) Night Leq
Mounted Impact Hammer (hoe ram)	90.3	83.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	90.3	83.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PRIM-01 Construction Noise Modeling Attenuation Calculations

Levels in dBA Leq

Phase	RCNM Reference Noise Level	Norwalk Library to east	Residences to north/northeast	Residences to southwest	Residences to south	Bethesda Church to southwest
Distance in feet	*50*	*370*	*735*	*630*	*945*	*1170*
Asphalt Demo[1]	60	43	37	38	34	33
Asphalt Demo and Rough Grading[1]	87	70	64	65	62	60
Distance in feet	*50*	*450*	*695*	*550*	*1230*	*1290*
Site Preparation and Rough Grading	85	66	62	64	57	56
Rough and Fine Grading	85	66	62	64	57	56
Distance in feet	*50*	*245*	*515*	*360*	*950*	*1200*
Building A,B & Garage Construction overlapping Pile Driving[1]	95	81	75	78	69	67
Building Construction Post Pile Driving[1]	86	72	65	69	60	58
Distance in feet	*50*	*290*	*545*	*335*	*920*	*1245*
Paving	84	68	63	67	58	56
Distance in feet	*50*	*110*	*350*	*200*	*770*	*1000*
Architectural Coating	74	67	57	62	50	48
Distance in feet	*50*	*110*	*350*	*200*	*350*	*815*
Pile Driving Only	94	87	77	82	77	70
Distance in feet	*50*	*110*	*350*	*200*	*350*	*815*
Rock Crushing Only[1]	83	76	66	71	66	59

[1] *phase proposed rock crushing equipment and was subsituted by RCNM's mounted impact hammer which has equivalent Leq noise emissions.*

Attenuation calculated through Inverse Square Law: Lp(R2) = Lp(R1) - 20Log(R2/R1)

PRIM-01 Cumulative Construction Noise Modeling Attenuation Calculations

Receptor	RCNM Reference Noise Level	Residences to southwest	Residences to south
Distance in feet from proposed project	*50*	*200*	*350*
Impact Pile Driving w/ mitigation	94	72	67
Distance in feet from planned and approved projects	*50*	*700*	*90*
General Construction Noise Assumption	85	62	80
Compoiste Noise Level at nearst receptors	**95**	**72**	**80**

PRIM-01 Vibration Damage Attenuation Calculations

Off-site Commerical Structures

		Levels in in/sec PPV			
	Vibration Reference Level	Commercial/Retail to north	Norwalk Library to east	Norwalk Courthouse to east	Commercial/Retail to west
Distance in feet	at ***25 feet***	*150*	*110*	*200*	*115*
Impact Pile Driver	1.52	0.10	0.16	0.07	0.15
Distance in feet	*25*	*220*	*110*	*260*	*115*
Vibratory Roller	0.21	0.01	0.02	0.01	0.02
Distance in feet	*25*	*120*	*110*	*100*	*115*
Hoe Ram	0.09	0.01	0.01	0.01	0.01
Large Bulldozer	0.09	0.01	0.01	0.01	0.01
Caisson Drilling	0.09	0.01	0.01	0.01	0.01
Loaded Trucks	0.08	0.01	0.01	0.01	0.01
Jackhammer	0.04	0.00	0.00	0.00	0.00
Small Bulldozer	0.00	0.00	0.00	0.00	0.00
Max		0.10	0.16	0.07	0.15

