4.8 Noise

The information and analysis presented in this section of the EIR are based on the noise assessment for the Huntington Beach Downtown Specific Plan dated February 19, 2009 prepared by Mestre Greve Associates. The complete study is provided in the Technical Appendices to this EIR (Appendix E, Volume II) and is herein incorporated by reference.

This section analyzes the potential noise impacts associated with the project. Potential noise impacts from construction of the project are examined, as well as potential impacts from increased traffic noise on the roadways in the vicinity of the project. Potential noise impacts from activity on the project site during operation on nearby areas are also discussed. Traffic noise impacts on the project are also identified.

4.8.1 Environmental Setting

1. Noise Criteria Background

Sound is technically described in terms of the loudness (amplitude) of the sound and frequency (pitch) of the sound. The standard unit of measurement of the loudness of sound is the decibel (dB). Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers in a manner similar to the Richter scale used to measure earthquakes. In terms of human response to noise, a sound 10 dB higher than another is judged to be twice as loud; and 20 dB higher four times as loud; and so forth. Everyday sounds normally range from 30 dB (very quiet) to 100 dB (very loud).

Since the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear. Community noise levels are measured in terms of the "A-weighted decibel," abbreviated dBA. Exhibit 4.8-1 – Typical A-Weighted Sound Levels provides examples of various noises and their typical A-weighted noise level.

Sound levels decrease as a function of distance from the source as a result of wave divergence, atmospheric absorption and ground attenuation. As the sound wave form travels away from the source, the sound energy is dispersed over a greater area, thereby dispersing the sound power of the wave. Atmospheric absorption also influences the levels that are received by the observer. The greater the distance traveled, the greater the influence and the resultant fluctuations. The degree of absorption is a function of the frequency of the sound as well as the humidity and temperature of the air. Turbulence and gradients of wind, temperature and humidity also play a significant role in determining the degree of attenuation. Intervening topography can also have a substantial effect on the effective perceived noise levels. The Noise Element of the City of Huntington Beach General Plan identifies that the primary source of noise within the City as noise from motor vehicles on roadways (e.g., traffic noise). Noise sources within the DTSP area include traffic noise and noise typical of urban uses including commercial, residential, and recreation uses.

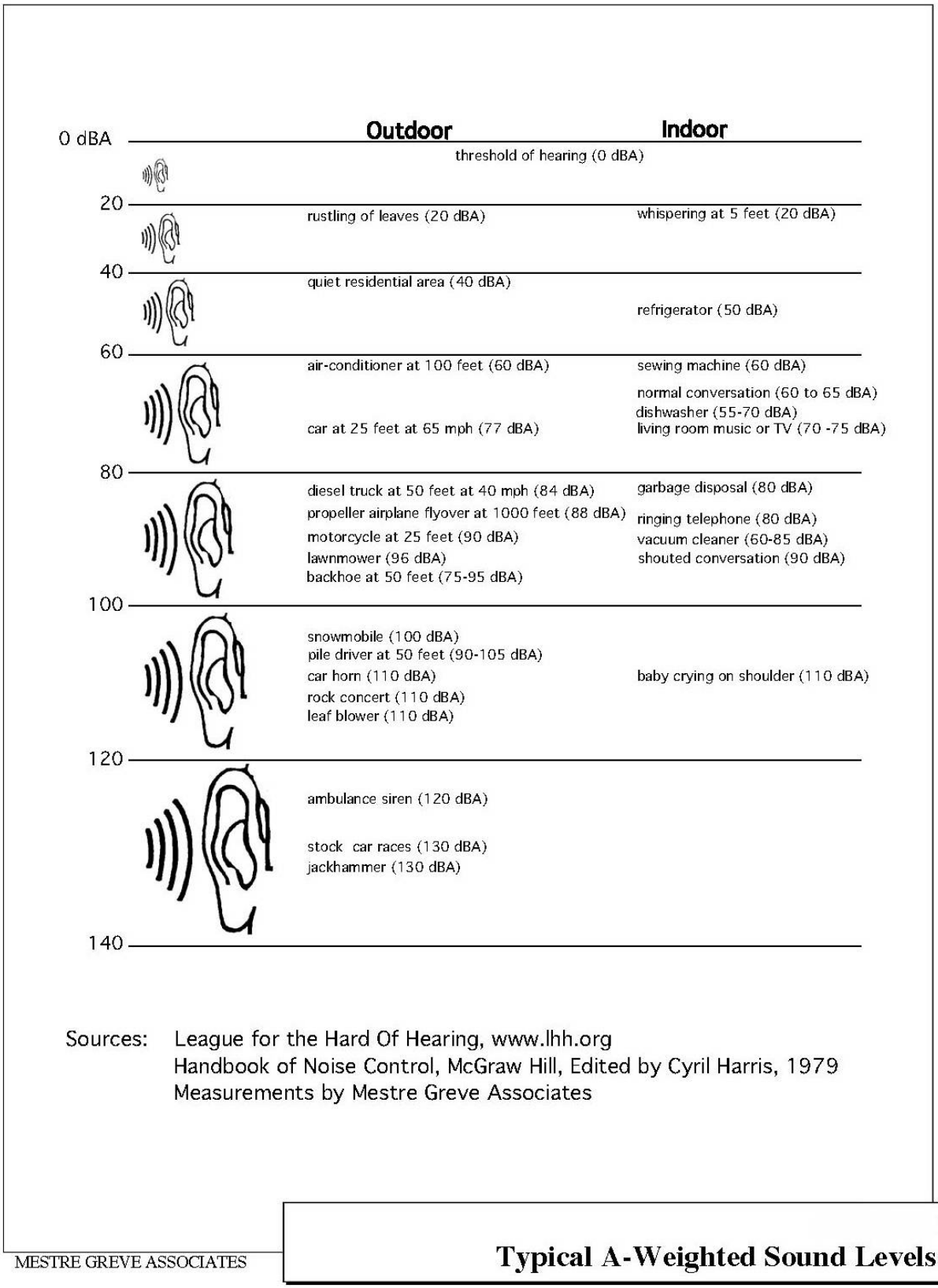

Exhibit 4.8-1 – Typical A-Weighted Sound Levels

Noise has been defined as unwanted sound and it is known to have several adverse effects on people. From these known effects of noise, criteria have been established to help protect the public health and safety and prevent disruption of certain human activities. These criteria are based on such known impacts of noise on people as hearing loss, speech interference, sleep interference, physiological responses, and annoyance. Each of these potential noise impacts on people is briefly discussed below:

Hearing Loss is not a concern in community noise situations of this type. The potential for noise-induced hearing loss is more commonly associated with occupational noise exposures in heavy industry or very noisy work environments. Noise levels in neighborhoods, even in very noisy airport environs, are not sufficiently loud to cause hearing loss.

Speech Interference is one of the primary concerns in environmental noise problems. Normal conversational speech is in the range of 60 to 65 dBA, and any noise in this range or louder may interfere with speech. There are specific methods of describing speech interference as a function of distance between speaker and listener and voice level.

