

**Appendix E**  
**Noise Analysis**



**NOISE IMPACT ANALYSIS**  
**PCH/DEL PRADO STREET IMPROVEMENTS**  
**CITY OF DANA POINT, CALIFORNIA**

Prepared for:

Keeton Kreitzer Consulting  
Attn: Keeton Kreitzer  
17291 Irvine Blvd., Ste 305  
Tustin, California 92780

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## NOISE DESCRIPTORS

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise is generally considered to be unwanted sound. Sound is characterized by various parameters that describe the rate of oscillation of sound waves, the distance between successive troughs or crests, the speed of propagation, and the pressure level or energy content of a given sound. In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level.

The decibel (dB) scale is used to quantify sound pressure levels. Although decibels are most commonly associated with sound, "dB" is a generic descriptor that is equal to ten times the logarithmic ratio of any physical parameter versus some reference quantity. For sound, the reference level is the faintest sound detectable by a young person with good auditory acuity.

Since the human ear is not equally sensitive to all sound frequencies within the entire auditory spectrum, human response is factored into sound descriptions by weighting sounds within the range of maximum human sensitivity more heavily in a process called "A-weighting," written as dB(A). Any further reference in this discussion to decibels written as "dB" should be understood to be A-weighted.

Leq is a time-averaged sound level; a single-number value that expresses the time-varying sound level for the specified period as though it were a constant sound level with the same total sound energy as the time-varying level. Its unit is the decibel (dB). The most common averaging period for Leq is hourly.

Because community receptors are more sensitive to unwanted noise intrusion during more sensitive evening and nighttime hours, state law requires that an artificial dBA increment be added to quiet time noise levels. The 24-hour noise descriptor with a specified evening and nocturnal penalty is called the Community Noise Equivalent Level (CNEL). CNEL's are a weighted average of hourly Leq's. CNELs are calculated by averaging observed noise levels from 7 a.m. to 7 p.m., noise levels from 7-10 p.m. with the addition of plus 5 dB, and levels from 10 p.m. to 7 a.m. plus 10 dB to account for heightened nocturnal noise sensitivity.

Exterior to interior noise attenuation is typically 20-30 dB for windows closed. A 65 dB CNEL exterior noise exposure thus generally allows the 45 dB CNEL interior standard to be met as long as windows can normally be closed to shut out the noise. A level of 65 dB is also the threshold where noise begins to intrude significantly into normal activities such as having a conversation. Although people may express annoyance if noise levels in usable exterior space are below 65 dB, the percentage of "highly annoyed" people increases dramatically when noise exceeds 65 dB.

Sound dissipates geometrically with distance from the noise source. For a single point source, sound level decays approximately six decibels for each doubling of distance from the source. If noise is produced by a line source, such as highway traffic or railroad operations, the sound will decrease three decibels for each doubling of source-to-receiver distance.

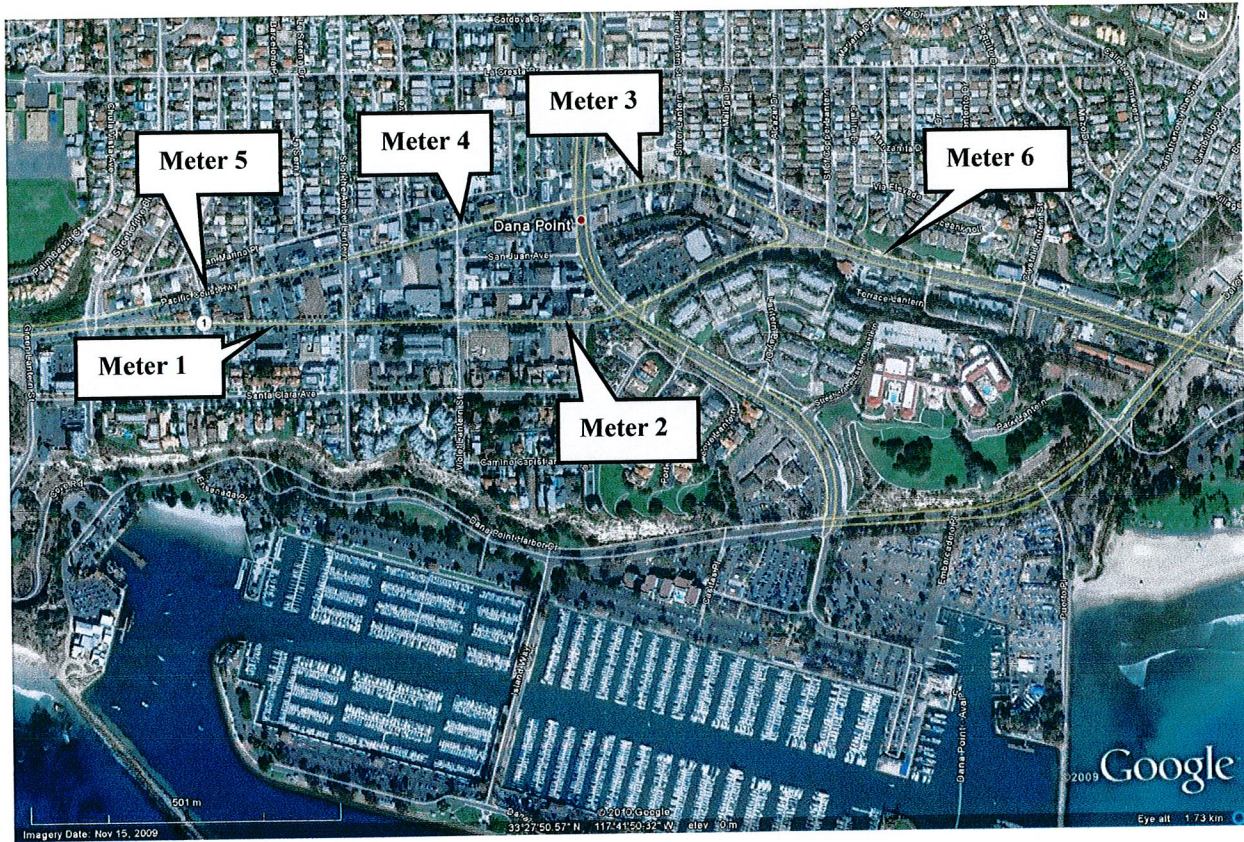
## **BASELINE NOISE LEVELS**

Noise measurements were made in order to document existing baseline levels in the area. These help to serve as a basis for projecting future noise exposure from the project upon the surrounding community. A short-term on-site noise measurement was conducted mid-afternoon on Thursday, August 5, 2010, at six locations surrounding the project site as shown in Figure 1. To ensure the ambient data collected was representative, the readings were repeated on Friday, August 20, 2010. As seen in Figure 2, the data from each time period corresponded well, with only an approximate +/- 1 dB discrepancy.

Monitoring experience has shown that 24-hour weighted CNELs are typically 2-3 dB higher than the mid-afternoon Leq readings shown in Figure 2. Except for Meter 6, all monitors had a view of Pacific Coast Highway (PCH) or Del Prado Avenue and were approximately 50 feet from the roadway centerline. This would translate into CNEL's of 69 to 71 dB for Meters 1-5.

Meter 6 was above grade level in the park east of Copper Lantern, and was somewhat protected from PCH traffic noise. This monitor recorded noise levels of 58 dB which would translate into a CNEL of approximately 61 dB. Although construction noise is anticipated to be a nuisance at times because it can be of a different character than traffic noise, the ambient traffic noise levels will provide a masking effect.

