

## Appendix G

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### Noise Analysis Technical Report

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**Noise Analysis Technical Report  
for the Marisol Specific Plan Project  
City of Del Mar, California**

*Prepared for:*

**City of Del Mar**  
1050 Camino Del Mar  
Del Mar, California 92014

*Prepared by:*

**DUDEK**  
605 Third Street  
Encinitas, California 92024

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## ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
APN	Assessor's Parcel Number
CEQA	California Environmental Quality Act
CNEL	community noise equivalent level
dB	decibel
dBA	A-weighted decibel
FTA	Federal Transit Administration
HVAC	Heating, Ventilation and Air Conditioning
IPS	inches per second
L <sub>dn</sub>	day-night average sound level
L <sub>eq</sub>	equivalent sound level
MM	Mitigation Measure
PPV	peak particle velocity
TNM	Traffic Noise Model
VdB	Vibration decibel

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## EXECUTIVE SUMMARY

The purpose of this technical report is to assess the potential noise and vibration impacts associated with implementation of the proposed Marisol Resort Project (Project). This assessment utilizes the significance thresholds in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.).

The Plan Area includes approximately 17.45 acres of land, located at Border Avenue and west of Camino Del Mar, as well as a portion east of Camino Del Mar, in the northwestern corner of the City of Del Mar. The Plan Area is comprised of 16.55 acres of privately owned land, 0.78-acre of public right-of-way along Camino Del Mar, and a 0.12-acre City coastal viewing access parcel located at the northern extent of the Plan Area. The Specific Plan Area would be accessible from the intersection of South Sierra Avenue and Border Avenue on the northern side of the Plan Area.

The project consists of a Specific Plan including five land use sub-designations: Visitor Serving Accommodations (VSA), Parkland/Passive Open Space (PPOS), Coastal Bluff Protection Area (CBPA) and Steep Slope Protection Area (SSPA). The VSA land use sub-designation allows for the development of approximately 65 guest rooms, 31 villas (some of which may be used as guest rooms when not in use by owners, subject to provisions in the Specific Plan), 10 lower-cost shared visitor-serving accommodations, 22 affordable housing units, and associated amenities. Amenities include, but are not limited to, restaurants, bar/lounge, special event space, meeting space, swimming pools, a spa and fitness center and retail.

The PPOS land use sub-designation allows for public amenities such as trails, vista points, picnic areas, public access stairway and public restrooms, and passive recreational uses. Passive recreational uses are defined in the Specific plan as low intensity recreational activities that require little or no infrastructure and that are geared toward the viewing and appreciation of scenic and environmentally sensitive areas.

This noise analysis evaluates the potential for significant adverse impacts due to Project construction and operation. Implementation of the Project would result in two primary types of potential noise impacts: short-term (i.e., temporary) noise during construction and long-term noise during operation.

Noise from construction would exceed the 75-decibel construction noise standard established in the City of Del Mar's Noise Control Ordinance at adjacent noise-sensitive receivers; therefore, impacts would be significant. To reduce construction noise impacts, mitigation measure (MM) MM-NOI-1 is required. Implementation of MM-NOI-1 would reduce construction-related noise impacts to a level that is **less than significant**. The Project's traffic-related impacts would not

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result in a noise level increase along adjacent roadways; therefore, traffic noise impacts would be **less than significant** at off-site land uses. On-site mechanical equipment (such as heating, ventilation and air conditioning (HVAC) equipment) has the potential to result in noise levels in excess of City of Del Mar noise standards; implementation of mitigation measure MM-NOI-2 would ensure that noise from mechanical equipment does not exceed applicable noise standards. Mitigation measure MM-NOI-3 would specify limits on hours for pool and other recreational area usage, as well as the use of amplified music, to ensure that noise from hotel guests and activities is less than significant. Vibration levels associated with Project construction would likely be perceptible at nearby residences, but they would be below the Federal Transit Administration (FTA) threshold of potential damage for normal structures (0.20 peak particle velocity in inches per second) and would not be considered excessive. The Project site is not located within the vicinity of an airport or private airstrip and, therefore, would not expose people residing or working in the Project area to excessive noise levels associated with an airport or airstrip. Finally, the noise analysis concludes that the Project would not result in any significant cumulative impacts.

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## **1 INTRODUCTION**

### **1.1 Report Purpose and Scope**

The purpose of this report is to evaluate the potential noise and vibration impacts associated with implementation of the Marisol Resort Project (Project).

### **1.2 Project Location**

The project site is located south of Border Avenue and west of Camino Del Mar, in the northwestern corner of the City of Del Mar (City), within coastal Southern California. The site comprises eight parcels, seven of which are vacant. A one-story 5,800 square foot residence (with accessory garage structure and pool cabana building) is located on the most southern parcel of the project site. See Figure 1, Regional Map, and Figure 2, Vicinity Map.

The Plan Area comprises eight parcels, seven of which are vacant (APNs 298-241-06, 07, 29, -34, -35, and -36, and 299-030-14 and -15) as shown on the aerial photo on the next page. As of 2018, the Plan Area is mostly disturbed, vacant land with a 5,800-square-foot residence remaining on the most southern parcel of the Plan Area with an accessory garage structure and pool cabana building (APN 299-030-1500).

### **1.3 Project Description**

The Plan Area includes approximately 17.45 acres of land, located at Border Avenue and west of Camino Del Mar, as well as a portion east of Camino Del Mar, in the northwestern corner of the City. The Plan Area is comprised of 16.55 acres of privately owned land, 0.78-acre of public right-of-way along Camino Del Mar, and a 0.12-acre City coastal viewing access parcel located at the northern extent of the Plan Area. The Specific Plan Area would be accessible from the intersection of South Sierra Avenue and Border Avenue on the northern side of the Plan Area

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The CBPA and SSPA land use sub-designations serve as protection areas. The only disturbance allowed within the CBPA is the minimal amount necessary to install drainage control measures to protect a coastal bluff area from degradation and/or erosion. Shoreline protection devices are prohibited in this area. The only disturbance allowed within the SSPA is the minimal amount necessary to provide a public access stairway, public restrooms, and related facilities for resort and public visitor services at the toe of slope; to implement drainage control measures to protect the steep slope area from degradation and/or erosion; and to allow interpretive signage and pathway lighting.

Off-site improvements include a new potable water main for the Project to extend into the City in order to find a suitable connection point. The existing water mains servicing the northernmost houses before the entrance to the lagoon are currently served by either an existing 4-inch or 6-inch water main, which would not have sufficient capacity to serve as the connection point for the new water main. Two alternatives for the proposed water main are being analyzed. Both alternatives consist of constructing a new 16-inch diameter pipeline. One alternative is to construct approximately 4,500 linear feet of new 16-inch water main in Via de la Valle from the intersection of Via de la Valle San Dieguito Drive and Jimmy Durante Boulevard to via 28th Street and Camino Del Mar within the City. The second alternative would construct approximately 5,000 linear feet of 16-inch pipe connected to an existing 20-inch City pipeline beginning on the west side of the intersection of Jimmy Durante Boulevard and San Dieguito Drive. This pipeline would extend northwest, following the Public Works Yard paved access road, then go along the dirt access road adjacent to the Public Works Yard up to the proposed crossing of the railroad right-of-way and drainage ditch. The work to cross the railroad right-of-way and drainage ditch would be done using a jack-and-bore construction method to avoid interruption of these resources. Then the pipeline would continue west via 27th or 28th Street to Camino Del Mar, then north to Via De La Valle. This alternative would replace existing pipelines south of Sandy Lane and construct new pipelines north of Sandy Lane to Via de la Valle. All pipeline construction and replacement would occur within paved roads, City and North County Transit District right-of-way, or the Public Works yard.



SOURCE: Esri Basemaps (2017)