Off-site Residential Structures

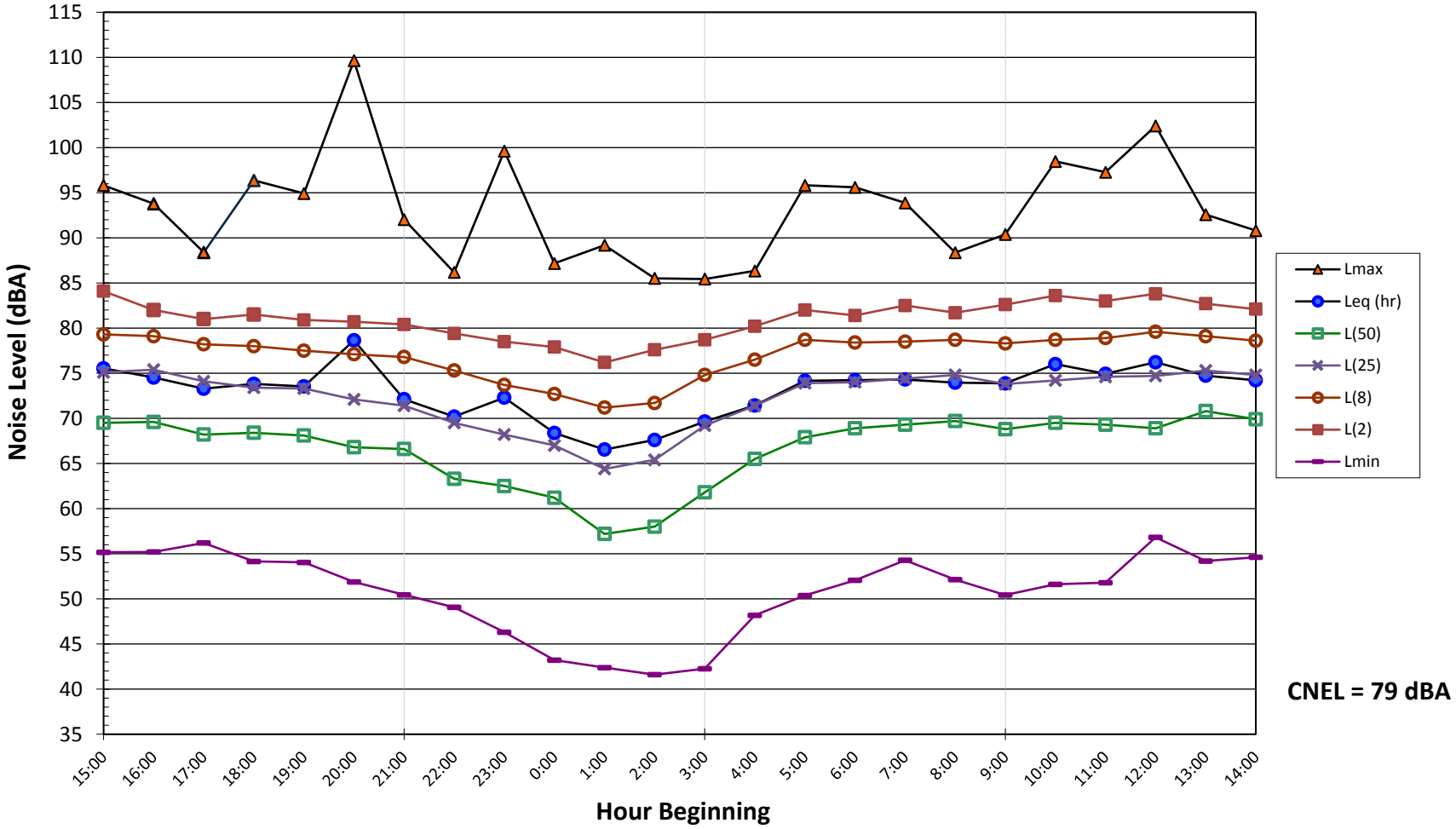
		Levels in in/sec PPV			
	Vibration Reference Level	Residences to north	Residences to northeast	Residences to southwest	Residences to south
Distance in feet	at ***25 feet***	*420*	*330*	*175*	*360*
Impact Pile Driver	1.52	0.02	0.03	0.08	0.03
Distance in feet	*25*	*450*	*470*	*200*	*360*
Vibratory Roller	0.21	0.00	0.00	0.01	0.00
Distance in feet	*25*	*410*	*340*	*185*	*360*
Hoe Ram	0.09	0.00	0.00	0.00	0.00
Large Bulldozer	0.09	0.00	0.00	0.00	0.00
Caisson Drilling	0.09	0.00	0.00	0.00	0.00
Loaded Trucks	0.08	0.00	0.00	0.00	0.00
Jackhammer	0.04	0.00	0.00	0.00	0.00
Small Bulldozer	0.00	0.00	0.00	0.00	0.00
Max		0.02	0.03	0.08	0.03

On-site Historical City Hall

	Levels in in/sec PPV	
	Vibration Reference Level	Residences to north
Distance in feet	at ***25 feet***	*50*
Impact Pile Driver	1.52	0.54
Vibratory Roller	0.21	0.07
Hoe Ram	0.09	0.03
Large Bulldozer	0.09	0.03
Caisson Drilling	0.09	0.03
Loaded Trucks	0.08	0.03
Jackhammer	0.04	0.01
Small Bulldozer	0.00	0.00