Sleep Interference is a major noise concern for traffic noise. Sleep disturbance studies have identified interior noise levels that have the potential to cause sleep disturbance. Note that sleep disturbance does not necessarily mean awakening from sleep, but can refer to altering the pattern and stages of sleep.

Physiological Responses are those measurable effects of noise on people that are realized as changes in such things as pulse rate or blood pressure. While such effects can be induced and observed, the extent is not known to which these physiological responses cause harm or are sign of harm.

Annoyance is the most difficult of all noise responses to describe. Annoyance is a very individual characteristic and can vary widely from person to person. What one person considers tolerable can be quite unbearable to another of equal hearing capability.

2. Noise Assessment Measurement

The description, analysis and reporting of community noise levels around communities is made difficult by the complexity of human response to noise and the myriad of noise metrics that have been developed for describing noise impacts. Each of these metrics attempts to quantify noise levels with respect to community response. Most of the metrics use the A-Weighted noise level to quantify noise impacts on humans. A-Weighting is a frequency weighting that accounts for human sensitivity to different frequencies.

Noise metrics can be divided into two categories: single event and cumulative. Single-event metrics describe the noise levels from an individual event such as an aircraft fly over or perhaps a heavy equipment pass-by. Cumulative metrics average the total noise over a specific time period, which is typically 1 or 24 hours for community noise problems. For this type of analysis, cumulative noise metrics is used.

Several rating scales have been developed for 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. They are designed to account for the known health effects of noise on people described previously. Based on these effects, the observation has been made that the potential for a noise to impact people is dependent on the total acoustical energy content of the noise. A number of noise scales have been developed to account for this observation. Two of the predominant noise scales are the Equivalent Noise Level (LEQ) and the Community Noise Equivalent Level (CNEL). These scales are described in the following paragraphs.

LEQ is the sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over a given sample period. LEQ is the "energy" average noise level during the time period of the sample. LEQ can be measured for any time period, but is typically measured for 1 hour. This 1-hour noise level can also be referred to as the Hourly Noise Level (HNL). It is the energy sum of all the events and background noise levels that occur during that time period.

CNEL, Community Noise Equivalent Level, is the predominant rating scale now in use in California for land use compatibility assessment. The CNEL 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. The evening time period (7:00 p.m. to 10:00 p.m.) penalizes noises by 5 dBA, while nighttime (10:00 p.m. to 7:00 a.m.) noises are penalized by 10 dBA. These time periods and penalties were selected to reflect increased sensitivity to noise during these time periods. A CNEL noise level may be reported as a "CNEL of 60 dBA", "60 dBA CNEL", or simply "60 CNEL". Typical noise levels in terms of the CNEL scale for different types of communities are presented in Exhibit 4.8-2 – Typical Outdoor Noise Levels.

L(%) is a statistical method of describing noise which accounts for variance in noise levels throughout a given measurement period. L(%) is a way of expressing the noise level exceeded for a percentage of time in a given measurement period. For example, since 5 minutes is 25% of 20 minutes, L(25) is the noise level that is equal to or exceeded for five minutes in a twenty-minute measurement period. It is L(%) that is used for most Noise Ordinance standards. For example most daytime County, state and City Noise Ordinances use an ordinance standard of 55 dBA for 30 minutes per hour or an L(50) level of 55 dBA. In other words, the Noise Ordinance states that no noise level should exceed 55 dBA for more than 50% of a given period.

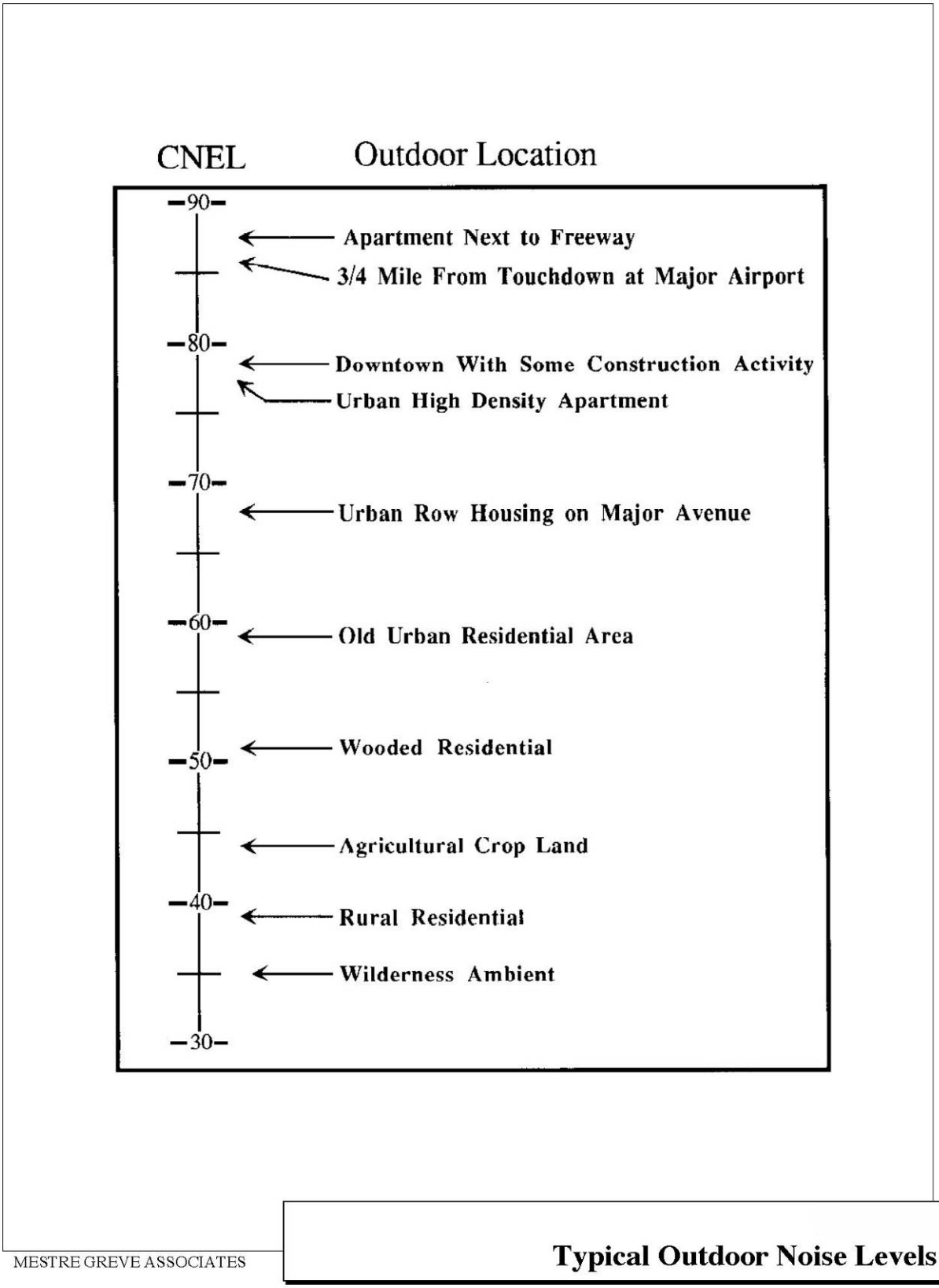

Exhibit 4.8-2 – Typical Outdoor Noise Levels

3. Regulatory Setting

a. City of Huntington Beach Noise Element

The Noise Element of the General Plan specifies outdoor noise level limits for land uses impacted by transportation noise sources. The exterior noise level limit is expressed in terms of the Community Noise Equivalent Level (CNEL). The Noise Element states that for residential land use, the "Optimum Noise Level" for residential exterior areas is 60 CNEL. The "Optimum Noise Level" for residential interior areas is 45 CNEL. The City has adopted a 75 CNEL noise standard for office or professional uses, and an 80 CNEL noise standard for commercial and industrial uses.