**FIGURE 1**  
Regional Map

Del Mar Resort Noise Technical Report

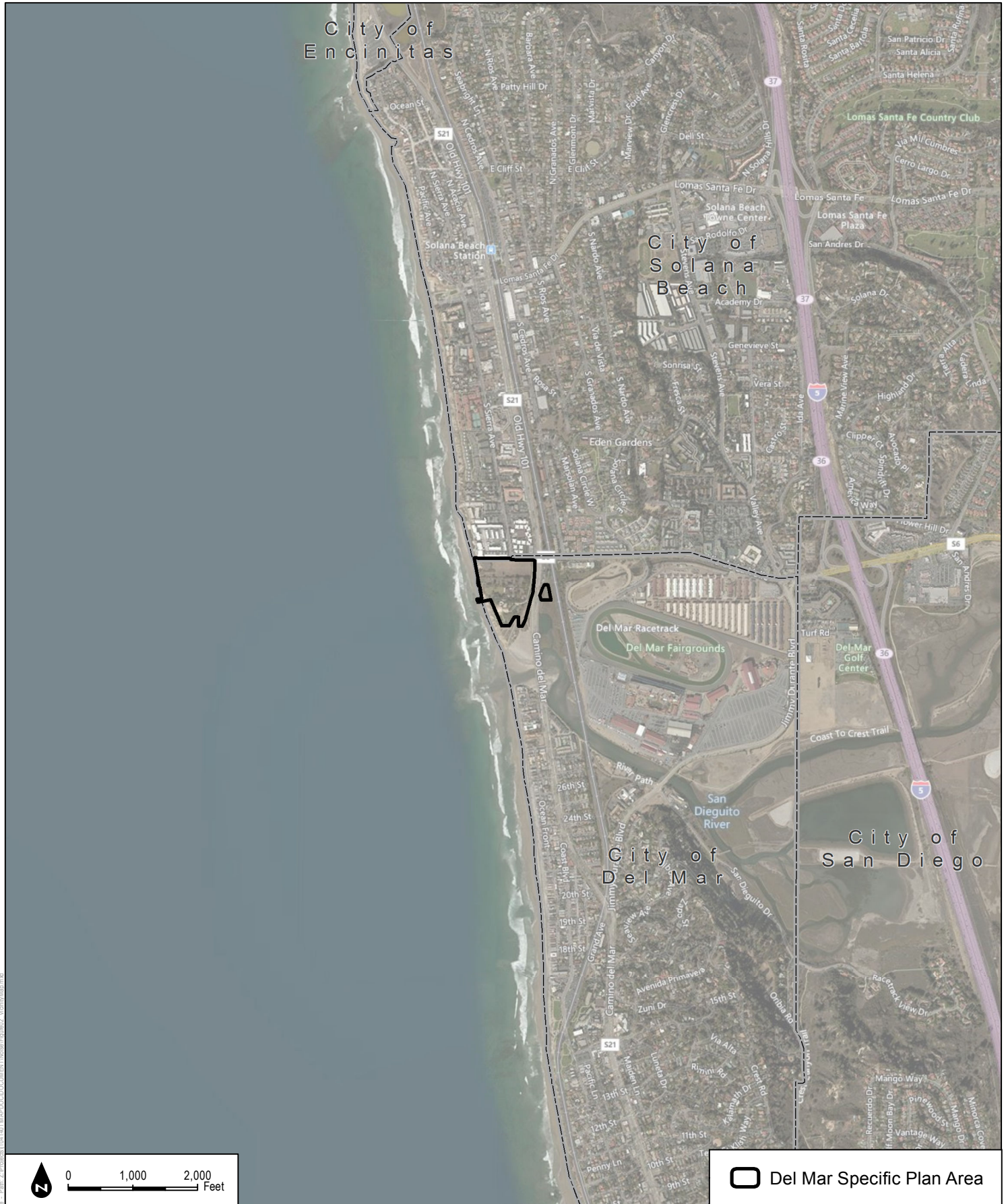
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SOURCE: Bing Maps (Accessed 2017)

**FIGURE 2**  
**Vicinity Map**

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## 2 EXISTING CONDITIONS

### 2.1 Noise and Vibration Concepts

Noise is generally defined as loud, unexpected, or undesired sound typically associated with human activity that interferes with or disrupts normal activities. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm, or when it has adverse effects on health. The definition of noise as unwanted sound implies that it has an adverse effect on people and their environment.

Sound is measured in terms of intensity, which describes the sound's loudness and is measured in decibels (dB), frequency or pitch measured in cycles per second or hertz, and duration of sound. Sound is composed of various frequencies; however, the human ear does not respond to all frequencies, being less sensitive to very low and high frequencies than to medium frequencies that correspond with human speech. Sound-level meters adjust for the weight the human ear gives to certain frequencies, applying a correction to each frequency range to approximate the human ear's sensitivity within each range. This is called "A-weighting" and is commonly used in measurements of community environmental noise. The A-weighted sound level, abbreviated dBA, is determined to be the most appropriate unit of measure for community noise.

The unit of measure for the cumulative effect of community noise is the community noise equivalent level (CNEL), which is the average noise level for a 24-hour period. The CNEL noise metric (similarly to the  $L_{dn}$ , or level day-night noise metric) is often used to describe the relationship of a continuous noise source, such as traffic, to the desirable ambient noise level (normal and existing noise level). The CNEL is adjusted to reflect greater sensitivity to noise during evening and nighttime hours, with a 5-dBA penalty assigned to noise between 7:00 p.m. and 10:00 p.m., and a 10-dBA penalty assigned to noise between 10:00 p.m. and 7:00 a.m. The  $L_{dn}$  noise metric also uses a penalty of 10 dBA for noise occurring between 10:00 p.m. and 7:00 a.m., but no penalty is applied between 7:00 p.m. and 10:00 p.m. The functional difference between the CNEL and  $L_{dn}$  metrics is typically minimal (on the order of 0.2 dB or less), and thus the two are often used interchangeably.

Due to fluctuations in community noise over time, a single measurement called the equivalent sound level ( $L_{eq}$ ) is often used to describe the time-varying character of community noise. The  $L_{eq}$  is the energy-averaged A-weighted sound level during a measured time interval, and it is equal to the level of a continuous, steady sound containing the same total acoustical energy over the averaging time period as the actual time-varying sound.

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To respond to the human ear's sensitivity to sound, the range of audible sounds exists on a logarithmic scale that takes into account the large differences in audible sound intensities. On this scale, for example, a 10-dBA increase is typically perceived as a doubling of sound. A sound level of 0 dB is approximately the threshold of human hearing. Normal speech has a sound level of approximately 60 dB. Sound levels louder than approximately 120 dB begin to be felt inside the human ear as discomfort and eventually as pain at slightly higher levels. The minimum change in the sound level of individual events that an average human ear can detect in the community environment (i.e., outside of a controlled listening room) is approximately 3 dB.

There are three conceptual components to noise: the source, the transmission path, and the receiver. Noise can be reduced by reducing noise at its source; by lengthening or interrupting the transmission path through diversion, absorption, or dissipation; or by protecting the receiver through noise insulation. The most efficient and effective means of abating noise is to reduce noise at its source. Source noise can be controlled through regulation, such as following restrictions outlined in noise ordinances; muffling techniques; or sound proofing. The transmission path can be interrupted through creation of a buffer between the source and the receiver, such as a noise wall, earth embankment, or a building. The receiver can be protected from noise impacts through insulation, building orientation, or shielded areas.

Noise sources can be classified in two forms: point sources, such as individual pieces of stationary or mobile equipment (pumps, heavy construction equipment), and line sources, such as a roadway with a large number of pass-by sources (motor vehicles). Sound generated by a point source typically diminishes (attenuates) at a rate of 6 dBA for each doubling of distance from the source to the receptor. For example, a 60-dBA noise level measured at 50 feet from a point source would be 54 dBA at 100 feet from the source and 48 dBA at 200 feet from the source. Sound generated by a line source typically attenuates at a rate of 3 dBA and 4.5 dBA per doubling of distance from the source to the receptor for hard and soft sites, respectively. Typical sound levels generated by various activities are listed in Table 1.

**Table 1**  
**Typical Sound Levels**

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 110 —	Rock band
Jet fly-over at 1,000 feet		
	— 100 —	
Gas lawnmower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 miles per hour		Food blender at 3 feet

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**Table 1**  
**Typical Sound Levels**

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	— 70 —	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	— 60 —	
		Large business office
Quiet urban daytime	— 50 —	Dishwasher next room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

Source: Caltrans 2009.

Sound levels can also be attenuated by built or natural barriers. Intervening noise barriers, such as a solid wall or berm, typically reduce noise levels by 5 dBA to 10 dBA. Structures can also provide noise reduction by insulating interior spaces from outdoor noise. The exterior-to-interior noise attenuation provided by typical California building structures ranges from 15 dBA to 25 dBA for windows open and closed, respectively. Acoustically designed enclosures and buildings can provide up to approximately 50 dBA of noise reduction, depending on the noise abatement treatments.

Vibration tolerance typically depends on the type of structures that are affected. Structural response to vibration is typically evaluated in terms of peak particle velocity (PPV). PPV is often used since it is related to the stresses that are experienced by the buildings. Various general standards are contained in the International Standards Organization's standards 3945, 4866, and 7626-1. Limits set by these standards indicate a low probability of structural damage occurring to common structures at a PPV of 2 inches per second (IPS). Older (and non-reinforced) masonry structures have a limit of 0.75 IPS to 1.0 IPS (Caltrans 2013). The FTA identifies a vibration damage threshold criterion of 0.20 IPS for non-engineered timber and masonry buildings (i.e., fragile buildings) and 0.12 IPS for buildings extremely susceptible to vibration (i.e., fragile historic buildings) (FTA 2018). The FTA (among other agencies) also expresses vibration levels in terms of dB relative to one microinch per second (abbreviated as VdB). Using this metric, the threshold of perception is approximately 65 VdB. Typical background

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vibration levels are between 50 and 60 VdB, and FTA's threshold for acceptable groundborne vibration for residential uses of 72 VdB (FTA 2018).

### **2.2 Existing Noise Environment**

A sound level survey was conducted on October 30, 2017, to evaluate existing sound levels and assess potential Project noise impacts on the surrounding area. Short-term sound levels were measured at existing noise-sensitive receptors adjacent to the Project area, as shown in Figure 3, Noise Measurement and Off-Site Modeling Locations. Noise measurements were taken northeast of the North Bluff Preserve, located south of the project site (ST1) and adjacent to nearby residences (ST2, ST3, ST4).

Short-term (1 hour or less), attended sound level measurements were taken with a Rion NL-32 Sound Level Meter. This instrument is categorized as Type 1, Precision Grade. The sound measuring instrument used for the survey was set to the "Slow" time response and the dBA scale for all noise measurements. To ensure accuracy, the laboratory calibration of the instrument was field checked before and after each measurement period using an acoustical calibrator. The accuracy of the acoustical calibrator is maintained through a program established through the manufacturer and traceable to the National Institute of Standards and Technology. The sound measurement instrument meets the requirements of American National Standards Institute Standard S 1.4-1983 and International Electrotechnical Commission Publications 804 and 651. In all cases, the microphone height was 5 feet above the ground, and the microphone was equipped with a windscreen.