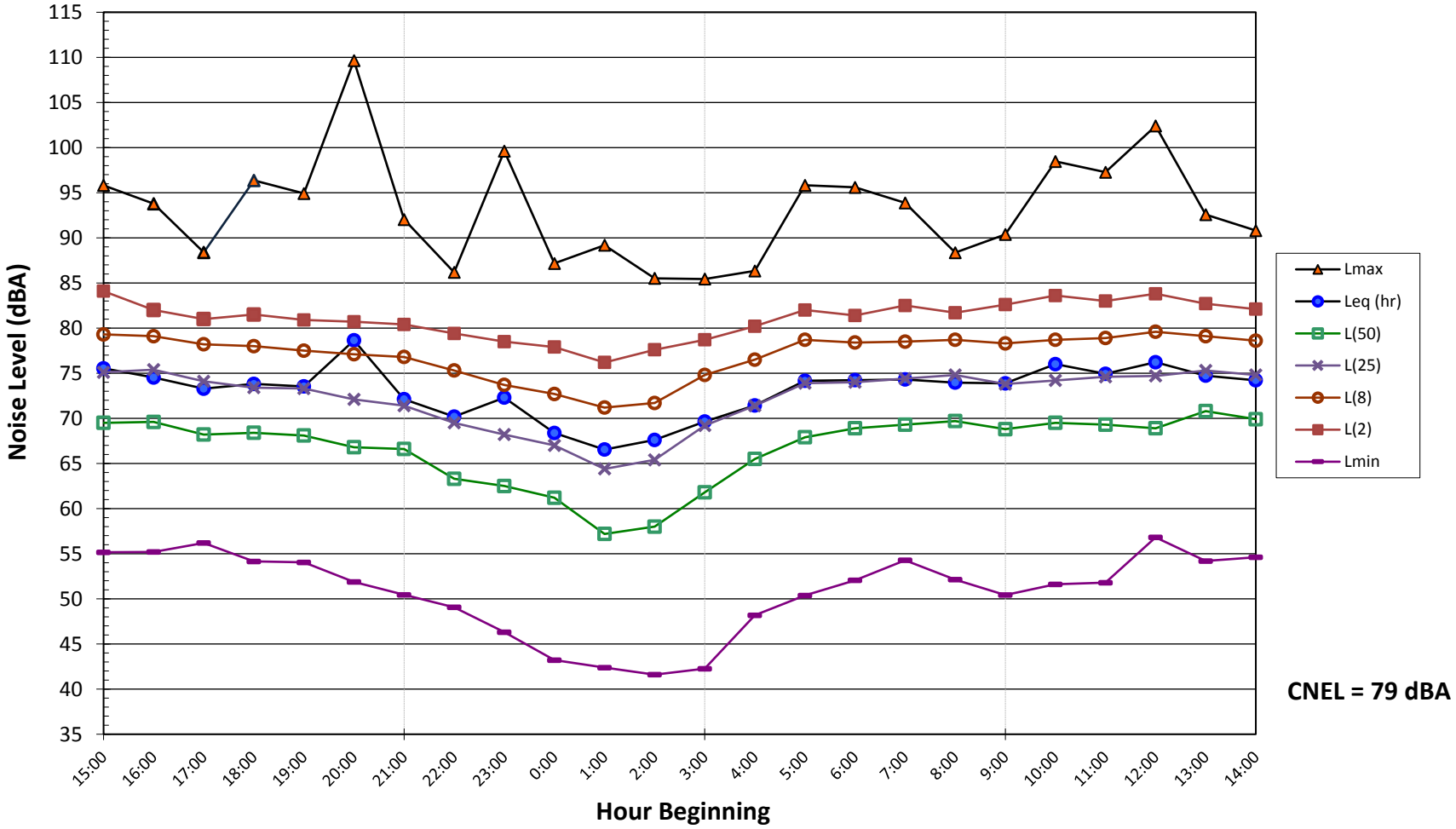
NOISE MONITORING LONG-TERM GRAPHS

Noise Levels at LT-1
Imperial Highway Next to Norwalk Library - Norwalk, CA
Wednesday, March 30 through Thursday, March 31, 2022