b. City of Huntington Beach Noise Ordinance

A noise ordinance is designed to control unnecessary, excessive and annoying sounds from stationary (non-transportation) noise sources. Noise ordinance requirements cannot be applied to mobile noise sources such as heavy trucks when traveling on public roadways. Federal and state laws preempt control of mobile noise sources on public roads. Noise ordinance standards typically apply to industrial and commercial noise sources impacting residential areas. They are also applicable to noise generated at parks and schools impacting residential areas. The City's Municipal Code prohibits the production of excessive noise, and will be applied to this project to determine potential noise impacts. The Noise Ordinance limits for exterior areas are shown below in Table 4.8.1 and Table 4.8.2.

Table 4.8.1
City of Huntington Beach Daytime Noise Ordinance Limits

Affected Land Uses	Lmax	L1.7	L8.3	L25	L50
Residential Properties	75 dBA	70 dBA	65 dBA	60 dBA	55 dBA
Professional Offices and Institutional	75 dBA	70 dBA	65 dBA	60 dBA	55 dBA
Commercial	80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Industrial Properties	90 dBA	85 dBA	80 dBA	75 dBA	70 dBA

The ordinance limits daytime noise levels attributed to fixed (stationary) noise sources to a maximum of 55 dBA at residential properties and professional offices. Higher noise levels are allowed at commercial areas and industrial areas.

Table 4.8.2
City of Huntington Beach Nighttime Noise Ordinance Limits

Affected Land Uses	Lmax	L1.7	L8.3	L25	L50
Residential Properties	70 dBA	65 dBA	60 dBA	55 dBA	50 dBA
Professional Offices and Institutional	75 dBA	70 dBA	65 dBA	60 dBA	55 dBA
Commercial	80 dBA	75 dBA	70 dBA	65 dBA	60 dBA
Industrial Properties	90 dBA	85 dBA	80 dBA	75 dBA	70 dBA

The ordinance limits nighttime noise levels attributed to fixed (stationary) noise sources to a maximum of 50 dBA at residential properties. Higher noise levels are allowed at professional offices, commercial areas, and industrial areas.

The ordinance applies a 50 dBA L50 nighttime (10:00 p.m. to 7:00 a.m.) standard to fixed (stationary) noise sources. This means that a fixed noise source cannot cause the noise level to exceed 50 dBA for 30 minutes during a 1-hour period at the nearest residential property line or other sensitive land uses. Additionally, the Lmax noise levels cannot exceed 70 dBA at the nearest residential land uses.

The Noise Ordinance exempts noise from temporary construction, repair, or remodeling, or grading activities between 7:00 a.m. and 8:00 p.m., except Sundays and federal holidays.

c. Proposed DTSP Policies and Requirements

Policies and requirements relating specifically to noise contained in the proposed DTSP Update include:

Chapter 3 - Land Use and Development Standards

3.2.13 Mixed-Use Projects

8. All buildings shall be sited to reduce odor, noise, light and glare, and visual and other conflicts between commercial and residential uses.

13. Special consideration should be given to the location and screening of noise generating equipment, such as refrigeration units and air conditioning and exhaust fans. Noise reducing screens and insulation may be required if any equipment has the potential to create a negative impact on residential uses.

3.2.20 Residential Buffers

2. The following activities associated with a commercial business are not permitted within 50 feet of the residential use:

Loading docks
Service areas
Noise or odor generating operations

Chapter 4 - Design Guidelines

4.2.17 Service and Loading Areas

4. The location of the service and loading areas should consider noise impacts to adjacent properties, which may necessitate enclosing the service or loading area.

4.3.1.3 Lot Design

3. The design and orientation of single-family houses on a lot should take advantage of available sunlight and views and should be sheltered from the noise and traffic from adjacent streets or other incompatible uses.

4. Existing Noise Levels

The existing noise levels in the vicinity of the proposed project are needed to establish the current baseline noise levels. The existing project area is characterized by urbanized development with a mix of commercial, office and residential uses. A noise measurement survey of the project site and the surrounding area was conducted to determine the location of a set of noise measurement sites that would provide a noise profile of the area in the vicinity of the project site. Several criteria were used in the site selection process including, but not limited to, the proximity of a measurement site to sensitive land uses as well as its proximity to significant noise generators. To provide noise measurement coverage of the area, measurement sites were chosen within the confines of the project site, and at the border of the project site. After the site selection process was over, a series of short-term noise measurements were taken at the chosen sites. The measurement sites are displayed in Exhibit 4.8-3 – Measurement Site Locations and Table 4.8.3.

Table 4.8.3
Existing Noise Measurement Locations

Site	Location
1	3rd Street between Orange Avenue and Olive Avenue
2	Corner of Walnut Avenue and 2nd Street
3	Corner of Beach Boulevard and Pacific Coast Highway
4	Corner of Palm Avenue and Lake Street
5	Corner of Twin Dolphin Drive and Pacific View Avenue
6	Corner of Main Street and Orange Avenue
7	Corner of Pacific Coast Highway and 9th Street
8	Corner of Goldenwest Street and Walnut Avenue
9	Pecan Avenue
10	Alley between 5th and 6th Street near Walnut

Ten short-term noise measurements were taken. All ten measurement sites were within, or adjacent to the project site. The first six of the short-term measurements were taken on December 2, 2008 between the hours of 10:38 a.m. and 2:36 p.m. The remaining four measurements were taken on December 3, 2008 between the hours of 10:47 a.m. and 1:00 p.m. Table 4.8.4 shows the results of the measurements.

Table 4.8.4
Existing Noise Measurement Results (dBA)

Site	Date	Time	Leq	Lmax	Lmin	L25	L50	L90
1	12-2-08	2:20 p.m.	60.0	70.0	50.6	61.0	58.0	53.0
2	12-3-08	11:21 a.m.	58.2	74.2	49.5	56.5	53.5	51.0
3	12-3-08	12:41 p.m.	72.2	88.6	48.3	73.0	67.0	59.0
4	12-2-08	12:41 p.m.	62.6	75.7	40.1	63.5	58.5	47.5
5	12-3-08	12:00 p.m.	58.1	76.9	42.7	53.5	50.5	46.0
6	12-3-08	10:47 a.m.	64.4	81.2	49.0	64.0	60.5	56.0
7	12-2-08	11:15 a.m.	68.0	81.2	50.5	69.0	65.0	55.5
8	12-2-08	10:38 a.m.	66.3	79.8	44.9	67.5	62.5	50.0
9	12-2-08	12:08 p.m.	60.0	82.8	42.5	55.5	51.0	46.5
10	12-2-08	1:43 p.m.	56.8	71.2	45.3	55.0	50.5	47.0

Exhibit 4.8-3- Measurement Site Locations

5. Existing Traffic Noise Levels

The highway noise levels projected in this report were computed using the Highway Noise Model published by the Federal Highway Administration ("FHWA Highway Traffic Noise Prediction Model," FHWA-RD-77-108, December 1978). For the roadway analysis, worst-case assumptions about future motor vehicle traffic and noise levels have been made and were incorporated in the modeling effort. Specifically, no reductions in motor vehicle noise have been assumed in spite of legislation requiring quieter vehicles at the time of manufacture.