During the field measurements, physical observations of the predominant noise sources were noted. The primary noise source in the Project area was vehicle traffic on Camino Del Mar, located to the east of the project site. Other secondary noise sounds included ocean wave noise, rustling leaves, birds (from a nearby veterinarian hospital), distant aircraft overflights, and other community noises. An active rail line also exists to the east of the project site (approximately 280 feet at the nearest point), east of Camino Del Mar. The results of the sound level measurements are summarized in Table 2, and measurement data and notes are provided in Appendix A. As shown in Table 2, measured noise levels ranged from 59 dBA  $L_{eq}$  at ST2 to 68 dBA  $L_{eq}$  at ST3 when rounded to whole numbers, as is customary for community noise measurements.

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**Table 2**  
**Short-Term Sound Level Measurement Results**

Site ID	Measurement Location	Measurement Period			Noise Sources	Measurement Results (dBA)					
		Date	Start Time (a.m.)	Duration (minutes)		$L_{eq}$	$L_{max}$	$L_{min}$	$L_{90}$	$L_{50}$	$L_{10}$
ST1	Northeast of North Bluff Preserve. South of Project site.	10-30-17	12:14	15	traffic, birds, distant aircraft, distant gardener/ landscape noise	59.8	69.3	50.3	53.5	58.8	62.7
ST2	2722 Camino Del Mar Del Mar, California 92014	10-30-17	11:49	15	traffic, water hose, power drill, birds, distant aircraft, distant conversation.	58.7	68.9	48.1	50.6	56	62.7
ST3	160 Via de la Valle Solana Beach, California 92075	10-30-17	13:01	15	traffic, birds, distant aircraft, distant conversations/yelling, distant traffic	67.5	75.8	50	55.9	65.6	71.5
ST4	777 Highway 101 Solana Beach, California 92075	10-30-17	12:41	15	traffic, birds, distant aircraft, distant conversations/yelling, distant traffic	66.5	74.8	49.6	57.2	65.4	69.5

**Source:** Appendix A.

**Notes:**  $L_{eq}$  = equivalent continuous sound level (energy-averaged sound level);  $L_{max}$  = maximum sound level during the measurement interval;  $L_{min}$  = minimum sound level during the measurement interval;  $L_{90}$  = sound level exceeded for 90% of the measurement period;  $L_{50}$  = sound level exceeded for 50% of the measurement period;  $L_{10}$  = sound level exceeded for 10% of the measurement period.

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## **3 REGULATORY SETTING**

### **3.1 Federal**

#### **Noise Control Act**

The Noise Control Act of 1972 recognized the role of the federal government in dealing with major commercial noise sources that require uniform treatment. Since Congress has the authority to regulate interstate and foreign commerce, regulation of noise generated by such commerce also falls under congressional authority. The federal government specifically preempts local control of noise from aircraft, railroads, and interstate highways. The U.S. Environmental Protection Agency has identified acceptable noise levels for various land uses to protect the public, with an adequate margin of safety, and to establish noise emissions standards for interstate commerce.

The Department of Housing and Urban Development's standards define day-night average sound levels ( $L_{dn}$ ) at below 65 dBA for outdoors as acceptable for residential areas. Outdoor levels up to 75 dBA  $L_{dn}$  may be made acceptable through the use of insulation in buildings (HUD 2009).

### **3.2 State**

#### **California Code of Regulations, Title 24, Noise Insulation Standards**

The pertinent California noise regulations are contained in the California Code of Regulations. Title 24, Noise Insulation Standards, establishes the acceptable interior environmental noise level for multifamily dwellings at 45 dBA  $L_{dn}$ . This may be extended by local legislative action to include single-family dwellings.

#### **California Code of Regulations, Section 65302(f)**

California Code of Regulations, Section 65302(f), requires local land use planning jurisdictions to prepare a general plan. The noise element is a mandatory component of the general plan. It may include general community noise guidelines developed by the California Department of Health Services and specific planning guidelines for noise/land use compatibility developed by the local jurisdiction. The state guidelines also recommend that the local jurisdiction consider adopting a local noise control ordinance. The California Department of Health Services developed guidelines (OPR 2003) for community noise acceptability for use by local agencies. Selected relevant levels are as follows ( $L_{dn}$  may be considered nearly equal to CNEL):

- CNEL below 60 dBA – normally acceptable for low-density residential use
- CNEL of 55 dBA to 70 dBA – conditionally acceptable for low-density residential use

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- CNEL below 65 dBA – normally acceptable for high-density residential use
- CNEL of 60 dBA to 70 dBA – conditionally acceptable for high-density residential use, transient lodging, churches, and educational and medical facilities
- CNEL below 70 dBA – normally acceptable for playgrounds and neighborhood parks

“Normally acceptable” is defined as satisfactory for the specified land use, assuming that normal conventional construction is used in buildings. “Conditionally acceptable” may require some additional noise attenuation or special study. Under most of these land use categories, overlapping ranges of acceptability and unacceptability are presented, leaving some ambiguity in areas where noise levels fall within the overlapping range.

### **California Occupational Safety and Health Administration Occupational Noise Exposure Regulations**

California additionally regulates noise emissions levels of licensed motor vehicles traveling on public thoroughfares, sets noise emissions limits for certain off-road vehicles and watercraft, and sets required sound levels for light-rail-transit vehicle warning signals.

The extensive state regulations pertaining to worker noise exposure are, for the most part, applicable only to the construction phase of any project,<sup>1</sup> or workers in a central plant and/or a maintenance facility or involved in the use of landscape maintenance equipment or heavy machinery.

### **3.3 Local**

The Project is within the City; therefore, the City’s noise standards are used for this analysis, and the relevant City noise regulations as they pertain to this project are summarized below. The City of Solana Beach is located immediately to the north. Thus, noise regulations for the City of Solana Beach are summarized below for informational purposes.

#### **City of Del Mar**

##### ***City of Del Mar Community Plan***

The City goals for transportation noise sources are published in the Community Plan Transportation Element, Noise Section (March 1976, revised 2002). This section of the Community Plan identifies 65 dBA CNEL as the maximum noise level compatible with residential

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<sup>1</sup> For example, the California Occupational Safety and Health Administration Occupational Noise Exposure Regulations (8 CCR, General Industrial Safety Orders, Article 105, Control of Noise Exposure, Section 5095, et seq.).

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land uses. The Community Plan has no transportation noise source requirements applicable to compatibility with commercial and retail uses.

**Objective D:** Reduce the level of noise created by major transportation routes in the community.

**Policy 1:** Limit the speed of vehicular traffic along City streets, particularly Camino Del Mar.

**Policy 2:** Encourage sound reduction techniques in new buildings within the 65 decibel boundaries adjacent to Camino Del Mar and the railroad right-of-way (City of Del Mar 2002).

### *City of Del Mar Noise Ordinance*

#### **9.20.40 - Sound Level Limits.**

- A. Unless otherwise specified, it shall be unlawful for any person(s) to cause noise by any means to the extent that the one-hour average sound level exceeds the applicable limit given in the following table (shown here as Table 3) at any location in the City of Del Mar beyond the premises on which the noise is produced, as measured pursuant to the provisions of this Chapter. The noise subject to these limits is that part of the total noise at the specified location that is due solely to the action of said person(s).

**Table 3**  
**City of Del Mar Noise Ordinance Limits**

Property Receiving Noise	Time of Day	One-Hour Average Sound Level (decibels)
1. R1-5, R1-5B, R1-10, R1-10B, R-2, R1-14, R1-40, RM-East, RM-West, RM-Central, RM-South, OS Overlay	7:00 a.m. to 10:00 p.m.	50
	10:00 p.m. to 7:00 a.m.	40
2. NC, RC, CC, PC, BC, VC	7:00 a.m. to 10:00 p.m.	60
	10:00 p.m. to 7:00 a.m.	50
3. RR	7:00 a.m. to 10:00 p.m.	60
	10:00 p.m. to 7:00 a.m.	55

Source: City of Del Mar 1997.

- B. The noise limits specified in Subsection A. above shall be adjusted as follows to account for the effects of time and duration on the impact of noise levels:
- Noise that is produced for no more than a cumulative period of 30 minutes in any hour may exceed the noise limit by three decibels.
  - Noise that is produced for no more than a cumulative period of 15 minutes in any hour may exceed the noise limit by six decibels.

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- c. Noise that is produced for no more than a cumulative period of ten minutes in any hour may exceed the noise limit by eight decibels.
- d. Noise that is produced for no more than a cumulative period of five minutes in any hour may exceed the noise limit by 11 decibels.
- e. Noise that is produced for no more than a cumulative period of two minutes in any hour may exceed the noise limit by 15 decibels.
- C. For purposes of this chapter, the peak decibel reading for a noise with a fluctuating noise level (such as live or recorded music) shall be considered as the noise level for the entire cumulative period of noise. Likewise, the time between repetitive intermittent noises (such as banging, pounding, or hammering) shall be included in the cumulative of the noise.
- D. If the measured ambient level exceeds the applicable limit noted above, the allowable one-hour average sound level shall be the ambient noise level.
- E. The sound level limit at a location on a boundary between two zoning districts is the arithmetic mean of the respective limits of the two districts.
- F. Fixed-location public utility distribution or transmission facilities located on or adjacent to a property line shall be subject to the noise level limits of this Chapter, measured at or beyond six feet from the boundary of the easement upon which the equipment is located.