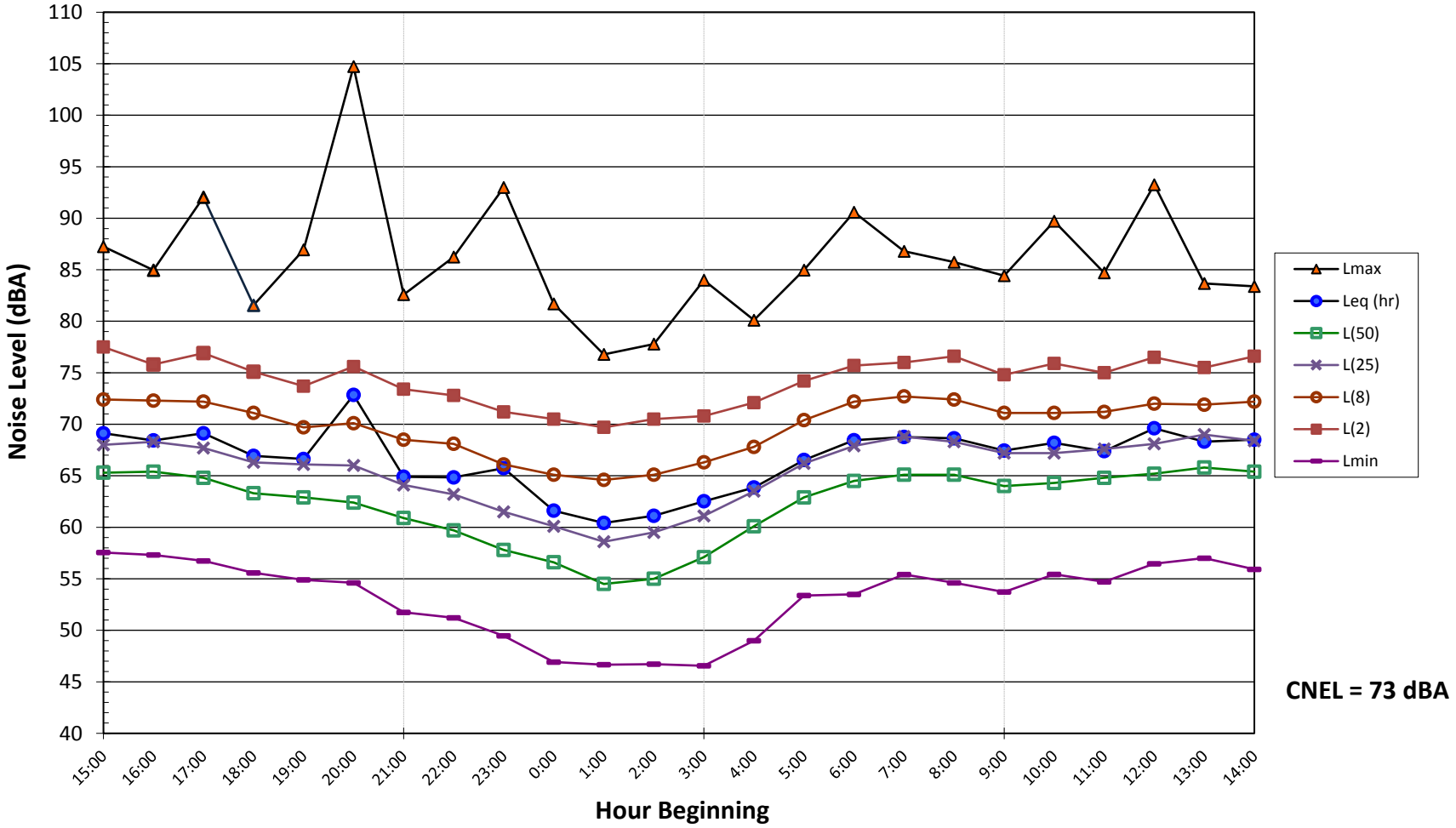
CNEL = 79 dBA

Noise Levels at LT-1
Imperial Highway Next to Norwalk Library - Norwalk, CA
Wednesday, March 30 through Thursday, March 31, 2022