Traffic volumes and estimated speeds were used with the FHWA Model to estimate the noise levels in terms of CNEL. Existing traffic volumes for arterials utilized were obtained from the project traffic study prepared by Kimley-Horn Associates, Inc. The complete traffic study is provided in the Technical Appendices (Volume II) to this EIR. The distances to the CNEL contours for the roadways in the vicinity of the project site are given in Table 4.8.5. These numbers represent the distance from the centerline of the road to the contour value shown. Note that the values given in this table do not take into account the effect of any noise barriers or topography that may affect ambient noise levels.

Table 4.8.5
Modeled Existing Roadway Traffic Noise Levels

Roadway Segment	CNEL @ 100' *	Distance To CNEL Contour from Roadway Centerline (feet)			
		70 CNEL	65 CNEL	60 CNEL	55 CNEL
6th Street					
Main Street to Olive Avenue	54.4	RW	20	42	91
Olive Avenue to Pacific Coast Highway	55.1	RW	22	47	101
Main Street					
6th Street to Orange Avenue	59.7	21	44	95	205
Orange Avenue to Olive Avenue	60.0	22	47	101	217
Olive Avenue to Walnut Avenue	59.5	20	43	92	199
Walnut Avenue to Pacific Coast Highway	59.6	20	44	94	203
Lake Street / 3rd Street					
Acacia Avenue to Orange Avenue	55.6	RW	24	51	109
Orange Avenue to Olive Avenue	54.5	RW	20	43	92
Olive Avenue to Walnut Avenue	55.1	RW	22	48	102
1st Street					
Orange Avenue to Pacific Coast Highway	56.6	RW	27	59	127
Orange Avenue					
6th Street to Main Street	56.8	RW	29	62	133
Main Street and 3rd Street	56.8	RW	29	62	133
Walnut Avenue					
6th Street to Main Street	51.9	RW	13	29	63
Main Street and 3rd Street	54.9	RW	21	46	99
3rd Street and 1st Street	50.9	RW	12	25	54
Pacific Coast Highway					
North of 6th Street	68.4	78	169	363	783
6th Street to Main Street	68.4	78	169	363	783
Main Street and 1st Street	68.9	84	182	392	845
South of 1st Street	68.9	84	182	392	845
Goldenwest Street					
North of Pacific Coast Highway	65.0	46	100	215	463
Beach Boulevard					
North of Pacific Coast Highway	65.8	52	113	243	523

*From roadway centerline
RW = Noise contour falls within roadway right-of-way

Table 4.8.5 shows the major noise corridors occur along Pacific Coast Highway, Goldenwest Street, and Beach Boulevard. Other lesser noise corridors within the vicinity of the project site are also included in the table.

6. Existing Aircraft Noise Levels

The closest major airports to the project site are John Wayne Airport (JWA) and Long Beach (LGB) Airport. John Wayne Airport is over seven miles from the project site. Long Beach International is over nine miles from the project site. Aircraft noise does not significantly impact the project site.

There are heliports scattered throughout the City, and the project will be subject to helicopter over flights. However, the quantity of flights is not a sufficient to generate a significant level in terms of CNEL. Helicopter noise is not expected to significantly impact the project area.

4.8.2 Significance Criteria

Potential noise impacts are commonly divided into two groups: temporary and long term. Temporary impacts are usually associated with noise generated by construction activities. Long term impacts are further divided into impacts on surrounding land uses generated by the proposed project and those impacts which occur at the proposed project site.

Off-site impacts from on-site activities, short-term and long-term, are measured against the Noise Ordinance criteria discussed in Section 4.8.1 under Regulatory Setting (beginning on page 4-134). Construction activities for the proposed project and any noise-generating activities associated with the operation of the project will be required to meet the Noise Ordinance standards. Inability to comply with the restrictions in the Noise Ordinance would result in a significant impact.

Long-term off-site impacts from traffic noise are measured against two criteria. Both criteria must be met for a significant impact to be identified. First, project traffic must cause a substantial noise level increase (greater than 3 dB) on a roadway segment adjacent to a noise sensitive land use. Second, the resulting future with project noise level must exceed the criteria level for that land use. In this case, the criteria level is 65 CNEL for residential land uses.

In community noise assessment, changes in noise levels greater than 3 dB are often identified as significant, while changes less than 1 dB will not be discernible to local residents. In the range of 1 to 3 dB, residents who are very sensitive to noise may perceive a slight change. Note that there is no scientific evidence available to support the use of 3 dB as the significance threshold. In laboratory testing situations, humans are able to detect noise level changes of slightly less than 1 dB. In a community noise situation, however, noise exposures are over a long time period, and changes in noise levels occur over years, rather than the immediate comparison made in a laboratory situation. Therefore, the level at which changes in community noise levels become discernible is likely to be some value greater than 1 dB, and 3 dB appears to be appropriate for most people.

Impacts resulting from the implementation of the project would be considered significant if it would result in:

- Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies physically divides an established community;
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;

It was determined during the Notice of Preparation (NOP) that there would be no impact for the following criteria in regards to aircraft noise (also addressed on page 117) and this topic would not be further evaluated in the EIR.

- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

4.8.3 Impacts

This section describes the physical environmental impacts to noise for the following criteria that would result due to the development and operation of the proposed project. The complete listing environmental significance criteria were previously described above.

1. Temporary Impacts – Demolition and Construction Noise

- *Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies physically divides an established community?*
- *Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?*
- *Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?*

Construction noise represents a short-term impact on ambient noise levels. Noise generated by construction equipment, including trucks, graders, bulldozers, concrete mixers and portable generators can reach high levels. Demolition and grading activities will have similar noise levels.

Worst-case examples of construction noise at 50 feet are presented in Exhibit 4.8-4 – Construction Equipment Noise Levels. The peak noise level for most of the equipment that would be used during construction is 70 to 95 dBA at a distance of 50 feet. Noise levels at further distances are less. For example, at 200 feet, the peak construction noise levels range from 58 to 83 dBA.

Noise measurements made by Mestre Greve Associates for other projects show that the noise levels generated by commonly used grading equipment (e.g., loaders, graders, and trucks) generate noise levels that typically do not exceed the middle of the range shown in Exhibit 4.8-4. That is, measurements show that construction noise levels are usually in the low range to mid range shown in Exhibit 4.8-4. However, the noise levels shown in Exhibit 4.8-4 will be used as the basis for the estimates presented here, and represent a worst-case estimate.