**9.20.050 Construction Noise.** Any person who operates powered construction or landscape equipment and/or who erects, constructs, demolishes, excavates for, alters or repairs any building or structure within the City of Del Mar in such a manner as to cause noise to be received beyond the boundaries of the property on which the construction work is occurring shall comply with the following:

- A. No construction work shall be performed on Sundays or City holidays.
- B. No construction work shall be performed before 9:00 a.m. or after 7:00 p.m. on Saturday.
- C. No construction work shall be performed before 7:00 a.m. or after 7:00 p.m. on Monday through Friday.
- D. Construction activity shall not cause an hourly average sound level greater than 75 decibels on property zoned or used for residential purposes.
- E. Exception: A person may perform construction work on the person's own property, provided such construction activity is not carried on for profit or livelihood, between the hours of 10:00 a.m. and 5:00 p.m. on Sundays and City holidays (City of Del Mar 1997).

# Noise Analysis Technical Report for the Marisol Specific Plan Project

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## City of Solana Beach

### *City of Solana Beach General Plan*

The Solana Beach General Plan Noise Element establishes noise criteria for various land uses (City of Solana Beach 1988). The Noise Element follows the state guidelines in State Government Code Section 653021(g) and the Health and Safety Code Section 46050.1. The Noise Element quantifies the community noise environment in terms of noise exposure contours for both near- and long-term levels of growth and traffic activity. The information will become a guideline for the development of land use policies to achieve compatible land uses and provide baseline levels and noise source identification for local noise ordinance enforcement. The maximum allowable exterior noise level at outdoor usable areas for new residential development is a CNEL of 65 dB. For residential development, the City typically applies the noise criteria at the backyards of single-family homes, and at private patios, exterior balconies, and exterior common use areas of multifamily developments. The interior noise standard is 45 dB CNEL. The Noise Element also articulates goals, objectives, and policies designed to facilitate appropriate land uses throughout the City. Noise Element policies applicable to the Project are outlined below.

**Goal 3.1:** To protect public health and welfare by eliminating existing noise problems and by preventing significant degradation of the future acoustic environment.

- **Policy 1.a:** The City shall adopt a standards by which identifies interior and exterior noise standards in relation to specific land uses, particularly “noise sensitive” areas such as residential areas, schools, hospitals, open space preserves, and parks. The ordinance shall specify the maximum allowable noise levels for transportation sources, construction activities, and other non-transportation sources such as industrial and commercial land uses.
- **Policy 1.b:** The adopted community noise standards shall be consistent with applicable state noise standards which specify that interior noise levels for residential living spaces shall not exceed 45 L<sub>dn</sub>/CNEL. This standard shall be applied to all new single- and multi-family dwellings, hotels, and motels.
- **Policy 2.a:** The City shall require the construction of barriers to mitigate sound emissions where necessary and feasible.
- **Policy 4.a:** The City shall require that potential noise impacts be addressed for all projects as part of the initial study per CEQA to determine if unacceptable noise levels will be created or experienced. Depending on the level of impact, a noise impact evaluation may be required to be undertaken. Should noise abatement be

## Noise Analysis Technical Report for the Marisol Specific Plan Project

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necessary, the City shall require the implementation of mitigation measures based on a detailed technical study prepared by a qualified acoustical engineer.

- **Policy 4.b:** The City shall not approve projects that do not comply with the standards established in the community noise ordinance concerning noise/land use compatibility unless all practical measures have been taken to mitigate potential noise impacts and the City Council adopts a “Statement of Overriding Considerations” which provides the rationale for approving such a project.

## **Noise Analysis Technical Report for the Marisol Specific Plan Project**

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### **4 THRESHOLDS OF SIGNIFICANCE**

California has guidelines to address the significance of noise impacts based on Appendix G of the California Environmental Quality Act Guidelines, which provides guidance that a project would have a significant environmental impact if it would do any of the following:

1. Result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
2. Result in generation of excessive groundborne vibration or groundborne noise levels.
3. For a project located within the vicinity of a private airstrip or 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, the project would expose people residing or working in the project area to excessive noise levels.

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## 5 IMPACTS AND MITIGATION

### 5.1 Generation of a Substantial Temporary or Permanent Increase in Ambient Noise Levels in the Vicinity of the Project in Excess of Standards Established in the Local General Plan or Noise Ordinance, or Applicable Standards of Other Agencies

Implementation of the Project would result in two primary types of potential noise impacts: short-term (i.e., temporary) noise during construction and long-term noise during operation of the Project.

#### Short-Term Construction Noise

Project construction would generally involve the following sequence for all phases of the Project: (1) site preparation, (2) site grading, (3) building construction, (4) paving, and (5) architectural coatings. Although specific Project construction details and equipment fleet specifications are not available at this time, the following are typical types of construction equipment that would be expected:

- Backhoes
- Graders
- Loaders
- Compactors
- Cranes
- Excavators
- Trucks
- Pavers
- Pneumatic tools
- Generator sets
- Air compressors

As demonstrated by this list, construction equipment anticipated for the Project would include standard equipment that would be employed for any routine construction Project of this scale; construction equipment with substantially higher noise-generation characteristics (such as pile drivers, rock drills, blasting equipment) would not be necessary for the Project.

Construction noise is difficult to quantify because of the many variables involved, including the specific equipment types, size of equipment used, percentage of time in use, condition of each piece of equipment, and number of pieces of equipment that will actually operate on site at a time. The range of maximum noise levels for various types of construction equipment at a distance of 50 feet is depicted in Table 4. The noise values represent maximum noise generation, or full-power operation, of the equipment. As an example, a loader and two dozers, all operating at full power and relatively close together, would generate a maximum sound level of approximately 90 dBA at 50 feet from their operations. As distance increases between the equipment and/or distance increases between areas with simultaneous construction activity, dispersion and distance attenuation reduce the effects of separate noise sources added together. In addition, typical

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operating cycles may involve 2 minutes of full-power operation, followed by 3 or 4 minutes at lower levels. The average noise level during construction activities is generally lower, since maximum noise generation may only occur up to 50% of the time.

**Table 4**  
**Construction Equipment Noise Emissions Levels**

Equipment	Typical Sound Level (dBA) 50 Feet from Source
Backhoe	80
Air compressor	80
Generator	82
Compactor	80
Crane, mobile	85
Excavator	85
Grader	85
Loader	80
Paver	85
Pneumatic tool	85
Truck	84

Source: FHWA 2006.

The closest off-site existing sensitive receptors to construction of the Project are multifamily residences located approximately 30 feet to the north. Similarly, noise-sensitive receivers (single-family and multifamily residences adjacent to the two off-site water main alignment alternatives are located within approximately 30 feet from project-related construction. Most construction work would take place substantially further away, at distances of up to 1,000 feet away from the nearest residences.

The Federal Highway Administration's Roadway Construction Noise Model (RCNM) (FHWA 2008) was used to estimate construction noise levels. Input variables for RCNM consist of the receiver/land use types, the equipment type (e.g., backhoe, grader, scraper), the number of equipment pieces, the duty cycle for each piece of equipment (i.e., percentage of time the equipment typically works in a given time period), and the distance from the noise-sensitive receiver to the construction zone. The construction equipment (by phase) anticipated for development of the project was the same as used for the project's air quality impacts analysis (Dudek 2019), which was obtained using the California Air Resources Board California Emissions Estimator Model (CalEEMod). The RCNM has default duty cycle values for the various pieces of equipment, which were derived from an extensive study of typical construction activity patterns. Those default duty cycle values were utilized for this analysis. The RCNM model and the detailed results are provided in Appendix B.

Sensitive receptors near the Project site include residential uses to the north of the Project site. The results of the construction noise analysis are summarized in Table 5. As shown, the highest

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noise levels from construction are predicted to range from approximately 67 dBA  $L_{eq}$  (during the demolition phase) to 87 dBA  $L_{eq}$  (during the pipeline site preparation) when construction takes place at or adjacent to the nearest noise-sensitive receivers. More typically, when construction would take place throughout the project site, construction noise levels would range from approximately 63 dBA  $L_{eq}$  (during the architectural coating phase) to 77 dBA  $L_{eq}$  (during the grading phase).

These noise levels would be higher than ambient noise levels in the area (as shown in Table 2) and would exceed the City's construction noise standard of 75 dBA  $L_{eq}$ . Therefore, construction noise impacts would be significant. To reduce construction noise impacts, MM-NOI-1 is required (see Section 5.5, Mitigation). Implementation of MM-NOI-1 would reduce construction-related noise impacts to a level that is **less than significant**. No additional mitigation is required for conventional construction activities.

**Table 5.**  
**Construction Noise Analysis Summary**

Construction Phase	Construction Noise at Representative Receiver Distances ( $L_{eq}$ (dBA))	
	Nearest Source/Receiver Distance (Approx. 30 feet) <sup>1</sup>	Typical Source/Receiver Distance (Approx. 170 feet) <sup>2</sup>
Demolition	67	65
Site Preparation	84	75
Grading	85	77
Building Construction	81	74
Architectural Coating	74	63
Paving	82	73
Pipeline Site Preparation	87	69
Pipeline Installation / Backfill	83	67
Pipeline Paving	86	68

Source: Appendix B.

Note:  $L_{eq}$  = equivalent continuous sound level (time-averaged sound level); dBA = A-weighted decibel.