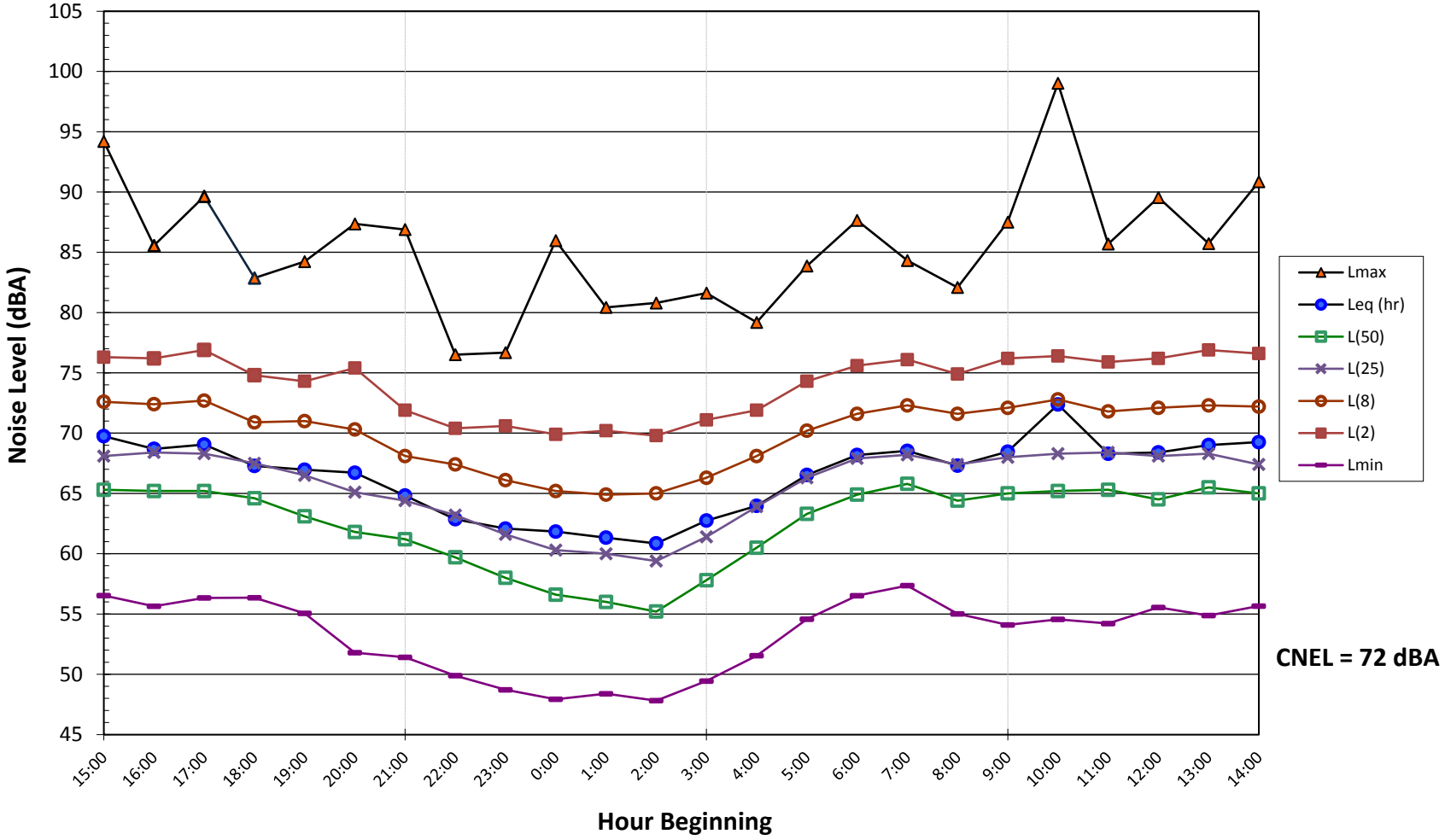
CNEL = 79 dBA

Noise Levels at LT-2
Norwalk Boulevard South of Imperial Highway - Norwalk, CA
Wednesday March 30 through Thursday, March 31, 2022



CNEL = 73 dBA

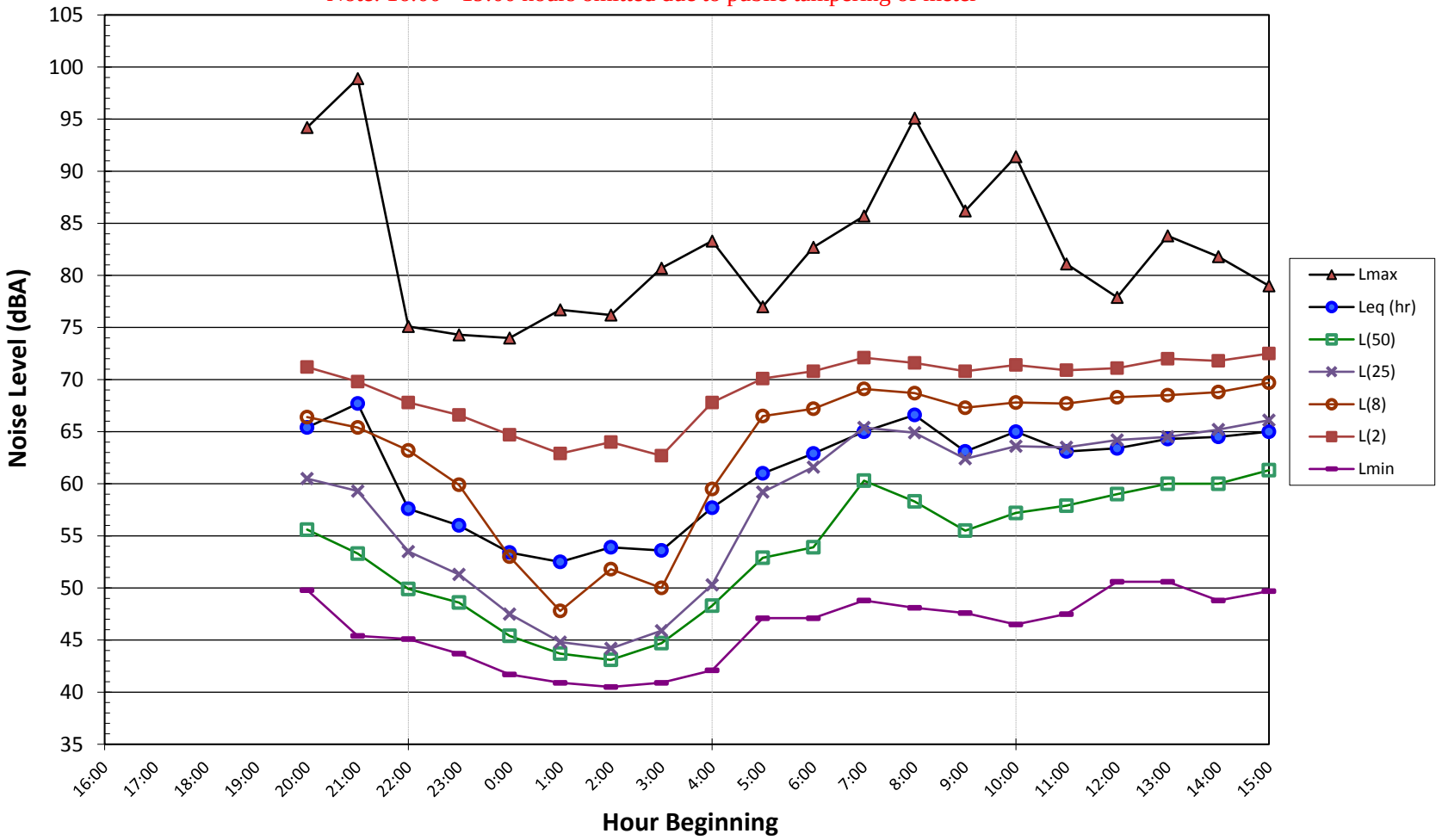
Noise Levels at LT-2
Norwalk Boulevard South of Imperial Highway - Norwalk, CA
Thursday March 31 through Friday, April 1, 2022