The nearest existing residential areas could be as close as 50 feet from where construction would be taking place. Based on this distance, the nearest homes may experience worst-case unmitigated peak construction noise levels up to 95 dBA. The average noise levels are typically 5 to 15 dB lower than the peak noise levels. Average noise levels (Leq) at the nearest residences could be in the range of 85 dBA (Leq). However, it should be noted that the under Section 8.40.090(d) (Special Provisions) of the Chapter 8.40 of the City's Municipal Code, noise sources associated with construction are exempt from the requirements of the Municipal Code, provided that construction activities do not occur between 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a federal holiday. Although the ambient noise levels will increase, this does not necessarily mean inconsistency with the noise levels allowed by the City. The ordinance establishes what is acceptable in the community. As long as demolition or construction occurs during these periods, no exceedance of the Noise Ordinance will occur. Mitigation measures such as limiting demolition and construction hours are presented in Section 4.8.4 (beginning on page 4-150).

Groundborne vibration and noise can also be a potential impact during construction. However, pile driving is the only type of activity that is likely to cause a significant impact. If any projects include pile driving (e.g., for construction of subterranean parking), then a further analysis would be needed to determine any impacts from this activity. The use of pile drivers presents the greatest intensity potential for construction noise impacts. The peak Lmax noise level for most of the heavy construction equipment that would be used during construction is 70 to 95 dBA at a distance of 50 feet. Noise associated with pile driving, if it occurs, could reach as high as 105 dBA at 50 feet. Construction noise typically has a drop off rate of 6 dB per doubling of distance. Therefore, at 100 feet the peak Lmax construction noise is approximately 64 to 89 dBA. At 200 feet the peak Lmax construction noise is approximately 58 to 83 dBA. Note that these noise levels are based upon worst case conditions. Typically noise levels on a project site will be less. However, as identified, noise levels during pile driving activities could reach as high as 105 dBA at 50 feet. This temporary increase in ambient noise levels would be noticeable and would likely cause human annoyance. Therefore, construction activities associated with groundborne vibration and noise due to pile driving would be considered significant and unavoidable.

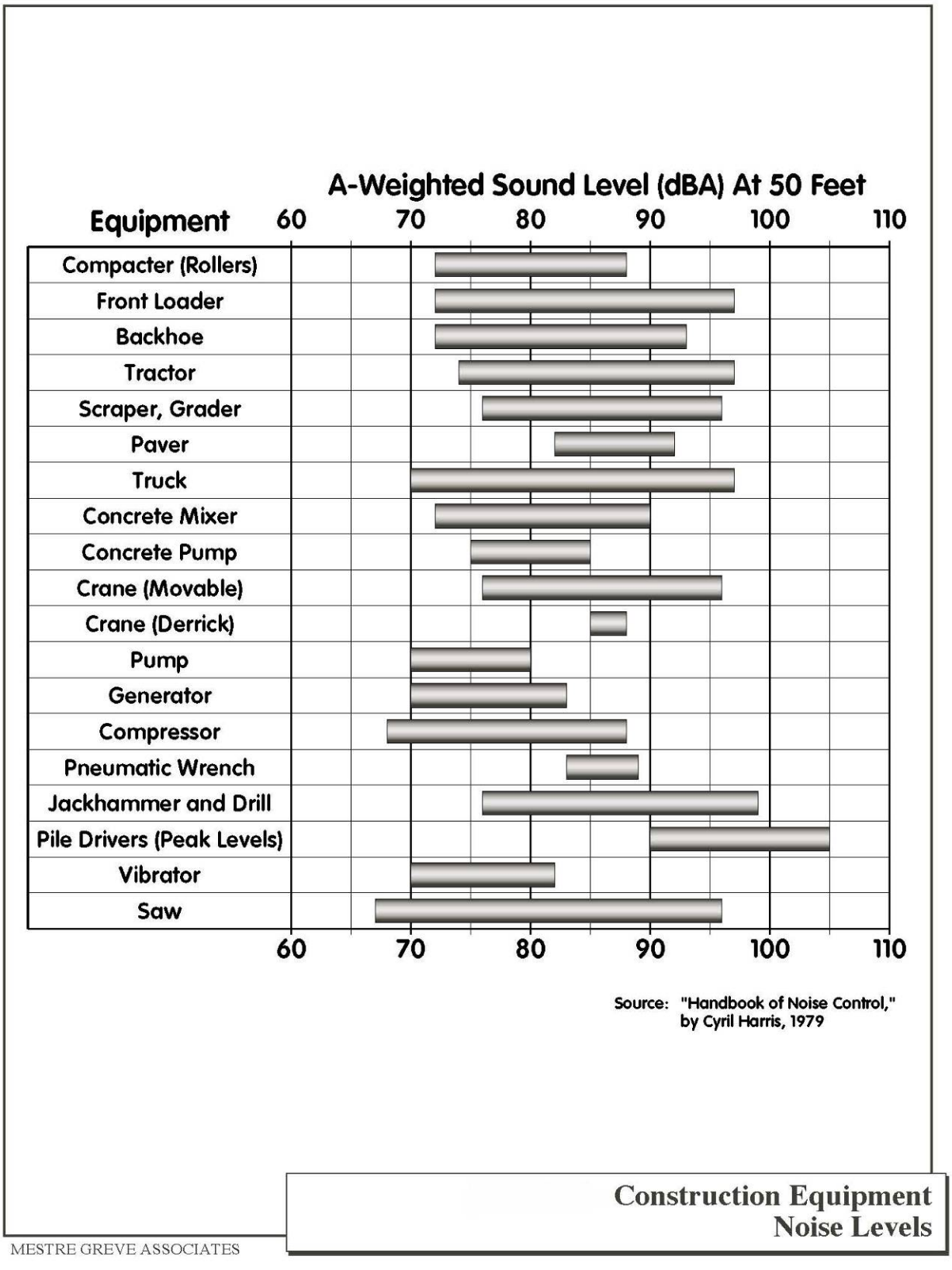

Exhibit 4.8-4 – Construction Equipment Noise Levels

2. Long Term Off-Site Impacts

- *Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?*

a. Traffic Noise Impacts

Increased traffic caused by the project could increase traffic noise levels along the roadways in the vicinity of the project. This section examines noise impacts from the proposed project on the surrounding land uses. Specifically traffic noise increases due to the project are examined.

Traffic volumes for several scenarios were compared in order to determine potential traffic noise increases. The future data was provided for the year 2020 and the year 2030. All significant traffic noise increases (e.g.., noise increases greater than 3 dB) due to the project in the year 2020 were found to be less than the traffic noise increases that would be experienced in the year 2030 due to the project, so the results of the year 2020 traffic noise analysis are not included in this section. Table 4.8.6 shows the expected incremental traffic noise level increases on adjacent roadways for the project in the year 2030. The noise level increases were calculated using the traffic volumes provided by Kimley-Horn Associates, Inc. in June 2009.