- 1 The exceptions are for the demolition phase, for which the nearest source/receiver distance is approximately 450 feet, and the building and architectural coating phase, for which the nearest source/receiver distance is approximately 40 feet.
- 2 The exceptions are for the demolition phase, for which the typical source/receiver distance is approximately 620 feet, and pipeline work, for which the nearest source/receiver distance is approximately 250 feet.

### Long-Term Operational Noise Impact

**Off-Site Traffic Noise Impacts.** As a result of regional population growth and growth under the Project, traffic on local arterial streets is expected to increase relative to current conditions.

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Potential noise effects from vehicular traffic were assessed using the Federal Highway Administration’s Traffic Noise Model (TNM) Version 2.5 (FHWA 2004). Data used to model noise from vehicular traffic were derived from the Project-specific traffic impact analysis report prepared by Linscott, Law, and Greenspan (LLG 2019). Information used in the model included the Existing, Existing-plus-Project, Year 2035, and Year 2035-plus-Project traffic volumes. Noise levels were modeled at representative noise-sensitive receivers. The receivers were modeled to be 5 feet above the local ground elevation. Six receptors (ST1 through ST4, M1 and M2) represent existing off-site residences.

The information provided from this modeling, along with the results from ambient noise survey measurements, was compared to the noise impact significance criteria to assess whether Project-related traffic noise would cause a significant impact and, if so, where these impacts would occur. The results of the comparisons for the off-site noise-sensitive land uses are presented in Table 6. The input and output files for the TNM modeling are provided in Appendix C.

**Table 6**  
**Summary of Off-Site Existing and Future (Year 2035)**  
**Unmitigated Traffic Noise Levels (dBA CNEL)**

Modeled Receptor	Roadway Segment	Existing	Existing Plus Project	Future (Year 2035)	Future (Year 2035) Plus Project	Maximum Project-Related Noise Level Increase (dBA)
ST1 – Northeast of Preserve south of Project site	Camino Del Mar south of Via de la Valle	64	64	64	64	0
ST2 – Residences south of Project site	Camino Del Mar south of project site, north of 27th Street	62	63	63	63	1
ST3 – Residences east of Project site	Via de la Valle east of Camino Del Mar	69	69	69	70	1
ST4 – Residences north of Project site	Camino Del Mar north of Via de la Valle	67	67	69	69	0
M1 – Residences northeast of Project site	S. Sierra Avenue north of Border Avenue	57	57	58	58	0
M2 – Residences north of Project site	Border Avenue west of Camino Del Mar	61	61	62	62	0

**Source:** Appendix C.

**Note:** Project-related traffic noise levels are rounded to the nearest whole numbers.

As Table 6 shows, the Project would increase the noise level along these roads by a maximum of 1 dBA (when rounded to whole numbers) along the study area roads in the vicinity of the Project

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site. For four of the six modeled off-site receivers, the predicted increase resulting from the Project would be 0 dB (i.e., tenths of a decibel which equate to zero when rounded to whole numbers). At receiver ST2, the Existing-Plus-Project noise level is predicted to increase 1 dB compared to the Existing scenario and at ST3, the Future-Plus-Project noise level is predicted to increase 1 dB compared to the Future (without Project) scenario. A change (either an increase or a decrease) of 1 dB is not an audible change in the context of community noise (i.e., outside of a controlled test environment). In addition, the Project would not cause noise levels to exceed applicable standards. The Project is not anticipated to result in significant traffic noise increases or cause an exceedance of applicable traffic noise standards. Therefore, the impact from traffic noise associated with the Project would be **less than significant**.

**On-Site Mechanical, Recreational, and Parking Lot Noise.** Mechanical HVAC equipment located on the ground or on rooftops of new buildings have the potential to generate high noise levels. The specific details (locations, sizes, manufacturers, and models) of the equipment have not yet been determined. The noise levels generated by HVAC equipment vary, but typically range from approximately 50 dBA to 65 dBA at a distance of 50 feet (City of Santa Ana 2010). For a single point source such as a piece of mechanical equipment, the sound level normally decreases by about 6 dBA for each doubling of distance from the source under “hard-surface” conditions typical of a developed commercial site. The HVAC noise levels have the potential to exceed the City noise standard for stationary source noise at residential uses (50 dBA  $L_{eq}$  from 7:00 a.m. to 10:00 p.m., 40 dBA  $L_{eq}$  from 10:00 p.m. to 7:00 a.m.) at the nearest existing noise-sensitive receptors. This is considered a potentially significant noise impact; a subsequent noise analysis will be required prior to final plan approval, in order to ensure that HVAC noise levels are in compliance with City noise standards. With the implementation of mitigation measure MM-NOI-2, mechanical noise would be less than significant with mitigation incorporated.

Recreational noise (i.e., noise from pool use or other activities such as special events) would take place within the resort grounds. Typically, up to approximately 20 guests would be anticipated to use the resort pool, up to approximately 10 guests would be anticipated to use the spa, and approximately 0 to 2 guests are anticipated to use the other on-site amenities at any one time. Noise from pool uses and other activities would be visually and acoustically shielded from the residential area to the north and other surrounding locations by the one to three-story-high resort buildings, as well as by the local terrain. However, without mitigation, impacts may be potentially significant. To ensure significant impacts related to recreational noise would not occur at residences to the north and other surrounding noise-sensitive locations, MM-NOI-3 limits usage for the pool and recreational areas to between the hours of 7:00 a.m. and 10:00 p.m., and amplified music would not be permitted outside of those hours. Additionally, MM-NOI-3 requires that policies and procedures be implemented to ensure that

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noise levels from the Project in the surrounding areas are minimized. This may include signage on site requesting that visitors and guests be aware and respectful of the surrounding environment and refrain from excessive noise-making. With implementation of MM-NOI-3, recreational noise would be **less than significant**.

Parking for the Project would be accommodated by construction of an underground parking structure. Access to the proposed parking structure would be via Border Avenue to the north of the site at the intersection of Border Avenue and S. Sierra Avenue. Noise sources from parking lots and structures include car alarms, door slams, radios, and tire squeals. These sources typically range from about 30 dBA to 66 dBA at a distance of 100 feet (Gordon Bricken & Associates 1996) and are generally short-term and intermittent. Parking structures have the potential to generate instantaneous noise levels that exceed 60 dBA depending on the location of the source; however, noise sources from the parking structure would be different from each other in kind, duration, and location, so that the overall effects would be separate and in most cases would not affect noise-sensitive receptors at the same time. Furthermore, the proposed parking structure would be underground, and the entrances to the parking structure would be shielded from a direct view of residences to the north by intervening resort buildings. Therefore, noise impacts from parking structure noise would be **less than significant**.

**On-Site Exterior Traffic Noise Impacts.** The evaluation of potential noise effects on noise-sensitive receivers created by a project (in this instance, resort visitors and guests) is not required under the California Environmental Quality Act. The following information is therefore provided for informational purposes. Potential noise effects at proposed on-site noise-sensitive locations from vehicular traffic were assessed using the FHWA's TNM Version 2.5 (FHWA 2004). A total of 32 receptors (M3–M34) representing the exterior walls of resort rooms with potential traffic noise exposure and outdoor recreation or relaxation areas were modeled, as shown in Figure 4, Modeled On-Site Receivers.

Additionally, potential on-site noise effects from the adjacent rail line were assessed using the Federal Rail Administration (FRA) CREATE rail noise model (Harris, Miller, Miller and Hansen 2006). The input parameters for the rail noise model impacts analysis were based upon the assumptions used for the analysis of the planned San Dieguito River Bridge Replacement, Double Track, and Del Mar Fairgrounds Special Events Platform Environmental Assessment (SANDAG 2014). Year 2030 (the worst-case) passenger and freight train operations were assessed for the project, in which a total of 71 daytime (7:00 a.m. to 10:00 p.m.) and 19 nighttime (10:00 p.m. to 7:00 a.m.) passenger rail operations per day would occur, and a total of 11 nighttime freight rail operations would occur. The other rail noise modeling parameters (as part of the input/output model spreadsheets) are provided in Appendix D. Based upon the results of the rail noise modeling, noise from the rail line located to the east of Camino Del Mar would range from approximately 57 dBA  $L_{dn}$  to 64 dBA  $L_{dn}/CNEL$  at on-site building facades with an exposure of the rail line.

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The results for the proposed on-site noise-sensitive land uses are presented in Table 7.

**Table 7**  
**Summary of On-Site Future (Year 2035) plus Project Unmitigated Traffic Noise Levels**  
**(dBA CNEL)**

Modeled Receiver # - Description	Floor Level		
	1st Level	2nd Level	3rd Level
M3 – Low cost visitor serving	59	62	n/a
M4 – Low cost visitor serving	64	65	n/a
M5 – Low cost visitor serving	60	62	n/a
M6 – Affordable housing	60	62	n/a
M7 – Affordable housing	54	62	n/a
M8 – Affordable housing	51	59	n/a
M9 – Ballroom	49	54	n/a
M10 – Event/Meeting	57	62	62
M11 – Suite	53	57	59
M12 – Specialty restaurant	51	57	57
M13 – Reception/lobby	50	56	56
M14 – Reception/lobby	49	55	n/a
M15 – Bar/lounge	50	53	n/a
M16 – Open area	49	n/a	n/a
M17 – Hotel pool	49	n/a	n/a
M18 – Open area	35	n/a	n/a
M19 – Villa	49	51	52
M20 – Villa pool	38	n/a	n/a
M21 – Villa	51	51	52
M22 – Villa pool	40	n/a	n/a
M23 – Villa	53	55	57
M24 – Villa pool	45	n/a	n/a
M25 – Villa pool	38	n/a	n/a
M26 – Villa pool	30	n/a	n/a
M27 – - Villa pool	36	n/a	n/a
M28 - Villa pool	39	n/a	n/a
M29- Villa pool	41	n/a	n/a
M30- Villa pool	32	n/a	n/a
M31 - Villa	57	58	59
M32 - Villa	55	57	57
M33- Villa pool	47	n/a	n/a
M34- Villa pool	45	n/a	n/a

**Source:** Appendix C.

**Notes:**

n/a – Not applicable. No noise-sensitive receiver exists at this level.