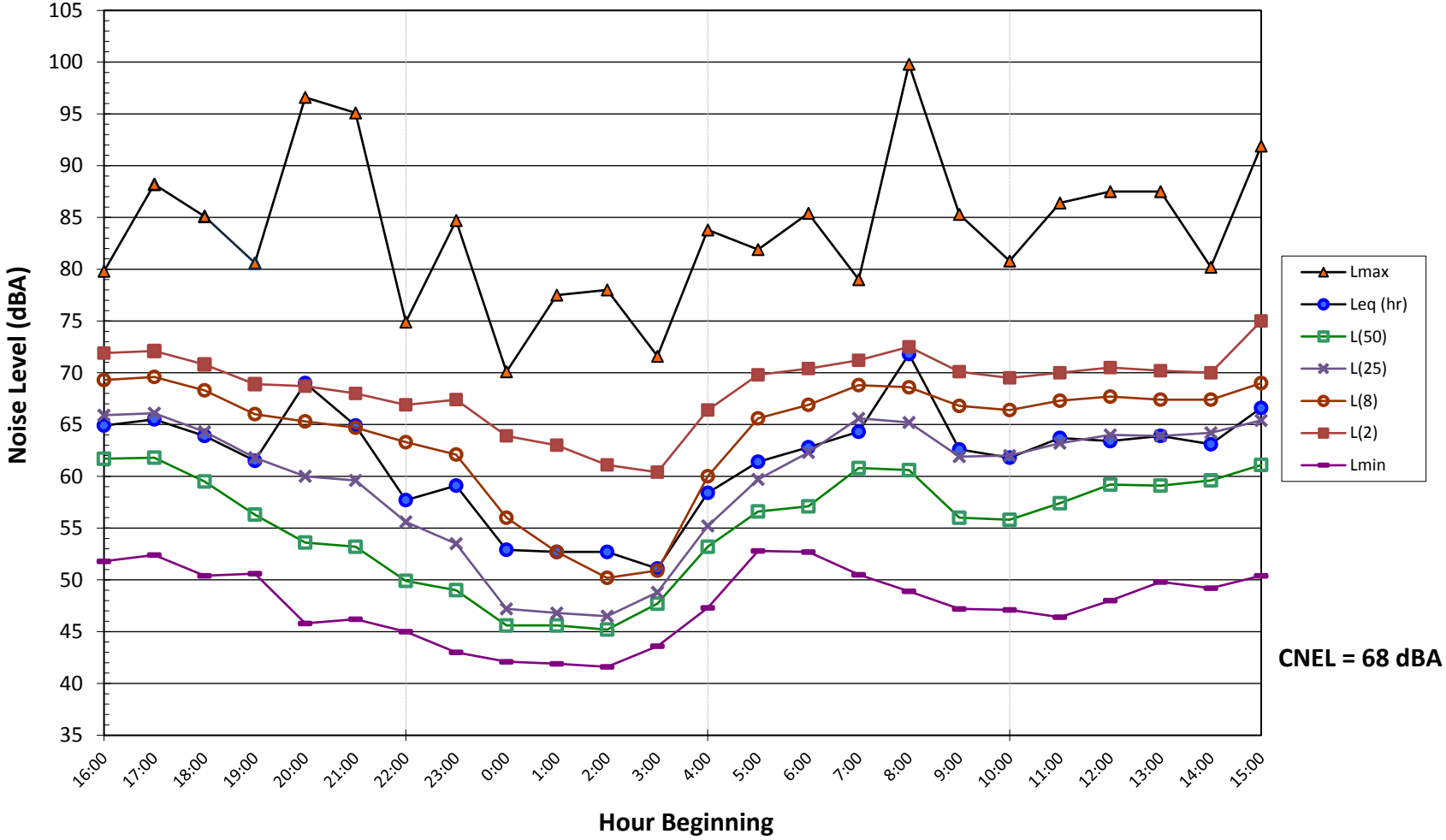
CNEL = 72 dBA

Noise Levels at LT-3
Civic Center Drive East of Volunteer Avenue - Norwalk, CA
Wednesday, March 30 through Thursday, March 31, 2022

Note: 16:00 - 19:00 hours omitted due to public tampering of meter



Noise Levels at LT-3
Civic Center Drive East of Volunteer Avenue - Norwalk, CA
Thursday, March 31 through Friday, April 1, 2022



CNEL = 68 dBA

TRAFFIC NOISE MODELING

PRIM-01

Traffic Noise Calculations

	dBA CNEL				dBA CNEL Increae		
Roadway Segment	Existing No Project	Existing Plus Project	Future No Project	Future Plus Project	Project Noise Increase	Cumulative Increase	Project Cumulative Contribution
Imperial Highway - Norwalk Blvd to Bloomfield Ave	75.8	75.8	75.9	75.9	0.0	0.1	0.0
Imperial Highway - Nowwalk Blvd to I-5 Freeway	75.9	75.9	76.1	76.1	0.0	0.2	0.0
Norwalk Blvd - Imperial Highway to Crewe Street	71.7	71.7	71.8	71.8	0.0	0.1	0.0
Norwalk Blvd - Imperial Highway to I-5 Freeway	72.2	72.2	72.3	72.3	0.0	0.2	0.0
Avenida Manuel Salinas - Imperial Highway to Civic Center Drive	54.8	54.9	54.9	55.1	0.1	0.3	0.1
Civic Center Drive - Avenida Manuel Salinas to Norwalk Blvd	67.2	67.3	67.4	67.4	0.0	0.2	0.0

Traffic Noise Calculator: FHWA 77-108 **Project Title: Existing PRIM-01**

	Output						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
1	71.7	75.4	75.8	121	261	562	Imperial Highway	btwn Norwalk Bl & Bloomfield Ave	45,942	40	0.0%	94.9%	2.4%	2.7%	75.0%	10.0%	15.0%	6	Soft	50
2	71.8	75.5	75.9	124	267	576	Imperial Highway	btwn Norwalk Bl & I-5 Freeway	47,728	40	0.0%	94.9%	2.4%	2.7%	75.0%	10.0%	15.0%	6	Soft	50