**FIGURE 1  
NOISE MONITOR LOCATIONS AND DATA**



- Meter 1: Parking Lot of 24422 Del Prado/Dana Point-Del Prado building,
- Meter 2: Empty lot, south side of Del Prado, west of Old Golden Lantern
- Meter 3: Empty lot, next to bus stop, east of Colegio, north side of PCH
- Meter 4: Empty lot between Circle K, 34138 PCH and PC Chiropractic, 34144 PCH, east of Violet Lantern, north side of PCH
- Meter 5: Empty space, ne corner of intersection of Ruby Lantern and PCH, next to Performance Haus Auto Repair, 34112 PCH
- Meter 6: Gazebo Park, north side of PCH, east of Copper Lantern, above road level by 50'

**Figure 2**  
**Project Site Short-Term Noise Measurements (dB[A])**

	<b>Site</b>	<b>Time</b>	<b>LEQ</b>	<b>Lmax</b>	<b>Lmin</b>	<b>L10</b>	<b>L33</b>	<b>L50</b>	<b>L90</b>
August 5	1	12:51-13:06	66.9	81.0	46.5	70.5	66.0	64.0	55.0
August 20		1:305-13:20	67.5	77.0	50.0	71.0	67.5	65.0	57.0
August 5	2	13:13-13:28	66.7	79.0	47.5	70.5	66.0	63.5	53.5
August 20		13:25-13:40	66.8	78.0	50.0	71.0	66.5	64.0	56.5
August 5	3	13:35-13:50	66.4	80.5	47.0	69.5	66.0	64.0	54.5
August 20		13:45-14:00	66.3	76.5	48.0	70.0	65.5	63.5	55.5
August 5	4	14:00-14:15	67.3	79.0	51.0	71.5	66.5	63.0	55.5
August 20		14:11-14:26	67.3	81.5	53.5	71	67.0	63.5	57.0
August 5	5	14:20-14:35	68.3	83.5	47.5	71.0	68.5	66.0	56.0
August 20		14:31-14:46	67.1	75.5	49.5	71.0	67.5	63.5	56.0
August 5	6	15:00-15:15	58.1	74.0	45.5	60.5	58.0	56.5	50.5
August 20		14:59-15:14	57.7	65.5	45.5	60	58.5	57.0	51.5

### **CITY OF DANA POINT NOISE STANDARDS**

The Noise Element of the City of Dana Point General Plan establishes noise quality standards for land use categories based on the State of California Office of Noise Control land use compatibility recommendations. Table 1 shows the community noise exposure recommended as “clearly compatible”, “normally compatible”, “normally incompatible”, and “clearly incompatible” for various classes of land use sensitivity. The City of Dana Point guidelines recommend an exterior noise exposure of less than 65 dB CNEL for outdoor recreational space at residential uses. Residential development with noise exposures of up to 70 dB CNEL are considered “normally compatible” and may be permitted if noise mitigation is included in the design.

Because commercial and office buildings are not occupied on a 24-hour basis, the exterior noise exposure standard for less sensitive land uses generally is somewhat less stringent. Noise levels up to 70 dB CNEL are considered “clearly compatible” for commercial and office uses and 80 dB CNEL is considered “normally compatible”.

Table 2 presents City policies related to land use and acceptable noise levels. Residential interior noise exposure may not exceed 45 dBA CNEL with windows and doors closed. Commercial uses are permitted an interior noise level of 55 dBA CNEL and the interior of office buildings may not exceed 50 dBA CNEL with closed windows and doors. Requiring that windows and/or doors remain closed to achieve an acceptable interior noise level will necessitate the use of air conditioning and/or mechanical ventilation.



Chapter 11.10 of the City of Dana Point Municipal Code limits the noise level generated on a property that can cross to a neighboring property. The City's noise ordinance limits are in terms of a one-hour average sound level, and apply to residential uses only, as shown in Table 3. Ordinance limits generally apply to "stationary" sources such as mechanical equipment, manufacturing activities, or vehicles operating on private property. Control of on-road transportation noise is pre-empted from local control. Because the City of Dana Point cannot regulate noise generation by the source (traffic), it regulates the pattern of land use exposed to such noise through the Noise Element of the General Plan.

Per Chapter 8, Buildings and Construction, Section 8.01.250 in the Dana Point Municipal Code, grading and equipment operations within one-half mile of any residence shall not be conducted between the hours of 5 P.M. and 7 A.M., nor on Saturdays, Sundays and federal holidays. Additionally, any grading permit issued is subject to the provisions set forth in Article 1, Division 6, Title 4 of the Codified Ordinances of the County of Orange relating to noise control.

**Table 1**  
**Dana Point Noise/Land Use Compatibility Matrix**

LAND USE CATEGORIES		COMMUNITY NOISE EQUIVALENT LEVEL CNEL						
DESIGNATIONS	USES	<55	60	65	70	75	80	>
RESIDENTIAL (ALL EXCEPT MOBILE HOME)	Single Family, Duplex, Multiple Family	A	A	B	B	C	D	D
RESIDENTIAL	Mobile Home	A	A	B	C	C	D	D
VISITOR/RECREATION COMMERCIAL	Hotel, Motel, Transient Lodging	A	A	B	B	C	C	D
NEIGHBORHOOD COMMERCIAL, COMMUNITY COMMERCIAL	Commercial Retail, Bank, Restaurant, Movie Theater	A	A	A	A	B	B	C
PROFESSIONAL/ADMINISTRATIVE, INDUSTRIAL/ BUSINESS PARK	Office Building, Research and Develop- ment, Professional Offices, City Office Building	A	A	A	B	B	C	D
COMMUNITY FACILITY	Amphitheater, Concert Hall Auditorium, Meeting Hall	B	B	C	C	D	D	D
VISITOR/RECREATION COMMERCIAL, COMMUNITY COMMERCIAL	Children's Amusement Park, Miniature Golf Course, Co-cart Track; Equestrian Center, Sports Club	A	A	A	B	B	D	D
COMMUNITY COMMERCIAL, INDUSTRIAL/BUSINESS PARK, COMMUNITY FACILITY	Automobile Service Station, Auto Deal- ership, Manufacturing, Warehousing, Wholesale, Utilities	A	A	A	A	B	B	B
COMMUNITY FACILITY	Hospital, Church, Library, Schools' Classroom	A	A	B	C	C	D	D
RECREATION/OPEN SPACE	Parks	A	A	A	B	C	D	D
RECREATION/OPEN SPACE	Golf Course, Cemeteries, Nature Centers, Wildlife Reserves/Habitat	A	A	A	A	B	C	C
RECREATION/OPEN SPACE	Agriculture	A	A	A	A	A	A	A

ZONE A  
CLEARLY COMPATIBLE

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

ZONE B  
NORMALLY COMPATIBLE

New construction or development should be undertaken only after detailed analysis of the noise reduction requirements are made and needed noise insulation features in the design are determined. Conventional construction, with closed windows and fresh air supply systems or air conditioning, will normally suffice.

ZONE C  
NORMALLY INCOMPATIBLE

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

ZONE D  
CLEARLY INCOMPATIBLE

New construction or development should generally not be undertaken.

**Table 2**

**Dana Point Interior and Exterior Noise Standards**

<b>Land Use (Receptor Property)</b>	<b>Interior</b>	<b>Exterior</b>
Single Family Duplex, Multiple Family	45	65
Mobile Home	--	65
Hotel, Motel	45	--
Commercial Retail, Bank Restaurant	55	--
Office Buildings	50	--
Amphitheater, Auditorium	45	--
Sports Club	55	--
Manufacturing, Warehousing	65	--
Hospitals, School Classrooms	45	65
Church, Library	45	--
Parks	--	65

- Indoor environment including: bathrooms, closets, corridors.
- Outdoor environment limited to: Private yard of single family dwelling. Balconies 6 feet deep or less are exempt.

Source: City of Dana Point Noise Element

**Table 3**

**City of Dana Point Noise Ordinance  
Exterior Noise Standards**

	<b>Noise Level</b>	<b>Time Period</b>
<b>Exterior Residential Standards</b>	55 dB (A)	7:00 a.m. – 10:00 p.m.
	50 dB (A)	10:00 p.m. – 7:00 a.m.

It is unlawful for any person at any location within the City to create any noise, or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which causes the noise level when measured on any other residential property to exceed:

1. The noise standard for a cumulative period of more than 30 minutes in any hour; or
2. The noise standard plus 5 dB(A) for a cumulative period of more than 15 minutes in any hour;
3. The noise standard plus 10 dB(A) for a cumulative period of more than 5 minutes in any hour;
4. The noise standard plus 15 dB(A) for a cumulative period of more than one minute in any hour;
5. The noise standard plus 20 dB(A) for any period of time.

In the event the ambient noise level exceeds any of the first four (4) noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level. (Added by Ord. 92-11, 11/24/92)

Division 6 (Sec. 4-6-1, et seq.) of the County Code contains standard requirements related to the distance separation between construction activities and any occupied dwellings. Construction noise levels are exempt from the numerical performance standards in the noise ordinance. However, the "Standard Condition for Approval" requires that:

1. All powered equipment operating within 1,000 feet of a dwelling must have a properly operating and maintained muffler.
2. Stockpiling and staging activities must be located as far as practicable from dwellings

Per Chapter 11.10.014, Noise Control, of the Municipal Code, noise sources associated with construction, repair, remodeling, or grading of any real property, are exempt from noise control provided said activities do not take place between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a Federal holiday. These time limits differ from allowable construction hours in Section 8.01.250 of the municipal code. In the absence of clear guidance on permissible hours of construction, the more restrictive of the two times is utilized for this project. Construction is exempt from noise standards as long as it is restricted to the hours of 7 a.m. and 5 p.m., Monday through Friday. The Director of Public Works has the authority to allow construction on Saturdays.