Additionally, potential on-site noise effects from the adjacent rail line were assessed using the Federal Rail Administration (FRA) CREATE rail noise model (spreadsheet by Harris, Miller, Miller and Hansen, 2006). The input parameters for the rail noise model impacts analysis were based upon the assumptions used for the analysis of the planned San Dieguito River Bridge

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Replacement, Double Track, and Del Mar Fairgrounds Special Events Platform Environmental Assessment (SANDAG 2014). Year 2030 (the worst-case) passenger and freight train operations were assessed for the project, in which a total of 71 daytime (7:00 a.m. to 10:00 p.m.) and 19 nighttime (10:00 p.m. to 7:00 a.m.) passenger rail operations per day would occur, and a total of 11 nighttime freight rail operations would occur. The other rail noise modeling parameters (as part of the input/output model spreadsheets) are provided in Appendix D. Based upon the results of the rail noise modeling, noise from the rail line located to the east of Camino Del Mar would range from approximately 57 dBA  $L_{dn}$  to 64 dBA  $L_{dn}/CNEL$  at on-site building facades with an exposure of the rail line. The combined (traffic plus rail noise) results for the proposed on-site noise-sensitive land uses are presented in Table 8.

**Table 8**  
**Summary of On-Site Future plus Project Unmitigated Traffic plus**  
**Rail Noise Levels (dBA CNEL)**

Modeled Receiver # - Description	Floor Level		
	1st Level	2nd Level	3rd Level
M3 – Low cost visitor serving	63	64	n/a
M4 – Low cost visitor serving	66	67	n/a
M5 – Low cost visitor serving	65	66	n/a
M6 – Affordable housing	65	66	n/a
M7 – Affordable housing	63	65	n/a
M8 – Affordable housing	64	65	n/a
M9 – Ballroom	64	64	n/a
M10 – Event/Meeting	62	64	64
M11 – Suite	60	61	62
M12 – Specialty restaurant	60	61	61
M13 – Reception/lobby	60	61	61
M14 – Reception/lobby	59	60	n/a
M15 – Bar/lounge	59	60	n/a
M16 – Open area	57	n/a	n/a
M17 – Hotel pool	57	n/a	n/a
M18 – Open area	35	n/a	n/a
M19 – Villa	49	51	n/a
M20 – Villa pool	38	n/a	n/a
M21 – Villa	51	51	52
M22 – Villa pool	40	n/a	n/a
M23 – Villa	53	55	57
M24 – Villa pool	45	n/a	n/a
M25 – Villa pool	38	n/a	n/a
M26 – Villa pool	30	n/a	n/a
M27 – Villa pool	36	n/a	n/a
M28 – Villa pool	39	n/a	n/a
M29 – Villa pool	41	n/a	n/a



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**Table 8**  
**Summary of On-Site Future plus Project Unmitigated Traffic plus**  
**Rail Noise Levels (dBA CNEL)**

Modeled Receiver # - Description	Floor Level		
	1st Level	2nd Level	3rd Level
M30 – Villa pool	32	n/a	n/a
M31 – Villa	57	58	59
M32 – Villa	55	57	57
M33 – Villa pool	47	n/a	n/a
M34 – Villa pool	45	n/a	n/a

**Source:** Appendices C and D.

**Notes:**

**n/a** – Not applicable. No noise-sensitive receiver exists at this level.

**Shaded** numbers represent receiver locations exceeding 65 dBA CNEL; these locations will require noise barriers to comply with the 65 dBA CNEL noise standard for outdoor areas.

**Bolded** numbers represent interior receiver locations exceeding 60 dBA CNEL; these guest rooms will require subsequent interior noise analysis to verify compliance with the 45 dBA CNEL/ $L_{dn}$  noise standard for habitable rooms.

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SOURCE: Dudek 2019

**FIGURE 4**  
**Modeled On-Site Receivers**

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As shown in Table 8, the results of the noise modeling indicate that on-site noise levels would range from approximately 30 dBA CNEL (at receiver M26) to 67 dBA CNEL (at receiver M4). At representative receivers M4, 5, and 6, traffic noise levels combined with train noise would exceed the City's exterior noise compatibility standard of 65 dBA CNEL. At these receivers, which represent the façades in the resort's northeastern corner, facing the rail line, the noise levels would range from approximately 66 dBA CNEL to approximately 67 dBA CNEL. If usable private outdoor areas are constructed along the northern, eastern or southern façades (i.e., patios or balconies), noise-attenuating barriers would be required at these locations to comply with the City's exterior noise standard of 65 dBA CNEL. In order to achieve the desired noise reduction (a minimum of 1 dB to 2 dB reduction), that noise barriers with a minimum height of 5 feet may be constructed along the length of the patio or balcony area. The noise barriers could be constructed of a material such as tempered glass, acrylic glass (or similar material), masonry material, or manufactured lumber (or a combination of these) with a surface density of at least three pounds per square foot. The noise barriers should have no openings or cracks. Because analysis of impacts at on-site noise-sensitive receivers created by the project are not required as part of the CEQA analysis, this recommendation is advisory in nature.

### **On-Site Interior Traffic Noise Impacts.**

The City and the state require that interior noise levels not exceed a CNEL or  $L_{dn}$  of 45 dBA within the habitable rooms of residences, including transient residential lodging. Typically, with the windows open, building shells provide approximately 15 dB of noise reduction. Therefore, rooms exposed to an exterior CNEL greater than 60 dBA could result in an interior CNEL greater than 45 dB. The State Building Code recognizes this relationship, and therefore, requires interior noise studies when the exterior noise level is projected to exceed 60 dBA  $L_{dn}$  (or CNEL).

The data shown in Table 8 indicate that modeled exterior traffic noise levels would exceed 60 dBA CNEL at receivers M3 through 13, all of which represent easterly-facing (i.e., northeast, southeast, or east) building façades with a direct exposure of Camino Del Mar. Thus, the unmitigated interior noise level within the habitable rooms of these dwelling units could exceed the 45 dBA CNEL noise criterion. Thus, a subsequent interior noise analysis is recommended for these units in order to ensure that the resultant noise levels meet the state and City interior noise standard. Because analysis of impacts at on-site noise-sensitive receivers created by the project are not required as part of the CEQA analysis, this recommendation is advisory in nature.

## **5.2 Excessive Groundborne Vibration or Groundborne Noise Levels**

Groundborne vibration is a small, rapidly fluctuating motion transmitted through the ground that diminishes (attenuates) fairly rapidly over distance. Anticipated groundborne vibration from heavy

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equipment operations during construction of the Project was evaluated and compared to relevant vibration impact criteria using the FTA's Transit Noise and Vibration Impact Assessment manual, which provides vibration impact criteria and recommended methodologies and guidance for assessment of vibration effects (FTA 2018).

At a distance of approximately 30 feet, the vibration level from heavy construction machinery (such as a large bulldozer) would be approximately 0.068 peak particle velocity in inches per second (PPV IPS). Vibration levels of this magnitude would likely be perceptible at nearby residences, but they would be below the FTA's threshold of potential damage for normal structures (0.20 PPV IPS) and would not be considered excessive. Additionally, the great majority of the construction work would take place at distances substantially further than 30 feet away and would not be perceptible. Therefore, short-term construction-related vibration impacts would be **less than significant**.

On-site vibration levels from the rail line located to the east of the project site were also evaluated. Based upon the methodology for FTA's Transit Noise and Vibration Impact Assessment manual, the vibration level from a diesel-powered locomotive (passenger or freight) would be approximately 68 VdB (velocity decibels) traveling 50 miles per hour at a distance of 280 feet (the nearest distance from the project site to the rail line). Adjusting for an estimated passenger train speed of 70 miles per hour, the resulting vibration level would be approximately 70.9 VdB, which is below the FTA threshold for acceptable groundborne vibration for residential uses of 72 VdB. Therefore, on-site vibration impacts from rail noise would be **less than significant**.

### 5.3 Private Airstrip or Airport

The nearest private airstrip to the Project site is the Lyall-Roberts Airport located at Lyall Roberts Orchards, 15524 Highway 76 in Escondido, California, approximately 28 miles from the Project site. The Project would not expose people residing or working in the Project area to excessive noise levels associated with any airstrip and would therefore result in **no impact**.

The closest airport to the Project site is McClellan-Palomar Airport, located at 2192 Palomar Airport Road in Carlsbad, California, more than 10 miles north of the Project site. The Project would not be located within 2 miles of any airport and would not expose people residing or working in the Project area to excessive noise levels associated with an airport. Therefore, the Project would result in **no impact** related to airports.