Examining the noise increases due to the project only (column 1 entitled "Increase Due To Project") shows that the project is not projected to result in a substantial noise increase (i.e., increases greater than 3 dB) along any roadway segments. The largest increase is 2.3 dB along Walnut Avenue between 1st Street and 3rd Street. Since this increase is less than 3 dB, this is not considered a significant impact.

The second column represents the total cumulative noise increases above the existing conditions that would occur due to all growth expected in the area (including with the proposed DTSP Update project). This column compares the future (2030) with project to the "existing condition." In some cases, the "Future Without Project" traffic volumes (per the traffic study prepared by Kimley-Horn) are lower than the existing conditions, which leads to a negative increase (i.e., decrease) in noise levels. For this reason, the second column shows increases over existing conditions that are less than that due to the DTSP project. As Table 4.8.6 shows, much of the noise increase that will occur in 2030 along roadways adjacent to the project will be due to the regional growth in traffic that would have occurred independently of the project. The only area that is projected to experience a noise level increase greater than 3 dB is along 1st Street, between Orange Avenue and Pacific Coast Highway. Aerial maps of the area show that residential development occurs along 1st Street. The development could occur as close as 40 feet from the roadway centerline. At this distance, the future (2030) with project noise levels would be about 67.0 CNEL. Residences in this area could be exposed to noise levels greater than 65 CNEL. The "optimum noise level" specified by the Noise Element for residential areas is 60 CNEL. Of the 3.9 dB cumulative increase, only 0.6 dB is caused by the project.

Table 4.8.6
Traffic Noise CNEL Increases in 2030 (dB)

Roadway Segment	2030	
	Future 2030 Increase Due To Project	Cumulative Increase Over Existing (with Project)
6th Street		
Main Street to Olive Avenue	1.2	1.9
Olive Avenue to Pacific Coast Highway	0.7	2.0
Main Street		
6th Street to Orange Avenue	1.3	1.4
Orange Avenue to Olive Avenue	1.5	0.5
Olive Avenue to Walnut Avenue	1.9	0.3
Walnut Avenue to Pacific Coast Highway	1.9	0.2
Lake Street / 3rd Street		
Acacia Avenue to Orange Avenue	1.3	-0.2
Orange Avenue to Olive Avenue	1.9	-0.4
Olive Avenue to Walnut Avenue	1.5	0.2
1st Street		
Orange Avenue to Pacific Coast Highway	0.6	3.9
Orange Avenue		
6th Street to Main Street	1.0	1.0
Main Street and 3rd Street	1.7	1.5
Walnut Avenue		
6th Street to Main Street	0.9	2.2
Main Street and 3rd Street	1.2	-0.8
3rd Street and 1st Street	2.3	1.4
Pacific Coast Highway		
North of 6th Street	0.3	0.8
6th Street to Main Street	0.3	0.7
Main Street and 1st Street	0.3	0.3
South of 1st Street	0.4	0.2
Goldenwest Street		
North of Pacific Coast Highway	0.1	1.0
Beach Boulevard		
North of Pacific Coast Highway	0.2	1.0

The City has adopted a 75 CNEL noise standard for office or professional uses, and an 80 CNEL noise standard for commercial and industrial uses. If these types of land uses are constructed along 1st Street, the noise levels will be below the City's requirements. Therefore, there would not be a significant impact. However, allowable uses on 1st Street from Pacific Coast Highway to Orange Avenue include commercial, office, and residential.

The distances to the future (2030) with project 60, 65, 70 and 75 CNEL contours for the roadways in the vicinity of the proposed project site are presented in Table 4.8.7. The values shown under the 55, 60, 65 and 70 CNEL columns represent the distance from the centerline of the roadway to the respective contour value. The CNEL at 100 feet from the roadway centerline is also presented. These contours do not take into account the effect of any noise barriers or topography that may reduce traffic noise levels. The noise levels were calculated using traffic volumes presented in the previously

referenced traffic study prepared for the project by Kimley-Horn Associates, Inc. The traffic mix used in the CNEL calculations was compiled by the Orange County Environmental Management Agency, and is based on traffic counts at 31 intersections throughout the Orange County area. Arterial traffic distribution estimates can be considered typical for arterials in Southern California. The traffic volumes and the traffic mix used are presented in Appendix E, Noise Assessment of this EIR.

In conclusion, the project itself will not result in significant traffic noise impacts. The cumulative noise level increase could cause noise levels in excess of 65 CNEL, which will be a significant impact for residential areas developed along 1st Street. However, the project will not contribute significantly to this increase and, therefore, no mitigation is required. Therefore, the project will not result in any significant cumulative impacts relative to traffic noise.

Table 4.8.7
Future 2030 With Project Traffic Noise Levels

Roadway Segment	CNEL @ 100' *	Distance To CNEL Contour from Roadway Centerline (feet)			
		70 CNEL	65 CNEL	60 CNEL	55 CNEL
6th Street					
Main Street to Olive Avenue	57.5	15	32	69	148
Olive Avenue to Pacific Coast Highway	57.8	15	33	71	154
Main Street					
6th Street to Orange Avenue	62.3	31	66	143	309
Orange Avenue to Olive Avenue	62.0	29	63	136	292
Olive Avenue to Walnut Avenue	61.7	28	60	130	279
Walnut Avenue to Pacific Coast Highway	61.7	28	61	131	282
Lake Street / 3rd Street					
Acacia Avenue to Orange Avenue	56.7	13	28	60	129
Orange Avenue to Olive Avenue	56.0	12	25	54	117
Olive Avenue to Walnut Avenue	56.9	13	29	62	134
1st Street					
Orange Avenue to Pacific Coast Highway	61.0	25	55	118	253
Orange Avenue					
6th Street to Main Street	58.8	18	39	84	180
Main Street and 3rd Street	60.1	22	47	102	219
Walnut Avenue					
6th Street to Main Street	55.0	10	22	47	100
Main Street and 3rd Street	55.3	10	23	49	105
3rd Street and 1st Street	54.7	10	21	44	95
Pacific Coast Highway					
North of 6th Street	69.5	93	201	432	931
6th Street to Main Street	69.4	92	197	425	916
Main Street and 1st Street	69.5	93	200	430	926
South of 1st Street	69.5	92	199	429	925
Goldenwest Street					
North of Pacific Coast Highway	66.1	55	119	257	553
Beach Boulevard					
North of Pacific Coast Highway	67.0	63	136	292	630

*From roadway centerline
RW = Noise contour falls within roadway right-of-way

b. Off-Site Impacts from On-Site Activities

In addition to roadway traffic noise, on-site activities have the potential to generate off-site impacts. Specifically, the activities associated with retail establishments such as large air conditioning units, parking lots, and delivery trucks are of concern. Retail establishments may be built in Districts 1, 2, and 3. The DTSP Update would allow for additional restaurant uses to be established in the project area that may attract additional patrons. Compliance with the City's Noise Ordinance and project-specific conditions of approval for where conditional use permits are required would address noise compatibility issues. The closest distance from retail activities to any off-site sensitive use location may be as little as 50 feet. However, all the Districts that are zoned for retail uses are separated from existing adjacent residential areas by roadways. Typically this separation, along with the ambient noise levels from the roadway is sufficient to render any impacts from the retail areas insignificant. In conclusion, no significant noise impacts would occur.