Although the City's Noise Ordinance indicates that construction activities should be limited to between the hours of 7 a.m. and 5 p.m., this project will require some night work to accomplish traffic signal work, street improvements and striping modifications, particularly on Pacific Coast Highway when that roadway is converted from one-way to two-way operation. This is primarily due to what could be significant traffic congestion issues that would result if some of the work were done during daytime hours.

Several nights of night work may be needed. The City will take steps to limit significant noise generating activities to daytime hours, but some noise may result. This is discussed further in the Conclusion section.

## **NOISE IMPACT ANALYSIS**

### **BACKGROUND**

The proposed Project is located along PCH and Del Prado Avenue between Street of the Blue Lantern and Copper Lantern Street in the City of Dana Point, California. The project disturbance area will take place within the existing curb and gutter. In the short-term noise from construction activities will impact any adjacent sensitive uses. After construction activities cease, the major source of noise along the improvements roadways is from traffic.

Implementation of the proposed project will re-establish two-way circulation along both PCH and Del Prado Avenue between Street of the Blue Lantern and Copper Lantern Street. These improvements are anticipated to result in reduced long-term noise levels. However, although not project related, the sensitive uses within the PCH improvement envelope may<sup>[SG1]</sup> experience additional noise due to area growth, which may put greater quantities of traffic on the area roadways in the coming years.

### **IMPACT SIGNIFICANCE CRITERIA**

Project noise impacts are considered significant if:

1. They create violations of noise standards, or
2. They substantially worsen an already excessive noise environment, or
3. They substantially increase an existing quiet environment even if noise standards are not violated by the proposed action.

The term "substantial increase" is not defined by any responsible agency. The limits of perceptibility by ambient grade instrumentation (sound meters) or by humans in a laboratory environment is around 1.5 dB. Under ambient conditions, people generally do not perceive that noise has clearly changed until there is a 3.0 dB difference. A threshold of 3.0 dB is typically used to define "substantial increase." Traffic noise due to the project would be significant if it would increase outdoor noise levels by 3.0 dB or more and exceed compatibility thresholds.

The proposed project is growth accommodating and not growth inducing, and as such will not cause an increase in the area wide acoustical environment because no substantial change in traffic volume is anticipated to occur solely due to the roadway improvements. Cumulative area growth will cause an incremental increase in roadway usage and therefore roadway traffic noise. However, because of project induced "rebalancing" of traffic patterns and flow, some roadways may experience a lower traffic noise level than previously.

## PROJECT-RELATED VEHICULAR NOISE IMPACTS

### Proposed Project-Exterior Noise

Long-term noise concerns from development of the proposed roadway improvements center primarily on mobile source traffic noise emissions generated on affected roadways. These concerns were addressed using the FHWA Highway Traffic Noise Model noise prediction model (FHWA-RD-77-108) which calculates the noise level for a particular reference set of input conditions, and then makes a series of adjustments for site-specific traffic volumes, distances, speeds, or noise barriers. The noise analysis utilized data from the project traffic analysis, prepared in July of 2010, by Lincott Law and Greenspan, for this project. The resultant CNELs at 50 feet from the roadway centerlines are shown in Table 4. A traffic speed of 35 miles per hour was utilized for most roadways. PCH west of Blue Lantern was analyzed with a traffic speed of 50 mph and Del Prado west of PCH was analyzed with a speed of 30 mph as per the project traffic report.

Project only impacts are the calculated differences between the “with project” and “without project” scenario for both year 2015 and year 2035, and are shown in Table 5. Implementation of the proposed project will re-establish two-way circulation for both PCH and Del Prado Avenue between Street of the Blue Lantern and Copper Lantern Street. Therefore, the “with project” operations assume two-way traffic and “without project” conditions assume one-way traffic operations.

As seen in Table 5, the “project only” impacts exceed the +3 dB CNEL traffic noise significance threshold along several roadway segments because of diverted traffic from reconfigured roadways. Conversely, many segments will experience a decrease in traffic noise as a result of project implementation. For example, Copper Lantern Street north of PCH is anticipated to experience a -13 dB noise reduction as alternative travel routes are utilized. This benefit is important for this segment, since the adjoining residential uses would otherwise be exposed to traffic noise levels of almost 70 dB CNEL in 2035 without the project.

Of the 44 roadway segments examined, 15 will experience a reduction in roadway noise, 20 will experience an increase in noise, and 8 will remain unchanged as a result of project implementation. Of the 15 experiencing a reduction in noise, 7 are greater than -3 dB CNEL and as such will be perceived as a noticeable improvement. Of the 20 segments experiencing a noise increase, only 2 are expected to exceed the significance threshold of +3 dB as follows:

<i>Segment</i>	<i>Maximum Increase 2015</i>	<i>Maximum Increase 2035</i>	<i>Noise Level in 2035 with Project</i>
Alley/Violet Ltn-Old Golden	5.9	5.8	52.4
Old Golden/Del Prado-Alley	2.1	3.7	54.6

**Table 4**  
**Proposed Project**  
**Traffic Noise Impact Analysis**  
**(dBA CNEL at 50 feet from centerline)**

East-West Roadways	Existing	2015		2015		2035	
		No Project	With Project	No Project	With Project	No Project	With Project
<b>Pacific Coast Hwy/</b>							
W of Blue Ltn	72.7	73.5	73.5	73.9	73.9	73.9	73.9
Blue Ltn-Del Prado	66.0	66.9	69.7	67.2	67.2	70.1	70.1
Del Prado-Ruby Ltn	66.0	66.9	69.0	67.2	67.2	69.4	69.4
Ruby Ltn-Amber Ltn	65.9	66.9	69.1	67.2	67.2	69.5	69.5
Amber Ltn-Violet Ltn	66.3	67.2	69.4	67.5	67.5	69.7	69.7
Violet Ltn-Golden Ltn	66.7	67.8	69.8	68.1	68.1	70.1	70.1
Golden Ltn-Copper Ltn	66.9	67.7	70.0	68.0	68.0	70.3	70.3
Copper Ltn-Crystal Ltn	68.7	69.5	70.8	69.8	69.8	71.2	71.2
Crystal Ltn-Del Obispo	70.1	70.9	70.9	71.2	71.2	71.2	71.2
E of Del Obispo	71.2	72.1	72.1	72.4	72.4	72.4	72.4
<b>Del Prado/</b>							
Blue Ltn-Ruby Ltn	66.2	66.9	59.5	67.3	67.3	62.1	62.1
Ruby Ltn-Amber Ltn	66.3	67.1	62.4	67.4	67.4	62.7	62.7
Amber Ltn-Violet Ltn	66.4	67.2	62.9	67.6	67.6	63.3	63.3
Violet Ltn-Old Golden	66.8	67.9	63.4	68.1	68.1	63.9	63.9
Old Golden-Golden-Ltn	66.7	67.8	63.9	68.1	68.1	54.4	54.4
Golden Ltn-PCH	65.8	66.7	62.2	66.9	66.9	62.5	62.5
<b>Alley/</b>							
Blue Ltn-Ruby Ltn	48.0	48.0	50.7	48.4	48.4	50.9	50.9
Ruby Ltn-Amber Ltn	49.0	49.0	50.6	49.6	49.6	51.0	51.0
Amber Ltn-Violet Ltn	49.6	49.6	49.9	50.1	50.1	50.4	50.4
Violet Ltn-Old Golden	46.3	46.3	52.2	46.6	46.6	52.4	52.4



**Table 4 (continued)  
Proposed Project Noise Impact  
(dBA CNEL at 50 feet from centerline)**

North-South Roadways	Existing	2015		2015		2035	
		No Project	With Project	No Project	With Project	No Project	With Project
Blue Lantern/ N of PCH	56.7	58.0	57.9	58.3	58.2		
PCH-Alley	58.2	58.9	58.9	59.3	59.3		
S of Alley	57.2	57.3	57.3	57.7	57.7		
Ruby Lantern/ N of PCH	53.5	53.6	53.7	54.6	54.0		
PCH-Del Prado	52.2	54.0	54.9	54.3	55.2		
Del Prado-Alley	51.0	52.2	54.5	52.6	54.8		
S of Alley	51.8	52.9	52.7	53.2	53.0		
N of PCH	57.2	57.7	58.0	58.1	58.4		
PCH-Del Prado	58.7	60.0	59.3	60.3	59.7		
Del Prado-Alley	55.1	55.3	55.9	55.8	56.3		
S of Alley	51.1	51.6	51.5	51.0	51.9		
N of PCH	59.0	59.5	59.2	59.9	59.3		
Violet Lantern/ N of PCH	58.2	60.9	59.4	61.2	59.0		
PCH-Del Prado	54.1	55.3	56.4	55.6	56.7		
Del Prado-Alley	53.2	54.6	54.1	54.9	54.5		
S of Alley	49.6	50.4	52.5	50.9	54.6		
Old Golden Lantern/ Del Prado-Alley	48.2	49.1	50.5	49.6	50.9		
S of Alley	66.2	66.7	66.9	67.2	67.2		
Golden Lantern/ N of PCH	66.3	67.1	65.3	67.4	65.7		
PCH-Del Prado	64.5	65.2	65.2	65.5	65.5		
S of Del Prado	67.5	68.3	55.2	69.5	55.5		
Copper Lantern/ N of PCH	59.1	59.4	59.4	59.7	59.7		
Crystal Lantern/ N of PCH	64.8	65.6	65.6	65.9	65.9		
Del Obispo/ N of PCH	66.3	67.6	67.6	67.9	67.9		
Dana Pt Harbor Dr/ N of PCH							