3	67.6	71.3	71.7	64	139	299	Norwalk Bl	btwn Imperial Highway & Crewe Street	24,311	35	0.0%	96.0%	1.0%	3.0%	75.0%	10.0%	15.0%	5	Soft	50
4	68.1	71.8	72.2	70	150	323	Norwalk Bl	btwn Imperial Highway & I-5 Freeway	26,461	35	0.0%	96.0%	1.0%	3.0%	75.0%	10.0%	15.0%	6	Soft	50
5	50.7	54.4	54.8	5	10	22	Avenida Manuel Salinas	btwn Imperial Highway & Civic Center Dr	2,411	25	0.0%	99.0%	1.0%	0.0%	75.0%	10.0%	15.0%	2	Soft	50
6	63.2	66.9	67.2	33	71	152	Civic Center Dr	btwn Avenida Manuel Salinas & Norwalk Bl	16,219	25	0.0%	94.0%	3.6%	2.4%	75.0%	10.0%	15.0%	4	Soft	50

Traffic Noise Calculator: FHWA 77-108 **Project Title: Existing Plus Project, PRIM-01**

	Output						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
1	71.7	75.4	75.8	121	261	562	Imperial Highway	btwn Norwalk Bl & Bloomfield Ave	45,977	40	0.0%	94.9%	2.4%	2.7%	75.0%	10.0%	15.0%	6	Soft	50
2	71.8	75.5	75.9	124	268	577	Imperial Highway	btwn Norwalk Bl & I-5 Freeway	47,813	40	0.0%	94.9%	2.4%	2.7%	75.0%	10.0%	15.0%	6	Soft	50
3	67.6	71.3	71.7	65	139	300	Norwalk Bl	btwn Imperial Highway & Crewe Street	24,342	35	0.0%	96.0%	1.0%	3.0%	75.0%	10.0%	15.0%	5	Soft	50
4	68.1	71.8	72.2	70	150	324	Norwalk Bl	btwn Imperial Highway & I-5 Freeway	26,527	35	0.0%	96.0%	1.0%	3.0%	75.0%	10.0%	15.0%	6	Soft	50
5	50.8	54.5	54.9	5	11	23	Avenida Manuel Salinas	btwn Imperial Highway & Civic Center Dr	2,495	25	0.0%	99.0%	1.0%	0.0%	75.0%	10.0%	15.0%	2	Soft	50
6	63.2	66.9	67.3	33	71	153	Civic Center Dr	btwn Avenida Manuel Salinas & Norwalk Bl	16,316	25	0.0%	94.0%	3.6%	2.4%	75.0%	10.0%	15.0%	4	Soft	50