3. Long Term On-Site Impacts

This section examines noise impacts to the project site due to activities that occur exterior to the project as well as activities that are confined within the project's boundaries. Specifically, traffic noise levels are examined that might impact the proposed uses.

On-Site Roadway Traffic Noise Exposure

The project site is adjacent to busy arterial roadways. The distances to the future 55, 60, 65 and 70 CNEL contours for the roadways in the vicinity of the proposed project site were presented previously in Table 4.8.7. Exhibit 4.8-5 – Traffic Noise CNEL Contours shows the on-site noise exposure for the project site. Note that the contours do not include the shielding effects of buildings, topography, or sound barriers that would lower the noise levels from what is shown in the Exhibit 4.8-4 (page 4-142), and therefore, represent a worst-case estimate.

The DTSP Update considers a new development potential that includes 648 residential units. Those residential units that could be impacted the most will be located within those areas that are adjacent to major roadways. In particular, any residential units bordering major roadways will experience high traffic noise levels. Noise levels along Pacific Coast Highway are as high as 73.2 CNEL at the edge of the roadway. Along Beach Boulevard, the noise levels are as high as 67.6 CNEL, and along Goldenwest Street, the noise levels are as high as 68.5 CNEL. Noise levels along Main Street are as high as 69.2 CNEL. Along 1st Street, the noise levels are as high as 67.0 CNEL, and along Orange Avenue, the noise levels are as high as 66.6 CNEL. Any new residences that experience noise levels in excess of 65 CNEL may require some form of mitigation to reduce the noise to an acceptable level. Noise levels would exceed the outdoor noise standard of 65 CNEL for the roadways listed above, and may exceed the indoor noise criteria of 45 CNEL without some form of mitigation. Any new residential areas constructed along 1st Street or Orange Avenue may experience CNEL noise levels in excess of 65 CNEL. Therefore, these impacts are considered potentially significant but with incorporation of mitigation can be reduced to a less than significant level. See Section 4.8.5 (beginning on page 4-152) for mitigation measures.

Exhibit 4.8-5 – Traffic Noise CNEL Contours

Retail establishments are planned for some areas, and may include offices. The City has a 75 CNEL standard for offices and professional uses. Noise levels along Pacific Coast Highway are as high as 73.2 CNEL at the edge of the roadway. Noise levels along Beach Boulevard and Main Street are as high as 67.6 CNEL and 68.2 CNEL, respectively, at the edge of the roadway. All these noise levels are less than the 75 CNEL limit for office uses. No impact is identified for the proposed retail areas.

4. Noise Conflicts within the DTSP

Residential uses directly adjacent to less noise-sensitive land uses, such as commercial or industrial uses, can result in noise impacts to the residences. Changes proposed by the DTSP Update in regards to modifications to development standards for setbacks, building heights, and allowable densities are in Districts 1 and 4. District 1 is a mixed use district that allows residential uses with commercial uses throughout the district (except in the Cultural Arts Overlay). The existing DTSP allows for this mixed use now and therefore, no new noise conflicts within the DTSP area would be result due to the proposed DTSP Update project. The development regulations for the remaining districts are unchanged. For the proposed project, residences (District 4) are separated from commercial/retail uses by roadways (and an alley). District 1 (the Downtown Core Mixed-Use zone) is a mixed-use zone with commercial/office and residential uses. These uses could be directly adjacent to the residential portion of District 2 (Visitor-Serving Mixed-Use zone). While hotels are not technically considered residential land uses, the level of noise sensitivity is comparable to a residential use, and hotels would need to meet the same noise standards as residential uses. Conversely, District 2 may have some commercial use areas, and these could be directly adjacent to the residential (hotel) portion of District 1.

District 2 may have some commercial use areas that could be directly adjacent to the residential (hotel) portion of District 3 (Visitor-Serving Recreation zone) and District 5 (multi-family residential zone). Conversely, District 3 may have some commercial use areas that could be directly adjacent to the residential (hotel) portion of District 2 and District 5. However, the DTSP update does not propose any changes to the existing development regulations for Districts 2, 3, and 5. Therefore, no noise conflicts associated with the DTSP update would occur in these Districts except that in relation to noise from the project's generated traffic increase due to the overall DTSP.

The retail use main noise generators are likely to be parking lots, truck deliveries, and air conditioning equipment. Each of these potential sources of noise is evaluated in the following paragraphs.

Residences adjacent to or near a parking lot could be impacted by activities that would occur in the parking lot. The DTSP Update proposed changes primarily to Districts 1 and 4 including providing for additional parking. Traffic associated with parking lots is not usually of sufficient volume to exceed community noise standards that are based on a time-averaged scale such as the CNEL scale. However, the instantaneous maximum sound levels generated by car door slamming, engine start-up, alarm activation, and car pass-bys can exceed the noise standard. Tire squeal may also be a problem depending on the type of parking surface.

Estimates of the maximum noise levels associated with parking lot activities are presented in Table 4.8.8. These levels are based on measurements conducted by Mestre Greve Associates. The noise levels presented are for a distance of 50 feet from the source, and are the maximum noise level generated. A range is given to reflect the variability of noise generated by various automobile types and driving styles.

Table 4.8.8
Maximum Noise Levels Generated by Parking Lots (dBA at 50 feet)

Event	Lmax
Door Slam	60 to 70
Car Alarm Activation	65 to 70
Engine Start-up	60 to 70
Car pass-by	55 to 70

At this level of analysis, detailed plans are generally not available, so the exact locations of any parking areas that may be constructed within the project are not yet known. Any plans that are currently available are subject to change. For the purposes of determining worst-case noise impacts to residences due to parking lot related activities, it will be assumed that a parking lot could be located anywhere within the confines of the property containing the parking lot.

The distance between these parking lots and the adjacent residential units could be closer than 50 feet. For residential areas, the noise ordinance specifies that the maximum noise level (Lmax) cannot exceed 75 dBA. At 50 feet from the noise source, Table 4.8.8 above shows that the maximum noise level due to parking lot related activities would be 70 dBA. Extrapolation of this data shows that the maximum noise level at 28 feet would be 75 dBA. For any residential areas farther than 50 feet from the parking areas, there are no parking lot noise impacts foreseen.

Truck deliveries, loading dock activities and air conditioning noise are difficult to assess at this stage of the project. Loading dock noise includes the movement of the goods into the store and possibly forklifts operations. Truck delivery noise is generated when the truck drives to, or from, the loading dock. Delivery truck drivers also formerly could leave the truck idling during unloading operations; however, trucks are now prohibited from idling for more than 5 minutes per the South Coast Air Quality Management District regulations.

Residential uses directly adjacent to areas where truck deliveries, loading dock activities and air conditioning units could experience a significant noise impact. Detailed plans are not yet available, so the exact locations of any areas that may be adjacent to truck deliveries, loading dock activities and air conditioning units are not yet known. District 1, District 2, and District 3 may have some retail areas where these noise sources could impact adjacent residential areas.