**Table 5**  
**“Proposed Project Only” and “Cumulative” Impacts**  
**(dBA CNEL at 50 feet from centerline)**

		<b>Project Only 2015</b>	<b>Project Only 2035</b>	<b>Cumulative Impact*</b>	
<b>Pacific Coast Hwy/</b>	W of Blue Ltn	0.0	0.0	1.2	
	Blue Ltn-Del Prado	2.9	2.9	4.2	
	Del Prado-Ruby Ltn	2.1	2.2	3.4	
	Ruby Ltn-Amber Ltn	2.2	2.2	3.5	
	Amber Ltn-Violet Ltn	2.2	2.2	3.5	
	Violet Ltn-Golden Ltn	2.0	2.0	3.4	
	Golden Ltn-Copper Ltn	2.3	2.3	3.5	
	Copper Ltn-Crystal Ltn	1.4	1.4	2.5	
	Crystal Ltn-Del Obispo	0.0	0.0	1.1	
	E of Del Obispo	0.0	0.0	1.2	
	<b>Del Prado/</b>	Blue Ltn-Ruby Ltn	-7.4	-5.2	-4.1
		Ruby Ltn-Amber Ltn	-4.6	-4.7	-3.5
Amber Ltn-Violet Ltn		-4.4	-4.3	-3.2	
Violet Ltn-Old Golden		-4.5	-4.3	-2.9	
Old Golden-Golden-Ltn		-3.9	-13.8	-12.3	
Golden Ltn-PCH		-4.5	-4.4	-3.2	
Blue Ltn-Ruby Ltn		2.8	2.5	2.9	
<b>Alley/</b>	Ruby Ltn-Amber Ltn	1.6	1.3	2.0	
	Amber Ltn-Violet Ltn	0.3	0.3	0.7	
	Violet Ltn-Old Golden	5.9	5.8	6.1	
	N of PCH	-0.1	-0.1	1.5	
<b>Blue Lantern/</b>	PCH-Alley	0.0	0.0	1.1	
	S of Alley	0.0	0.0	0.5	
	N of PCH	0.1	-0.6	0.5	
<b>Ruby Lantern/</b>	PCH-Del Prado	1.0	0.9	2.9	
	Del Prado-Alley	2.3	2.2	3.8	
	S of Alley	-0.2	-0.2	1.2	
	N of PCH	0.3	0.3	1.1	
<b>Amber Lantern/</b>	PCH-Del Prado	-0.7	-0.6	1.0	
	Del Prado-Alley	0.5	0.5	1.2	
	S of Alley	-0.1	0.9	0.8	
	N of PCH	-0.3	-0.5	0.3	
<b>Violet Lantern/</b>	PCH-Del Prado	-1.6	-2.2	0.8	
	Del Prado-Alley	1.2	1.0	2.6	
	S of Alley	-0.4	-0.4	1.2	
	Del Prado-Alley	2.1	3.7	4.9	
<b>Old Golden Lantern/</b>	S of Alley	1.3	1.2	2.7	
	N of PCH	0.2	0.0	1.0	
	PCH-Del Prado	-1.7	-1.7	-0.6	
<b>Golden Lantern/</b>	S of Del Prado	0.0	0.0	1.1	
	N of PCH	-13.1	-14.0	-12.0	
	S of PCH	0.0	0.0	0.6	
<b>Crystal Lantern/</b>	N of PCH	0.0	0.0	1.1	
<b>Del Obispo/</b>	N of PCH	0.0	0.0	1.5	
<b>Dana Pt Harbor Dr/</b>	N of PCH	0.0	0.0		

\*2035 wProject - Existing

Although there are residential uses along these roadway segments, the total noise exposure, even with the project and cumulative growth in year 2035 is anticipated to be less than even 55 dB CNEL at 50 feet from roadway centerline. This is much less than the 65 dB CNEL residential compatibility threshold. Therefore, project implementation can be judged as offering an overall benefit to area noise sensitive uses since many will be exposed to a lower traffic noise level than they might otherwise experience and those experiencing a potentially significant (> +3 dB CNEL) increase will not exceed recommended noise compatibility thresholds as a result of the project.

Cumulative impacts are defined as the difference between existing noise levels and future (2035) with project noise. Of the 44 segments analyzed, 9 are anticipated to experience a potentially significant cumulative traffic noise increase and 6 are expected to experience a significant traffic noise decrease. The following summarizes the segments anticipated to experience a potentially significant increase:

**Cumulatively Significant Roadway Segments  
(dB CNEL at 50 feet from centerline)**

<i>Segment</i>	<i>Max. Project Only Impact</i>	<i>Cumulative Impact With Project<sup>1</sup></i>	<i>Total Noise Level in 2035 No Project</i>	<i>Total Noise Level in 2035 With Project</i>
<b>PCH/</b>				
Blue Ltn-Del Prado	2.9	4.3	67.2	70.1
Del Prado-Ruby Ltn	2.2	3.4	67.2	69.4
Ruby Ltn-Amber Ltn	2.2	3.5	67.2	69.5
Amber Ltn-Violet Ltn	2.2	3.5	67.5	69.7
Violet Ltn-Golden Ltn	2.0	3.4	68.1	70.1
Golden Ltn-Copper Ltn	2.3	3.5	68.0	70.3
<b>Alley/</b>				
Violet Ltn-Old Golden	5.9	6.1	46.6*	52.4*
<b>Old Golden Lantern/</b>				
Del Prado to Alley	3.7	4.9	50.9*	54.6*

\*less than the 65 dB CNEL residential noise compatibility threshold

<sup>1</sup> 2035 w/project – existing

Two of the potentially cumulatively significant segments are not expected to experience a traffic noise level in excess of the sensitive use compatibility threshold and are thus not considered to be significant. The remaining segments are all along PCH. Although there are scattered residential uses along PCH, the adjacent uses are primarily business and commercial. All would exceed the 65 dB noise compatibility threshold for sensitive uses even without project implementation, and as measurements confirmed, currently exceed the threshold. Additionally, for the cumulatively significant roadway segments, none exceed the “project only” significant threshold. In each case the cumulative impact is below the 3 dB level of perceptibility, one of the two elements of the threshold of significance. Therefore, cumulative impacts are determined to be less-than-significant.

## **Project Project-Interior Noise**

The 65 dB CNEL residential noise/land use compatibility standard applies to usable outdoor space. Existing noise-sensitive land uses along PCH or Del Prado typically do not their outdoor recreational space directly facing these roadways. The primary noise issue for the limited number of residences is that traffic noise does not excessively intrude into habitable indoor space.

Per the City of Dana Point Noise Element and General Plan, the interior residential noise standard is 45 dB CNEL. Structural attenuation with partly open single-paned windows is around -10 dB. With tightly closed single-paned windows, noise is decreased by at least 20 dB between the outside and inside. With tightly closed dual-paned windows, noise attenuation can approach 30 dB. All sensitive uses along PCH can currently achieve 45 dB CNEL interior noise levels with closed single paned windows. Without such window closure, interior noise levels in habitable rooms may already exceed 45 dB CNEL in homes directly adjacent to PCH or Del Prado.

Future build-out traffic noise along the edge of PCH at the closest building facades will be in the high 60 to low 70 dB CNEL range. Use of closed dual-paned windows in living or sleeping areas directly facing PCH is necessary to achieve acceptable interior noise exposure of 45 dB CNEL or less. When window closure is necessary to meet the noise standard, the Building Code requires the provision of supplemental fresh air ventilation. Thus, although the PCH perimeter is considered moderately noisy, construction of any new mixed use development can be designed to meet the City's interior noise standard. Plan approval requires that an acoustical treatment (walls, windows, etc.) is adequate to achieve the interior noise standard. If any possible such future development includes shared walls or floor-ceiling assemblies, the Building Code also requires that such space separation meet minimum noise transmission protection.