### 5.4 Cumulative Impacts

Construction noise impacts primarily affect the areas immediately adjacent to a construction site. Temporary construction activities are likely to include only standard construction equipment; no pile driving or blasting activities are expected. Additionally, the Project would comply with the

## Noise Analysis Technical Report for the Marisol Specific Plan Project

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City's Noise Control Ordinance related to construction activities (Monday through Friday, 7:00 a.m. to 7:00 p.m., and Saturday, 9:00 a.m. to 7:00 p.m.; no construction activities on Sunday or during federal holidays) (City of Del Mar 1997). Thus, although several construction activities may occur simultaneously in the surrounding community, given the distance between the Project site and the cumulative projects within the City, and given the projects' compliance with local jurisdictional noise standards, it is unlikely that the noise increase would exceed 3 dB (the minimum change in the sound level of individual events that an average human ear can detect). Additionally, MM-NOI-1 is required to reduce construction noise and would minimize construction noise impacts associated with the Project to a less-than-significant level. Therefore, the increased noise **would not result in significant cumulative impacts**.

The future (Year 2035) traffic volumes used for the analysis of traffic noise include cumulative growth. As shown in Table 6, the Project's traffic-related impacts would not result in a significant noise level increase along adjacent roadways. Additionally, the project would not result in an increase in rail-related noise or vibration (i.e., would not result in increased rail trips or otherwise cause rail noise or vibration to increase at noise-sensitive land uses. Therefore, impacts would not be cumulatively considerable and would be **less than significant**.

### 5.5 Mitigation

**MM-NOI-1** Prior to initiation of Project construction, the City of Del Mar shall approve a construction noise mitigation program to include the following in order to ensure that the City of Del Mar construction noise standard (75 dBA  $L_{eq}$  1-hr) is not exceeded:

- Temporary sound barriers/shielding shall be installed to shield non-mobile equipment in the vicinity of nearby residences, or, alternatively, to shield at the site's boundaries. For example, for on-site construction activities, an 8-foot-high noise barrier would be constructed along the Project's northern site boundary. For noisy pipeline construction activities near residential land uses, a portable noise barrier that would break the line of sight between the construction activity (to the extent practical) and the residences would be used. The material for a temporary noise barrier could consist of such materials as 3/4-inch thick plywood or portable barriers with a minimum sound transmission class rating of 20.
- Construction equipment shall be properly outfitted and maintained with feasible noise-reduction devices (e.g., functioning mufflers and silencers, tightly closed access panels) to minimize construction-generated noise.
- Stationary noise sources such as generators or pumps shall be located as far away from noise-sensitive land uses as feasible.

## Noise Analysis Technical Report for the Marisol Specific Plan Project

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- Laydown and construction vehicle staging areas shall be located away from noise-sensitive land uses if feasible.
- Whenever possible, residential areas that will be subject to construction noise shall be informed one (1) week before the start of each construction phase.

**MM-NOI-2** Because heating, ventilation, and air conditioning (HVAC) equipment and other mechanical equipment can generate noise that could affect surrounding sensitive receptors and because the details, specifications, and locations of this equipment is not yet known, the Project applicant shall retain an acoustical specialist to review project construction-level plans to ensure that the equipment specifications and plans for HVAC and other outdoor mechanical equipment incorporate measures, such as the specification of quieter equipment or provision of acoustical enclosures, that will not exceed relevant noise standards (50 dBA  $L_{eq}$  daytime, 40 dBA  $L_{eq}$  nighttime) at nearby noise-sensitive land uses (e.g., residential). Prior to the commencement of construction, the acoustical specialist shall certify in writing to the City that the equipment specifications and plans incorporate measures that will achieve the relevant noise limits.

**MM-NOI-3** Policies and procedures shall be implemented to ensure that noise levels from the project in the surrounding areas are minimized. Such policies may include signage requesting that visitors and guests be aware and respectful of the surrounding environment and refrain from excessive noise-making. Usage of the on-site pool and other recreational areas shall be limited to the hours between 7:00 a.m. and 10:00 p.m. Additionally, amplified music shall be limited to the hours between 7:00 a.m. and 10:00 p.m. Enforcement of these limitations shall be carried out by resort staff and management, and through the posting of signs.



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### 6 SUMMARY AND CONCLUSIONS

This noise analysis evaluates the potential for significant adverse impacts due to Project construction and operation. Implementation of the Project would result in two primary types of potential noise impacts: short-term (i.e., temporary) noise during construction and long-term noise during operation of the Project.

Noise from construction would exceed the 75 dB construction noise standard established in the City's Noise Control Ordinance; therefore, impacts would be significant. To reduce construction noise impacts, MM-NOI-1 is required. Implementation of MM-NOI-1 would reduce construction-related noise impacts to a level that is **less than significant**. The Project's traffic-related impacts would not result in a noise level increase along adjacent roadways; therefore, traffic noise impacts would be **less than significant** at off-site land uses. On-site mechanical equipment (such as HVAC equipment) has the potential to result in noise levels in excess of City noise standards; implementation of mitigation measure MM-NOI-2 would ensure that noise from mechanical equipment does not exceed applicable noise standards. Mitigation measure MM-NOI-3 would specify limits on hours for pool and other recreational area usage, as well as the use of amplified music, to ensure that noise from hotel guests and activities is less than significant. Vibration levels associated with Project construction would likely be perceptible at nearby residences, but they would be below the FTA's threshold of potential damage for normal structures (0.20 PPV IPS) and would not be considered excessive; therefore, impacts would be **less than significant**. The Project is not located within the vicinity of an airport or private airstrip and would not expose people residing or working in the Project area to excessive noise levels associated with a private airstrip; thus, there would be no impact. Finally, the analysis concluded that the Project would not result in any significant cumulative impacts.

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## 7 REFERENCES

- Caltrans (California Department of Transportation). 2009. *Technical Noise Supplement*. Prepared by ICF Jones & Stokes. Sacramento, California: Caltrans. November 2009.
- Caltrans. 2013. *Transportation and Construction Vibration Guidance Manual*. Division of Environmental Analysis, Environmental Engineering, Hazardous Waste, Air, Noise, Paleontology Office. Sacramento, California. September 2013.
- City of Del Mar. 1997. City of Del Mar Municipal Code, Chapter 9.2, Noise Regulations. October 1997. <http://www.delmar.ca.us/DocumentCenter/Home/View/381>.
- City of Del Mar. 2002. *The Community Plan for the City of Del Mar, California*. Adopted May 15, 1975. Last amended January 22, 2002. <http://www.delmar.ca.us/DocumentCenter/View/250>.
- City of Santa Ana. 2010. *City of Santa Ana Transit Zoning Code (SD 84A and SD 84B) Final Environmental Impact Report*. SCH No. 2006071100.
- City of Solana Beach. 1988. *Solana Beach General Plan Noise Element*. <http://www.codepublishing.com/CA/SolanaBeach/#!/SolanaBeachGP/SolanaBeachGP05.html>.
- Dudek. 2019. *Air Quality and Greenhouse Gas Emissions Analysis Technical Report for the Marisol Project*.
- FHWA (Federal Highway Administration). 2006. *FHWA Roadway Construction Noise Model User's Guide*. U.S. Department of Transportation, Federal Highway Administration, Office of Natural and Human Environment. Washington, DC. January 2006.
- FHWA. 2008. *Roadway Construction Noise Model (RCNM), Software Version 1.1*. U.S. Department of Transportation, Research and Innovative Technology Administration, John A. Volpe National Transportation Systems Center, Environmental Measurement and Modeling Division. Washington, DC. December 8, 2008.
- FHWA. 2004. FHWA Traffic Noise Model, Version 2.5. Washington, D.C.: FHWA Office of Environment and Planning. April 2004.
- FTA (Federal Transit Administration). 2018. *Transit Noise and Vibration Impact Assessment Manual*. September 2018.
- Gordon Bricken & Associates. 1996. "Parking Lot Noise Estimates."

## Noise Analysis Technical Report for the Marisol Specific Plan Project

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- Harris, Miller, Miller and Hanson. 2006. CREATE Freight Noise and Vibration Model. Available at: <https://www.fra.dot.gov/eLib/Details/L03727>.
- HUD (Department of Housing and Urban Development). 2009. "Chapter 5, Noise Assessment Guidelines." In *HUD Noise Guidebook*, 45–79. March 2009. <https://www.hudexchange.info/resource/313/hud-noise-guidebook/>.
- LLG (Linscott, Law & Greenspan, Engineers). 2019. *Transportation Impact Analysis, Del Mar Resort, Del Mar, California*. August 27, 2019.
- OPR (Governor's Office of Planning and Research). 2003. "Appendix A: Guidelines for the Preparation and Content of the Noise Element of the General Plan." In *County General and Other Plans*. California Environmental Resources Evaluation System, California Land Use Planning Information Network. [http://ceres.ca.gov/planning/genplan/appendix\\_a.html](http://ceres.ca.gov/planning/genplan/appendix_a.html).
- SANDAG (San Diego Association of Governments). 2014. *San Dieguito River Bridge Replacement, Double Track, and Del Mar Fairgrounds Special Events Platform Environmental Assessment*. October 2014.