The number of truck deliveries and the time of day that unloading would occur is not known. Nighttime operations can be particularly annoying to residences. Noise levels could be loud enough that they would be disturbing to the adjacent residences. A mitigation measure is presented in Section 4.8.4 below that requires further studies for mixed-use and commercial projects within 50 feet of any residences to ensure that noise sources do not exceed the City's Noise Ordinance limits.

Mechanical equipment noise is associated with the heating, ventilation, and air conditioning system (HVAC). HVAC equipment is sometimes located on the ground and sometimes located on the roof of the buildings. The type, size, and number of mechanical equipment units are not known at this time. If the equipment is located on the roof, often parapet walls are used to control the noise from

the equipment. Similarly, sound walls can be located around HVAC equipment that is located on the ground. Without mitigation, impacts could occur. Mitigation measures such as providing sound walls and requiring further studies for the commercial zone are presented in Section 4.8.4 below.

Music and other noise from concert halls, theaters and similar establishments can also be a potential impact on adjacent land uses. A proposed Cultural Arts Overlay area would allow a performing arts center within District of the DTSP. However, the performances would all be held in the interior of the performing arts building, which would be sound attenuated and likely would not create significant noise impacts. It should be noted that this overlay also allows library, museum, and art gallery uses. It is not known what uses may be proposed, if any, in the future.. Noise from the concert hall/theater is not expected to be a significant impact.

Amplified music and other noise at restaurants (dining) can have a potential impact on adjacent land uses. Eating and drinking uses are allowed in Districts 1, 2, 3, 6, and7, and amplified music from live entertainment and dancing uses would be permitted in Districts 1, 2 and 3 with a Conditional Use Permit (CUP) subject to Planning Commission (PC) approval. Findings for a CUP require that a project must demonstrate that it will not be detrimental to the surrounding properties and people in the vicinity. In addition, through conditions of approval (COAs) and provisions of the City's Noise Ordinance, potential noise impacts from these uses would be reduced to a less than significant level.

4.8.4 Mitigation Measures

1. Temporary Noise Impacts

Project demolition and construction noise could result in significant impacts to nearby residences if uncontrolled. The most effective method of controlling construction noise is through limiting construction hours. The Noise Ordinance does have restrictions on construction hours. Therefore, the following mitigation measure and code requirement are proposed and consistent with the Noise Ordinance.

MM 4.8-1 Noise attenuation devices shall be used on all construction equipment, and construction staging areas shall be located as far as possible from any residences or other noise sensitive receptors.

CR 4.8-1 All construction activities shall be limited to the hours between 7:00 a.m. and 8:00 p.m. Monday through Saturday. Construction and demolition shall be prohibited on Sundays or federal holidays.

2. Long Term Off-Site Noise Impacts

a. Traffic Noise

Noise levels along the roadways impacted by the project would increase by less than 3 dB due to the increase in traffic as a result of the project. Therefore, there would be no noise significant impacts to nearby residences due to the project. No mitigation is necessary.

b. On-Site Activities Impacting Off-Site Areas

Commercial establishments in Districts 1, 2 and 3 will be far enough from off-site sensitive locations to avoid a significant noise impact. Therefore, no mitigation is required.

3. Long Term On-Site Noise Impacts

Lots containing newly constructed residential units facing Pacific Coast Highway, Goldenwest Street, Main Street, or Beach Boulevard may be subject to noise levels from roadway traffic in excess of 65 CNEL. Therefore, noise reduction measures may be required to achieve the noise standard along some of these roads. Since the plans for any potential new developments are not yet available, the exact noise reduction measures necessary to achieve mitigation cannot yet be determined. It is possible that measures to reduce noise levels could include (but not limited) for example, installation of sound attenuation such as quarter-inch plate glass, five-eighths-inch Plexiglas, any masonry material, or a combination of these materials. Although noise attenuation measures (e.g., masonry material) might be warranted depending on the details of individual project locations, the areas identified that may be subject to noise levels from roadway traffic in excess of 65 CNEL are already developed with existing newer development (e.g., residences near Pacific Coast Highway and Goldenwest). Therefore, these areas with newer development would most likely remain unchanged.

Mitigation Measure MM 4.8-2 will ensure that these uses meet the City's noise standards and mitigate the potential significant impact.

MM 4.8-2 Prior to issuance of building permits for residences located within the 65 CNEL noise contour, a detailed noise assessment with noise reduction measures specified shall be prepared to show that noise levels in those areas will not exceed the 65 CNEL outdoor noise criteria. Prior to issuance of permits, a detailed noise assessment with noise reduction measures specified shall be prepared to show that noise levels in the residences will not exceed the 45 CNEL indoor noise standard. The assessment will be based on the architectural plans for each specific project. The reports by a qualified acoustical consultant and shall document the sources of noise impacting the areas and describe any measures required to meet the standard. These measures will be incorporated into the project plans. The report shall be completed and approved by the City prior to issuance of building permits.

Loading docks, parking lots, and mechanical equipment in Districts 1, 2 and 3 have the potential to generate excessive noise levels at adjacent residential areas. At this time, it is unknown if specific development projects will result in significant impacts. To ensure that potentially significant impacts will be reduced to a less than significant level, the following mitigation measure shall be required for future development projects as a result of the proposed project.

MM 4.8-3 Prior to issuance of building permits, a detailed noise assessment shall be prepared for mixed-use and commercial projects within 50 feet of any residence to ensure that these sources do not exceed the City's Noise Ordinance limits. The assessment

shall be prepared by a qualified acoustical engineer and shall document the noise generation characteristics of the proposed equipment and the projected noise levels at the nearest residential use. Compliance with the City's Noise Ordinance shall be demonstrated and any measures required to comply with the Noise Ordinance and reduce impacts to less-than-significant levels shall be included in the project plans. The report shall be completed and approved by the City prior to issuance of project approval.

4.8.5 Level of Significance after Mitigation

With implementation of the recommended mitigation measures, the project will not result in unavoidable noise impacts associated with the project, with the exception of projects that include pile driving. Even with implementation of noise mitigation measures, these short-term construction-related impacts (pile driving) would be considered significant and unavoidable.

4.8.6 Significant and Unavoidable Impacts

If any projects plan to include pile driving (e.g., for construction of subterranean parking), further analysis would be needed to determine any impacts from this activity. The use of pile drivers presents the greatest intensity potential for construction noise impacts. This temporary increase in ambient noise levels would be noticeable and would likely be cause for human annoyance. Therefore, construction activities associated with pile driving would be considered significant and unavoidable.

All impacts relating to noise associated with the proposed project would be less than significant or mitigated to less than significant levels. Therefore, no significant and unavoidable impacts related to land use and planning would occur.

4.8.7 Cumulative Impacts

Related development projects in the vicinity of the proposed project include projects that are already approved as identified in Table 4.12.3, Summary of Cumulative Projects (page 4-196) and that have been anticipated by the existing DTSP and the Huntington Beach General Plan. In one area (along the east side of 1st Street), cumulative traffic noise impacts will be significant, but the project will not contribute significantly to this increase, therefore, no mitigation is required. Cumulative noise impacts associated with the proposed project would be less than significant.