Along Del Prado, future build-out traffic noise is forecast to be in the low to mid-60 dB CNEL range. Such an exposure can be reduced to within acceptable interior levels with the relative expedient of being able to close the window facing the traffic. The degree of structural noise protection for any noise-sensitive land uses along Del Prado is measurably less than for similar possible mixed uses along PCH. For any such uses proposed for development where noise levels exceed 60 dB CNEL, the City of Dana Point requires independent verification that the interior standard of 45 dB CNEL will be met.

## **Proposed Alternative Analysis**

The project alternative is similar to the proposed project as it will provide two-way operations along PCH and Del Prado Avenue. However, a small section along Del Prado Avenue immediately east of Street of the Blue Lantern will have one-way operation (i.e. between Street of the Blue Lantern and Del Prado Avenue west). The proposed traffic signal for the intersection at Del Prado and Golden Lantern will be eliminated and the intersection will be controlled by a one-way stop. In addition, northbound movements at this intersection will also be restricted to right-turn movements only at Pacific Coast Highway. The traffic noise levels along the project roadways for this alternative were calculated and are shown in Table 6.

As seen in Table 7, implementation of the project alternative would result in 4 roadway segments exceeding the significance threshold, whereas the project as proposed would exceed the threshold along only 2 roadway segments. As with the project as proposed, many roadways are expected to experience a decrease in traffic noise. Although the exact magnitude of the traffic noise increases and decreases are slightly altered with the project alternative, there is no significant difference from the project as proposed.

**Table 6**  
**Proposed Alternative**  
**Traffic Noise Impact Analysis**  
**(dBA CNEL at 50 feet from centerline)**

East-West Roadways	2015		2015		2035	
	No Project	With Project	No Project	With Project	No Project	With Project
<b>Pacific Coast Hwy/</b>						
W of Blue Ltn	73.5	73.5	73.9	73.9	73.9	73.9
Blue Ltn-Del Prado	66.9	69.5	67.2	67.2	69.8	69.8
Del Prado-Ruby Ltn	66.9	69.2	67.2	67.2	69.5	69.5
Ruby Ltn-Amber Ltn	66.9	69.2	67.2	67.2	69.5	69.5
Amber Ltn-Violet Ltn	67.2	69.4	67.5	67.5	69.7	69.7
Violet Ltn-Golden Ltn	67.8	69.7	68.1	68.1	70.0	70.0
Golden Ltn-Copper Ltn	67.7	69.9	68.0	68.0	70.2	70.2
Copper Ltn-Crystal Ltn	69.5	70.8	69.8	69.8	71.2	71.2
Crystal Ltn-Del Obispo	70.9	70.8	71.2	71.2	71.2	71.2
E of Del Obispo	72.1	NA	72.4	72.4	NA	NA
<b>Del Prado/</b>						
Blue Ltn-Ruby Ltn	66.9	64.9	67.3	67.3	65.2	65.2
Ruby Ltn-Amber Ltn	67.1	62.2	67.4	67.4	62.5	62.5
Amber Ltn-Violet Ltn	67.2	62.9	67.6	67.6	63.3	63.3
Violet Ltn-Old Golden	67.9	63.4	68.1	68.1	63.9	63.9
Old Golden-Golden-Ltn	67.8	63.9	68.1	68.1	64.4	64.4
Golden Ltn-PCH	66.7	62.2	66.9	66.9	62.6	62.6
<b>Alley/</b>						
Blue Ltn-Ruby Ltn	48.0	52.2	48.4	48.4	52.3	52.3
Ruby Ltn-Amber Ltn	49.0	52.8	49.6	49.6	53.1	53.1
Amber Ltn-Violet Ltn	49.6	51.1	50.1	50.1	51.4	51.4
Violet Ltn-Old Golden	46.3	52.2	46.6	46.6	52.4	52.4

**Table 6 (continued)**  
**Proposed Alternative**  
**(dBA CNEL at 50 feet from centerline)**

North-South Roadways	2015		2015		2035	
	No Project	With Project	No Project	With Project	No Project	With Project
Blue Lantern/ N of PCH	58.0	57.9	58.3	58.2	58.3	58.2
PCH-Alley	58.9	59.1	59.3	59.4	59.3	59.4
S of Alley	57.3	57.4	57.7	57.8	57.7	57.8
Ruby Lantern/ N of PCH	53.6	53.7	54.6	54.0	54.6	54.0
PCH-Del Prado	54.0	57.3	54.3	57.6	54.3	57.6
Del Prado-Alley	52.2	54.9	52.6	55.2	52.6	55.2
S of Alley	52.9	52.9	53.2	53.2	53.2	53.2
Amber Lantern/ N of PCH	57.7	58.0	58.1	58.4	58.1	58.4
PCH-Del Prado	60.0	59.7	60.3	60.2	60.3	60.2
Del Prado-Alley	55.3	56.5	55.8	56.8	55.8	56.8
S of Alley	51.6	52.4	51.0	52.7	51.0	52.7
Violet Lantern/ N of PCH	59.5	59.2	59.9	59.7	59.9	59.7
PCH-Del Prado	60.9	59.3	61.2	59.8	61.2	59.8
Del Prado-Alley	55.3	56.5	55.6	56.8	55.6	56.8
S of Alley	54.6	54.3	54.9	54.6	54.9	54.6
Old Golden Lantern/ Del Prado-Alley	50.4	54.4	50.9	54.6	50.9	54.6
S of Alley	49.1	50.5	49.6	50.9	49.6	50.9
Golden Lantern/ N of PCH	66.7	66.6	67.2	66.9	67.2	66.9
PCH-Del Prado	67.1	65.2	67.4	65.5	67.4	65.5
S of Del Prado	65.2	65.2	65.5	65.5	65.5	65.5
Copper Lantern/ N of PCH	68.3	55.2	69.5	55.5	69.5	55.5
Crystal Lantern/ N of PCH	59.4	59.4	59.7	59.7	59.7	59.7
Del Obispo/ N of PCH	65.6	NA	65.9	NA	65.9	NA
Dana Pt Harbor Dr/ N of PCH	67.6	NA	67.9	NA	67.9	NA

**Table 7  
Proposed Alternative Impacts  
(dBA CNEL at 50 feet from centerline)**

		<b>Project Only 2015</b>	<b>Project Only 2035</b>	<b>Cumulative Impact*</b>
<b>Pacific Coast Hwy/</b>	W of Blue Ltn	0.0	0.0	1.2
	Blue Ltn-Del Prado	2.6	2.6	3.9
	Del Prado-Ruby Ltn	2.3	2.3	3.6
	Ruby Ltn-Amber Ltn	2.3	2.3	3.6
	Amber Ltn-Violet Ltn	2.2	2.2	3.5
	Violet Ltn-Golden Ltn	1.9	1.9	3.3
	Golden Ltn-Copper Ltn	2.2	2.2	3.4
	Copper Ltn-Crystal Ltn	1.4	1.4	2.5
	Crystal Ltn-Del Obispo	0.0	0.0	1.1
	E of Del Obispo	NA	NA	NA
	<b>Del Prado/</b>	Blue Ltn-Ruby Ltn	-2.0	-2.1
Ruby Ltn-Amber Ltn		-4.9	-4.9	-3.8
Amber Ltn-Violet Ltn		-4.4	-4.3	-3.2
Violet Ltn-Old Golden		-4.5	-4.3	-2.9
Old Golden-Golden-Ltn		-3.9	-3.8	-2.3
Golden Ltn-PCH		-4.5	-4.2	-3.2
<b>Alley/</b>	Blue Ltn-Ruby Ltn	4.2	3.9	4.4
	Ruby Ltn-Amber Ltn	3.8	3.5	4.1
	Amber Ltn-Violet Ltn	1.4	1.3	1.8
	Violet Ltn-Old Golden	5.9	5.8	6.1
<b>Blue Lantern/</b>	N of PCH	-0.1	-0.1	1.5
	PCH-Alley	0.2	0.2	1.2
	S of Alley	0.1	0.1	0.6
<b>Ruby Lantern/</b>	N of PCH	0.1	-0.6	0.5
	PCH-Del Prado	3.3	3.3	5.3
	Del Prado-Alley	2.7	2.6	4.2
	S of Alley	0.0	0.0	1.4
<b>Amber Lantern/</b>	N of PCH	0.3	0.3	1.1
	PCH-Del Prado	-0.3	-0.1	1.5
	Del Prado-Alley	1.1	1.0	1.7
	S of Alley	0.8	1.8	1.6
<b>Violet Lantern/</b>	N of PCH	-0.3	-0.2	0.7
	PCH-Del Prado	-1.6	-1.4	1.6
	Del Prado-Alley	1.2	1.1	2.7
	S of Alley	-0.3	-0.3	1.3
<b>Old Golden Lantern/</b>	Del Prado-Alley	4.0	3.7	4.9
	S of Alley	1.3	1.2	2.7
<b>Golden Lantern/</b>	N of PCH	-0.1	-0.3	0.7
	PCH-Del Prado	-1.9	-1.9	-0.8
	S of Del Prado	0.0	0.0	1.1
<b>Copper Lantern/</b>	N of PCH	-13.1	-14.0	-12.0
<b>Crystal Lantern/</b>	N of PCH	0.0	0.0	0.6
<b>Del Obispo/</b>	N of PCH	NA	NA	NA
<b>Dana Pt Harbor Dr/</b>	N of PCH	NA	NA	NA