Traffic Noise Calculator: FHWA 77-108 **Project Title: Future No Project, PRIM-01**

	Output						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
1	71.8	75.5	75.9	124	267	574	Imperial Highway	btwn Norwalk Bl & Bloomfield Ave	47,505	40	0.0%	94.9%	2.4%	2.7%	75.0%	10.0%	15.0%	6	Soft	50
2	72.0	75.7	76.1	127	273	589	Imperial Highway	btwn Norwalk Bl & I-5 Freeway	49,340	40	0.0%	94.9%	2.4%	2.7%	75.0%	10.0%	15.0%	6	Soft	50
3	67.7	71.4	71.8	66	142	306	Norwalk Bl	btwn Imperial Highway & Crewe Street	25,099	35	0.0%	96.0%	1.0%	3.0%	75.0%	10.0%	15.0%	5	Soft	50
4	68.2	71.9	72.3	71	154	331	Norwalk Bl	btwn Imperial Highway & I-5 Freeway	27,371	35	0.0%	96.0%	1.0%	3.0%	75.0%	10.0%	15.0%	6	Soft	50
5	50.8	54.5	54.9	5	11	23	Avenida Manuel Salinas	btwn Imperial Highway & Civic Center Dr	2,497	25	0.0%	99.0%	1.0%	0.0%	75.0%	10.0%	15.0%	2	Soft	50
6	63.3	67.0	67.4	34	72	156	Civic Center Dr	btwn Avenida Manuel Salinas & Norwalk Bl	16,849	25	0.0%	94.0%	3.6%	2.4%	75.0%	10.0%	15.0%	4	Soft	50

Traffic Noise Calculator: FHWA 77-108 **Project Title: Future Plus Project, PRIM-01**

	Output						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
1	71.8	75.5	75.9	124	267	575	Imperial Highway	btwn Norwalk Bl & Bloomfield Ave	47,540	40	0.0%	94.9%	2.4%	2.7%	75.0%	10.0%	15.0%	6	Soft	50
2	72.0	75.7	76.1	127	274	590	Imperial Highway	btwn Norwalk Bl & I-5 Freeway	49,425	40	0.0%	94.9%	2.4%	2.7%	75.0%	10.0%	15.0%	6	Soft	50
3	67.7	71.4	71.8	66	142	306	Norwalk Bl	btwn Imperial Highway & Crewe Street	25,130	35	0.0%	96.0%	1.0%	3.0%	75.0%	10.0%	15.0%	5	Soft	50
4	68.2	71.9	72.3	71	154	331	Norwalk Bl	btwn Imperial Highway & I-5 Freeway	27,437	35	0.0%	96.0%	1.0%	3.0%	75.0%	10.0%	15.0%	6	Soft	50
5	51.0	54.7	55.1	5	11	23	Avenida Manuel Salinas	btwn Imperial Highway & Civic Center Dr	2,581	25	0.0%	99.0%	1.0%	0.0%	75.0%	10.0%	15.0%	2	Soft	50
6	63.3	67.1	67.4	34	73	157	Civic Center Dr	btwn Avenida Manuel Salinas & Norwalk Bl	16,946	25	0.0%	94.0%	3.6%	2.4%	75.0%	10.0%	15.0%	4	Soft	50

STATIONARY NOISE MODELING

PRIM-01

Residences to Southwest

1 Truck Reference Level		Reference Adjusted for 2 Trucks	No Sheilding - Attenuation Noise levels - 2 Tucks
Noise Metric	Ref @ 20 ft	Ref @ 20 ft	175 feet
Leq	66.0	72.0	53

References

Loading dock measurments at Westminster Mall Dock A, conducted by PlaceWorks Staff 2019.

Library to East

1 Truck Reference Level		Reference Adjusted for 2 Trucks	No Sheilding - Attenuation Noise levels - 2 Tucks
Noise Metric	Ref @ 20 ft	Ref @ 20 ft	115 feet
Leq	66.0	72.0	52

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

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

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.

6. Loading dock measurments at Westminster Mall Dock A, conducted by PlaceWorks Staff 2019.

Appendices

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