\*2035 wProject - Existing



## **CONSTRUCTION EQUIPMENT NOISE LEVELS**

Construction noise generated from the operation of heavy equipment and truck traffic will constitute the primary noise impact from the proposed storm drain improvements. Varying types and sizes of construction equipment will be utilized during construction of the proposed improvements, but similarities in the dominant noise sources and in patterns of operations allow the assignment of all equipment to a limited number of categories. These categories are described below, together with corresponding noise level data.

The most prevalent noise source in construction equipment is the prime mover, i.e., the internal combustion engine (usually diesel powered) used to provide motive and/or operating power. Engine-powered equipment may be categorized according to its mobility and operating characteristics, i.e., as (1) earth-moving equipment (highly mobile), (2) handling equipment (partly mobile), and (3) stationary equipment. The relative types of impacts from the three generic classes of equipment noise are discussed below. Impulsive noises such as jackhammers are the noisiest sources and have the potential for greatest impact. However, the need for impulsive sources for the proposed project is very limited except where concrete/asphalt or other hard-scape must be demolished for roadway or landscaping improvements.

### **HIGHLY MOBILE EQUIPMENT**

Earth-moving equipment could include backhoes, tractors, dump trucks, and front loaders. The proposed improvements will require very little major earthworks using large and noisy equipment. Noise levels at 50 feet from highly mobile equipment range from about 73 to 96 dB. This alternating cycle of full power/low power produces a theoretical hourly average of around 80 dB at 50 feet from a single piece of very large equipment. In practice, the observed noise level is typically lower. Monitored construction noise near similar projects has generally produced hourly average noise levels in the mid 70 dB Leq range at a 50-foot reference distance. The onset of speech interference occurs when noise levels reach 70 dB. Excavation and dirt loading activities within 100 feet of an occupied home may interfere with normal enjoyment of the outdoor area of the home. Per the Dana Point Municipal Code, excavation activities should be terminated by 5 p.m. and prohibited on Saturdays to allow for comfortable use of the homes along the improvement alignment.

### **PARTLY MOBILE EQUIPMENT**

Engine-powered materials-handling equipment expected to be used includes small cranes for installing drainage pipe into the trenches, and paving equipment used to repair the roadway. Mobility of this equipment over the ground is not part of its major work cycle. Theoretical noise levels at 50 feet range from about 76 to 88 dB. As with the highly mobile equipment, variation in duty cycles and change in source-receptor orientation produces observed hourly noise levels that are well below their short-term peaks.

Although the equipment is less noisy than the more mobile sources, it has a tendency to be parked in one location for a greater part of the workday. The noise impact zone is, therefore, about the same as the highly mobile sources in that the reduced mobility compensates for the lower noise generation rate. Residential uses within 100 feet of construction activity may experience possible daytime outdoor noise intrusion.

Construction activity will primarily be limited to daytime hours of lesser noise sensitivity. Noise standards do not apply as long construction takes place within the allowable hours. However, limited construction work will be conducted at night to limit traffic congestion impacts during the day. This work will primarily be limited to quieter activities, such as roadway restriping. Construction work occurring during evening and nighttime hours could exceed the numerical noise standards provided in the Dana Point Municipal Code. During the hours of 10 p.m. to 7 a.m., the  $L_{50}$  noise standard is 50 dB. Assuming an 80 dB Leq piece of construction equipment was operating, it would require 1,585 feet of distance separation to reduce the noise from that equipment to allowable levels. Sensitive uses within the 1,585 foot envelope could be temporarily exposed to noise levels in exceedance of the nighttime noise standard during nighttime construction.

## **STATIONARY EQUIPMENT**

Stationary equipment which could be used during construction activities may include generators, pumps, and air compressors. Typical noise levels at 50 feet range from 69 to 86 dB. Such equipment is generally the smallest and least noisy. It also lends itself well to placement behind temporary berms or shields for noise protection relative to a nearby noise-sensitive use. However, engines continuously running at night are a potential sleep-disturbing nuisance. Dewatering pumps could be needed for a 24-hour operation. The estimated noise level at 50 feet from the pump is 60 dB. At the nearest homes, this level is reduced by distance spreading. A desirable bedroom interior noise level is 35 dB. Attenuation by closed bedroom windows in modern homes is 20-25 dB. Window closure may thus be required for a few days in order to achieve an acceptable interior noise level if trench dewatering were to occur in close proximity to occupied homes. As with the scenario above, if nighttime construction were to occur within 1,585 feet of a sensitive receptor, the noise standard could be temporarily exceeded.

## CONSTRUCTION ACTIVITY VIBRATION

Construction activities generate ground-borne vibration when heavy equipment travels over unpaved surfaces or when it is engaged in soil movement. The effects of ground-borne vibration can include discernable movement of building floors, rattling of windows, or shaking of items on shelves or hanging on walls. Within the “soft” sedimentary surfaces of much of Southern California, ground vibration is quickly damped out. Because vibration is typically not an issue, very few jurisdictions have adopted vibration significance thresholds. Vibration thresholds have been adopted for major public works construction projects, but these relate mostly to structural protection (cracking foundations or stucco) rather than to human annoyance.

Vibration is most commonly expressed in terms of the root mean square (RMS) velocity of a vibrating object. RMS velocities are expressed in units of vibration decibels. The range of vibration decibels (VdB) is as follows:

65 VdB	-	threshold of human perception
72 VdB	-	annoyance due to frequent events
80 VdB	-	annoyance due to infrequent events
100 VdB	-	minor cosmetic damage

To determine potential impacts of the project’s construction activities, estimates of vibration levels induced by the construction equipment at various distances are presented below:

Equipment	Approximate Vibration Levels (VdB)*			
	25 feet	50 feet	100 feet	200 feet
Large Bulldozer	87	81	75	69
Loaded Truck	86	80	74	68
Jackhammer	79	73	67	61
Small Bulldozer	58	52	46	40

\* (FTA Transit Noise & Vibration Assessment, Chapter 12, Construction, May 2006)

Jackhammers are the likeliest source of vibration from project construction activities. The closest distance between pavement breaking and the nearest occupied residences is typically well in excess of 25 feet. At 25 feet from the source, the vibration level of 79 VdB is less than the annoyance threshold of 80 Vdb for infrequent events. It is much below the 100 VdB threshold for minor cosmetic structural damage. At 125 feet from the pavement breaking activity, the vibration level will drop to 65 VdB, the lowest perceptible level for average humans. Vibration levels will therefore not exceed either the potential nuisance threshold or the building damage threshold at the closest homes. Construction activity vibration impacts are judged as less-than-significant.

## CONCLUSION

Construction is exempt from noise standards as long as it is restricted to the hours of 7 a.m. and 5 p.m., Monday through Friday. The Director of Public Works has the authority to allow construction on Saturdays.

The following construction practices are recommended as standard measures:

1. All powered equipment operating within 1,000 feet of a dwelling must have a properly operating and maintained muffler.
2. Stockpiling and staging activities must be located as far as practicable from dwellings

Although the City will do the majority of construction work during daytime hours, a portion of the work will be done during nighttime hours. To mitigate the potential noise that will be generated during nighttime hours, City staff will work with the City's construction contractor to limit significant noise generating work, like demolition and jack hammering, to daytime hours.

If construction activities were to occur outside the 7 a.m. to 5 p.m. time envelope, during nighttime hours, noise standards could be temporarily exceeded for any sensitive receptor within almost 1,600 feet of the construction activity source.

Project implementation can be judged as offering an overall benefit to area sensitive uses since more roadway segments will be experience a lower traffic noise level than they might otherwise and, those experiencing a potentially significant ( $> +3$  dB CNEL) will not will exceed recommended noise compatibility thresholds as a result of the project.

As with the proposed project, implementation of the project alternative would result in many roadways experiencing a decrease in traffic noise and some experiencing an increase. Although the exact magnitude of the traffic increases and decreases is slightly altered with the project alternative, there is no significant difference from the project as proposed.

Construction activity noise and vibration impacts are judged as less-than-significant.

## **Appendix**

### **Traffic Noise Tables 4-7**

#### **Utilizing a 30 mph Travel Speed for the Del Prado “With Project” Scenario**



**Table 4**  
**Proposed Project Using a With Project 30 mph Travel Speed for Del Prado**  
**Traffic Noise Impact Analysis**  
**(dBA CNEL at 50 feet from centerline)**

East-West Roadways	Existing	2015		2015		2035	
		No Project	With Project	No Project	With Project	No Project	With Project
<b>Pacific Coast Hwy/</b>							
W of Blue Ltn	72.7	73.5	73.5	73.9	73.9	73.9	73.9
Blue Ltn-Del Prado	66.0	66.9	69.7	67.2	67.2	70.1	70.1
Del Prado-Ruby Ltn	66.0	66.9	69.0	67.2	67.2	69.4	69.4
Ruby Ltn-Amber Ltn	65.9	66.9	69.1	67.2	67.2	69.5	69.5
Amber Ltn-Violet Ltn	66.3	67.2	69.4	67.5	67.5	69.7	69.7
Violet Ltn-Golden Ltn	66.7	67.8	69.8	68.1	68.1	70.1	70.1
Golden Ltn-Copper Ltn	66.9	67.7	70.0	68.0	68.0	70.3	70.3
Copper Ltn-Crystal Ltn	68.7	69.5	70.8	69.8	69.8	71.2	71.2
Crystal Ltn-Del Obispo	70.1	70.9	70.9	71.2	71.2	71.2	71.2
E of Del Obispo	71.2	72.1	72.1	72.4	72.4	72.4	72.4
<b>Del Prado/</b>							
Blue Ltn-Ruby Ltn	66.2	66.9	58.1	67.3	67.3	60.6	60.6
Ruby Ltn-Amber Ltn	66.3	67.1	61.0	67.4	67.4	61.3	61.3
Amber Ltn-Violet Ltn	66.4	67.2	61.4	67.6	67.6	61.8	61.8
Violet Ltn-Old Golden	66.8	67.9	62.0	68.1	68.1	62.4	62.4
Old Golden-Golden-Ltn	66.7	67.8	62.5	68.1	68.1	52.9	52.9
Golden Ltn-PCH	65.8	66.7	62.2	66.9	66.9	62.6	62.6
<b>Alley/</b>							
Blue Ltn-Ruby Ltn	48.0	48.0	50.7	48.4	48.4	50.9	50.9
Ruby Ltn-Amber Ltn	49.0	49.0	50.6	49.6	49.6	51.0	51.0
Amber Ltn-Violet Ltn	49.6	49.6	49.9	50.1	50.1	50.4	50.4
Violet Ltn-Old Golden	46.3	46.3	52.2	46.6	46.6	52.4	52.4

**Table 4 (continued)  
Proposed Project Noise Impact  
(dBA CNEL at 50 feet from centerline)**

North-South Roadways	Existing	2015		2015		2035	
		No Project	With Project	No Project	With Project	No Project	With Project
Blue Lantern/ N of PCH	56.7	58.0	57.9	58.3	58.2		
PCH-Alley	58.2	58.9	58.9	59.3	59.3		
S of Alley	57.2	57.3	57.3	57.7	57.7		
Ruby Lantern/ N of PCH	53.5	53.6	53.7	54.6	54.0		
PCH-Del Prado	52.2	54.0	54.9	54.3	55.2		
Del Prado-Alley	51.0	52.2	54.5	52.6	54.8		
S of Alley	51.8	52.9	52.7	53.2	53.0		
N of PCH	57.2	57.7	58.0	58.1	58.4		
PCH-Del Prado	58.7	60.0	59.3	60.3	59.7		
Del Prado-Alley	55.1	55.3	55.9	55.8	56.3		
S of Alley	51.1	51.6	51.5	51.0	51.9		
N of PCH	59.0	59.5	59.2	59.9	59.3		
PCH-Del Prado	58.2	60.9	59.4	61.2	59.0		
Del Prado-Alley	54.1	55.3	56.4	55.6	56.7		
S of Alley	53.2	54.6	54.1	54.9	54.5		
Old Golden Lantern/ Del Prado-Alley	49.6	50.4	52.5	50.9	54.6		
S of Alley	48.2	49.1	50.5	49.6	50.9		
N of PCH	66.2	66.7	66.9	67.2	67.2		
PCH-Del Prado	66.3	67.1	65.3	67.4	65.7		
S of Del Prado	64.5	65.2	65.2	65.5	65.5		
Copper Lantern/ N of PCH	67.5	68.3	55.2	69.5	55.5		
Crystal Lantern/ N of PCH	59.1	59.4	59.4	59.7	59.7		
Del Obispo/ N of PCH	64.8	65.6	65.6	65.9	65.9		
Dana Pt Harbor Dr/ N of PCH	66.3	67.6	67.6	67.9	67.9		



**Table 5**  
**“Proposed Project Only” and “Cumulative” Impacts Using a With Project 30 mph Travel Speed for Del Prado**  
**(dBA CNEL at 50 feet from centerline)**

	Project Only 2015	Project Only 2035	Cumulative Impact*
<b>Pacific Coast Hwy/</b>			
W of Blue Ltn	0.0	0.0	1.2
Blue Ltn-Del Prado	2.9	2.9	4.2
Del Prado-Ruby Ltn	2.1	2.2	3.4
Ruby Ltn-Amber Ltn	2.2	2.2	3.5
Amber Ltn-Violet Ltn	2.2	2.2	3.5
Violet Ltn-Golden Ltn	2.0	2.0	3.4
Golden Ltn-Copper Ltn	2.3	2.3	3.5
Copper Ltn-Crystal Ltn	1.4	1.4	2.5
Crystal Ltn-Del Obispo	0.0	0.0	1.1
E of Del Obispo	0.0	0.0	1.2
<b>Del Prado/</b>			
Blue Ltn-Ruby Ltn	-8.8	-6.7	-5.6
Ruby Ltn-Amber Ltn	-6.1	-6.1	-5.0
Amber Ltn-Violet Ltn	-5.8	-5.8	-4.6
Violet Ltn-Old Golden	-5.9	-5.7	-4.4
Old Golden-Golden-Ltn	-5.3	-15.2	-13.8
Golden Ltn-PCH	-4.5	-4.2	-3.2
<b>Alley/</b>			
Blue Ltn-Ruby Ltn	2.8	2.5	2.9
Ruby Ltn-Amber Ltn	1.6	1.3	2.0
Amber Ltn-Violet Ltn	0.3	0.3	0.7
Violet Ltn-Old Golden	5.9	5.8	6.1
<b>Blue Lantern/</b>			
N of PCH	-0.1	-0.1	1.5
PCH-Alley	0.0	0.0	1.1
S of Alley	0.0	0.0	0.5
<b>Ruby Lantern/</b>			
N of PCH	0.1	-0.6	0.5
PCH-Del Prado	1.0	0.9	2.9
Del Prado-Alley	2.3	2.2	3.8
S of Alley	-0.2	-0.2	1.2
<b>Amber Lantern/</b>			
N of PCH	0.3	0.3	1.1
PCH-Del Prado	-0.7	-0.6	1.0
Del Prado-Alley	0.5	0.5	1.2
S of Alley	-0.1	0.9	0.8
<b>Violet Lantern/</b>			
N of PCH	-0.3	-0.5	0.3

	PCH-Del Prado	-1.6	-2.2	0.8
	Del Prado-Alley	1.2	1.0	2.6
	S of Alley	-0.4	-0.4	1.2
<b>Old Golden Lantern/</b>	Del Prado-Alley	2.1	3.7	4.9
	S of Alley	1.3	1.2	2.7
<b>Golden Lantern/</b>	N of PCH	0.2	0.0	1.0
	PCH-Del Prado	-1.7	-1.7	-0.6
	S of Del Prado	0.0	0.0	1.1
<b>Copper Lantern/</b>	N of PCH	-13.1	-14.0	-12.0
<b>Crystal Lantern/</b>	N of PCH	0.0	0.0	0.6
<b>Del Obispo/</b>	N of PCH	0.0	0.0	1.1
<b>Dana Pt Harbor Dr/</b>	N of PCH	0.0	0.0	1.5

\*2035 wProject – Existing

**Table 6**  
**Proposed Alternative Using a With Project 30 mph Travel Speed for Del Prado**  
**Traffic Noise Impact Analysis**  
**(dBA CNEL at 50 feet from centerline)**

East-West Roadways	2015		2015		2035	
	No Project	With Project	No Project	With Project	No Project	With Project
<b>Pacific Coast Hwy/</b>						
W of Blue Ltn	73.5	73.5	73.9	73.9	73.9	73.9
Blue Ltn-Del Prado	66.9	69.5	67.2	67.2	69.8	69.8
Del Prado-Ruby Ltn	66.9	69.2	67.2	67.2	69.5	69.5
Ruby Ltn-Amber Ltn	66.9	69.2	67.2	67.2	69.5	69.5
Amber Ltn-Violet Ltn	67.2	69.4	67.5	67.5	69.7	69.7
Violet Ltn-Golden Ltn	67.8	69.7	68.1	68.1	70.0	70.0
Golden Ltn-Copper Ltn	67.7	69.9	68.0	68.0	70.2	70.2
Copper Ltn-Crystal Ltn	69.5	70.8	69.8	69.8	71.2	71.2
Crystal Ltn-Del Obispo	70.9	70.8	71.2	71.2	71.2	71.2
E of Del Obispo	72.1	NA	72.4	NA	NA	NA
<b>Del Prado/</b>						
Blue Ltn-Ruby Ltn	66.9	63.4	67.3	63.8	63.8	63.8
Ruby Ltn-Amber Ltn	67.1	60.7	67.4	61.1	61.1	61.1
Amber Ltn-Violet Ltn	67.2	61.4	67.6	61.8	61.8	61.8
Violet Ltn-Old Golden	67.9	62.0	68.1	62.4	62.4	62.4
Old Golden-Golden-Ltn	67.8	62.5	68.1	62.9	62.9	62.9
Golden Ltn-PCH	66.7	62.2	66.9	62.6	62.6	62.6
<b>Alley/</b>						
Blue Ltn-Ruby Ltn	48.0	52.2	48.4	52.3	52.3	52.3
Ruby Ltn-Amber Ltn	49.0	52.8	49.6	53.1	53.1	53.1
Amber Ltn-Violet Ltn	49.6	51.1	50.1	51.4	51.4	51.4
Violet Ltn-Old Golden	46.3	52.2	46.6	52.4	52.4	52.4

**Table 6 (continued)**  
**Proposed Alternative**  
**(dBA CNEL at 50 feet from centerline)**

North-South Roadways	2015		2015		2035	
	No Project	With Project	No Project	With Project	No Project	With Project
Blue Lantern/ N of PCH	58.0	57.9	58.3	58.2	58.3	58.2
PCH-Alley	58.9	59.1	59.3	59.4	59.3	59.4
S of Alley	57.3	57.4	57.7	57.8	57.7	57.8
Ruby Lantern/ N of PCH	53.6	53.7	54.6	54.0	54.6	54.0
PCH-Del Prado	54.0	57.3	54.3	57.6	54.3	57.6
Del Prado-Alley	52.2	54.9	52.6	55.2	52.6	55.2
S of Alley	52.9	52.9	53.2	53.2	53.2	53.2
Amber Lantern/ N of PCH	57.7	58.0	58.1	58.4	58.1	58.4
PCH-Del Prado	60.0	59.7	60.3	60.2	60.3	60.2
Del Prado-Alley	55.3	56.5	55.8	56.8	55.8	56.8
S of Alley	51.6	52.4	51.0	52.7	51.0	52.7
Violet Lantern/ N of PCH	59.5	59.2	59.9	59.7	59.9	59.7
PCH-Del Prado	60.9	59.3	61.2	59.8	61.2	59.8
Del Prado-Alley	55.3	56.5	55.6	56.8	55.6	56.8
S of Alley	54.6	54.3	54.9	54.6	54.9	54.6
Old Golden Lantern/ Del Prado-Alley	50.4	54.4	50.9	54.6	50.9	54.6
S of Alley	49.1	50.5	49.6	50.9	49.6	50.9
Golden Lantern/ N of PCH	66.7	66.6	67.2	66.9	67.2	66.9
PCH-Del Prado	67.1	65.2	67.4	65.5	67.4	65.5
S of Del Prado	65.2	65.2	65.5	65.5	65.5	65.5
Copper Lantern/ N of PCH	68.3	55.2	69.5	55.5	69.5	55.5
Crystal Lantern/ N of PCH	59.4	59.4	59.7	59.7	59.7	59.7
Del Obispo/ N of PCH	65.6	NA	65.9	NA	65.9	NA
Dana Pt Harbor Dr/ N of PCH	67.6	NA	67.9	NA	67.9	NA



**Table 7**  
**Proposed Alternative Impacts Using a With Project 30 mph Travel Speed for Del Prado**  
**(dBA CNEL at 50 feet from centerline)**

		<b>Project Only 2015</b>	<b>Project Only 2035</b>	<b>Cumulative Impact*</b>
<b>Pacific Coast Hwy/</b>	W of Blue Ltn	0.0	0.0	1.2
	Blue Ltn-Del Prado	2.6	2.6	3.9
	Del Prado-Ruby Ltn	2.3	2.3	3.6
	Ruby Ltn-Amber Ltn	2.3	2.3	3.6
	Amber Ltn-Violet Ltn	2.2	2.2	3.5
	Violet Ltn-Golden Ltn	1.9	1.9	3.3
	Golden Ltn-Copper Ltn	2.2	2.2	3.4
	Copper Ltn-Crystal Ltn	1.4	1.4	2.5
	Crystal Ltn-Del Obispo	0.0	0.0	1.1
	E of Del Obispo	NA	NA	NA
	<b>Del Prado/</b>	Blue Ltn-Ruby Ltn	-3.5	-3.5
Ruby Ltn-Amber Ltn		-6.3	-6.3	-5.2
Amber Ltn-Violet Ltn		-5.8	-5.8	-4.6
Violet Ltn-Old Golden		-5.9	-5.7	-4.4
Old Golden-Golden-Ltn		-5.3	-5.2	-3.8
Golden Ltn-PCH		-4.5	-4.2	-3.2
<b>Alley/</b>	Blue Ltn-Ruby Ltn	4.2	3.9	4.4
	Ruby Ltn-Amber Ltn	3.8	3.5	4.1
	Amber Ltn-Violet Ltn	1.4	1.3	1.8
	Violet Ltn-Old Golden	5.9	5.8	6.1
<b>Blue Lantern/</b>	N of PCH	-0.1	-0.1	1.5
	PCH-Alley	0.2	0.2	1.2
	S of Alley	0.1	0.1	0.6
<b>Ruby Lantern/</b>	N of PCH	0.1	-0.6	0.5
	PCH-Del Prado	3.3	3.3	5.3
	Del Prado-Alley	2.7	2.6	4.2
	S of Alley	0.0	0.0	1.4
<b>Amber Lantern/</b>	N of PCH	0.3	0.3	1.1
	PCH-Del Prado	-0.3	-0.1	1.5
	Del Prado-Alley	1.1	1.0	1.7
	S of Alley	0.8	1.8	1.6
<b>Violet Lantern/</b>	N of PCH	-0.3	-0.2	0.7
	PCH-Del Prado	-1.6	-1.4	1.6
	Del Prado-Alley	1.2	1.1	2.7
	S of Alley	-0.3	-0.3	1.3
<b>Old Golden Lantern/</b>	Del Prado-Alley	4.0	3.7	4.9
	S of Alley	1.3	1.2	2.7
<b>Golden Lantern/</b>	N of PCH	-0.1	-0.3	0.7
	PCH-Del Prado	-1.9	-1.9	-0.8
	S of Del Prado	0.0	0.0	1.1
<b>Copper Lantern/</b>	N of PCH	-13.1	-14.0	-12.0
<b>Crystal Lantern/</b>	N of PCH	0.0	0.0	0.6
<b>Del Obispo/</b>	N of PCH	NA	NA	NA
<b>Dana Pt Harbor Dr/</b>	N of PCH	NA	NA	NA

**Conclusion:**

The predicted calculated benefit of reduced travel speeds for “the with project” scenario on Del Prado from 35 mph to 30 mph will afford an additional -1.4 dB CNEL in noise reduction levels at 50 feet from roadway centerline.

Either scenario predicts that “with project” traffic noise levels will be less than 65 dB CNEL at 50 feet from the centerline in both the 2015 or 2035 timeframe.