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## 8 LIST OF PREPARERS

Mike Greene, INCE Bd. Cert., Environmental Specialist/Acoustician  
Connor Burke, Environmental Specialist/Acoustics and Air Quality

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# **APPENDIX A**

## *Field Noise Measurement Data*





**Field Noise Measurement Data**

Record: 800

Project Name	Del Mar
Observer(s)	Connor Burke
Date	2017-10-30
autoemail	cburke@dudek.com

**Meteorological Conditions**

Temp (F)	65
Humidity % (R.H.)	75
Wind	Calm
Wind Speed (MPH)	3
Wind Direction	East
Sky	Overcast

**Instrument and Calibrator Information**

Instrument Name List	(ENC) Rion NL-52
Instrument Name	(ENC) Rion NL-52
Instrument Name Lookup Key	(ENC) Rion NL-52
Manufacturer	Rion
Model	NL-52
Serial Number	553896
Calibrator Name	(ENC) LD CAL150
Calibrator Name	(ENC) LD CAL150
Calibrator Name Lookup Key	(ENC) LD CAL150
Calibrator Manufacturer	Larson Davis
Calibrator Model	LD CAL150
Calibrator Serial #	5152
Pre-Test (dBA SPL)	94
Post-Test (dBA SPL)	94
Windscreen	Yes
Weighting?	A-WTD
Slow/Fast?	Slow
ANSI?	Yes

**Recordings**


Record #	1
Site ID	ST3
Site Location	Latitude:32.971390, Longitude:-117.268503, Altitude:6.983555, Speed:0.000000, Horizontal Accuracy:5.000000, Vertical Accuracy:4.000000, Time:11:49:37 AM PDT
Begin (Time)	11:49:00
End (Time)	11:59:00
Leq	58.7
Lmax	68.9
Lmin	48.1
Other Lx?	L90, L50, L10
L90	50.6
L50	56
L10	62.7
Primary Noise Source	Traffic
Other Noise Sources (Background)	Birds, Distant Aircraft, Distant Conversations / Yelling, Distant Traffic

Other Noise Sources Additional Description	Water hose. Powerdrill
Is the same instrument and calibrator being used as previously notated?	Yes
Are the meteorological conditions the same as previously notated?	Yes

Source Info and Traffic Counts	
Distance to Roadway (feet)	35
Distance to Roadway - Centerline/Edge of Pavement	Centerline
Estimated Vehicle Speed (MPH)	30
Count Duration (Min)	10
Posted Speed Limit Sign (MPH)	25

Traffic Counts	
Counting Both Directions?	Yes
Autos	1
Number of Vehicles - Autos	118
Medium Trucks	1
Number of Vehicles - Medium Trucks	2
Heavy Trucks	1
Number of Vehicles - Heavy Trucks	1
Motorcycles	1
Number of Vehicles - Motorcycles	1

Description / Photos
----------------------

Site Photos	
Photo	
Comments / Description	Facing east.


Recordings	
Record #	2
Site ID	ST1
Site Location	Latitude:32.978135, Longitude:-117.269673, Altitude:30.687717, Speed:0.000000, Horizontal Accuracy:5.000000, Vertical Accuracy:4.000000, Time:12:14:51 PM PDT
Begin (Time)	12:14:00
End (Time)	12:24:00
Leq	59.8
Lmax	69.3
Lmin	50.3
Other Lx?	L90, L50, L10
L90	53.5
L50	58.8
L10	62.7
Primary Noise Source	Traffic
Other Noise Sources (Background)	Birds, Distant Aircraft, Distant Conversations / Yelling, Distant Traffic
Other Noise Sources Additional Description	Sprinklers
Is the same instrument and calibrator being used as previously notated?	Yes
Are the meteorological conditions the same as previously notated?	Yes

Source Info and Traffic Counts	
Distance to Roadway (feet)	200
Distance to Roadway - Centerline/Edge of Pavement	Centerline
Estimated Vehicle Speed (MPH)	25
Count Duration (Min)	10

Traffic Counts	
Counting Both Directions?	Yes
Autos	1
Number of Vehicles - Autos	152
Medium Trucks	1
Number of Vehicles - Medium Trucks	1
Motorcycles	1
Number of Vehicles - Motorcycles	1

Description / Photos

Site Photos

Photo		
Comments / Description	Facing east.	

Recordings

Record #	3
Site ID	ST5
Site Location	Latitude:32.981324, Longitude:-117.269401, Altitude:22.022373, Speed:0.000000, Horizontal Accuracy:5.000000, Vertical Accuracy:3.000000, Time:12:40:58 PM PDT
Begin (Time)	12:41:00
End (Time)	12:51:00
Leq	66.5
Lmax	74.8
Lmin	49.6
Other Lx?	L90, L50, L10
L90	57.2
L50	65.4
L10	69.5
Primary Noise Source	Traffic
Other Noise Sources (Background)	Birds, Distant Conversations / Yelling, Distant Gardener / Landscape Noise, Distant Traffic, Rustling Leaves
Other Noise Sources Additional Description	Crows circling were very audible
Is the same instrument and calibrator being used as previously notated?	Yes
Are the meteorological conditions the same as previously notated?	Yes

Source Info and Traffic Counts


Distance to Roadway (feet)	40
Distance to Roadway - Centerline/Edge of Pavement	Centerline
Estimated Vehicle Speed (MPH)	40
Count Duration (Min)	10

Traffic Counts

Counting Both Directions?	Yes
Autos	1
Number of Vehicles - Autos	157
Medium Trucks	1
Number of Vehicles - Medium Trucks	1
Buses	1
Number of Vehicles - Buses	1

Description / Photos

Site Photos

Photo		
Comments / Description	Facing east.	

Recordings	
Record #	4
Site ID	ST4
Site Location	Latitude:32.980417, Longitude:-117.266258, Altitude:20.037144, Speed:0.000000, Horizontal Accuracy:5.000000, Vertical Accuracy:4.000000, Time:1:01:32 PM PDT
Begin (Time)	13:01:00
End (Time)	13:11:00
Leq	67.5
Lmax	75.8
Lmin	50
Other Lx?	L90, L50, L10
L90	55.9
L50	65.6
L10	71.5
Primary Noise Source	Traffic
Other Noise Sources (Background)	Birds, Distant Aircraft, Distant Gardener / Landscape Noise, Distant Traffic
Is the same instrument and calibrator being used as previously notated?	Yes
Are the meteorological conditions the same as previously notated?	Yes

Source Info and Traffic Counts	
Distance to Roadway (feet)	30
Distance to Roadway - Centerline/Edge of Pavement	Centerline
Estimated Vehicle Speed (MPH)	40
Count Duration (Min)	10

Traffic Counts	
Counting Both Directions?	Yes
Autos	1
Number of Vehicles - Autos	157
Medium Trucks	1
Number of Vehicles - Medium Trucks	3
Buses	1

Description / Photos

Site Photos

Photo



Comments / Description

*Facing south.*





# **APPENDIX B**

## *Construction Noise Modeling Input/Output Files*



Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 10/23/2019  
Case Description: Marisol SP - Del Mar - Demolition

		---- Receptor #1 ----					
		Baselines (dBA)					
Description	Land Use	Daytime	Evening	Night			
Residential - North - Closest	Residential	60	55	50			
		Equipment					
		Impact	Spec	Actual	Receptor	Estimated	
Description		Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Concrete Saw		No	20		89.6	450	0
Excavator		No	40		80.7	450	0
Excavator		No	40		80.7	550	0
Excavator		No	40		80.7	550	0
Dozer		No	40		81.7	500	0
Dozer		No	40		81.7	650	0

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		70.5	63.5	N/A	N/A	N/A	N/A
Excavator		61.6	57.6	N/A	N/A	N/A	N/A
Excavator		59.9	55.9	N/A	N/A	N/A	N/A
Excavator		59.9	55.9	N/A	N/A	N/A	N/A
Dozer		61.7	57.7	N/A	N/A	N/A	N/A
Dozer		59.4	55.4	N/A	N/A	N/A	N/A
	Total	70.5	66.6	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

		---- Receptor #2 ----					
		Baselines (dBA)					
Description	Land Use	Daytime	Evening	Night			
Residential - North - Typical	Residential	60	55	50			
		Equipment					
		Impact	Spec	Actual	Receptor	Estimated	
Description		Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Concrete Saw		No	20		89.6	620	0
Excavator		No	40		80.7	620	0
Excavator		No	40		80.7	620	0
Excavator		No	40		80.7	620	0
Dozer		No	40		81.7	620	0
Dozer		No	40		81.7	620	0

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		67.7	60.7	N/A	N/A	N/A	N/A
Excavator		58.8	54.9	N/A	N/A	N/A	N/A
Excavator		58.8	54.9	N/A	N/A	N/A	N/A
Excavator		58.8	54.9	N/A	N/A	N/A	N/A
Dozer		59.8	55.8	N/A	N/A	N/A	N/A

Dozer		59.8	55.8	N/A	N/A	N/A	N/A
	Total	67.7	64.6	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

#### Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 10/28/2019  
Case Description: Marisol SP - Del Mar - Site Prep

		Baselines (dBA)			---- Receptor #1 ----		
Description	Land Use	Daytime	Evening	Night			
Residential - North - Closest	Residential	60	55	50			
		Equipment					
		Impact		Spec	Actual	Receptor	Estimated
Description		Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Dozer		No	40		81.7	30	0
Dozer		No	40		81.7	75	0
Dozer		No	40		81.7	150	0
Backhoe		No	40		77.6	50	0
Front End Loader		No	40		79.1	100	0
Tractor		No	40	84		200	0

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer		86.1	82.1	N/A	N/A	N/A	N/A
Dozer		78.1	74.2	N/A	N/A	N/A	N/A
Dozer		72.1	68.1	N/A	N/A	N/A	N/A
Backhoe		77.6	73.6	N/A	N/A	N/A	N/A
Front End Loader		73.1	69.1	N/A	N/A	N/A	N/A
Tractor		72	68	N/A	N/A	N/A	N/A
	Total	86.1	83.7	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

		Baselines (dBA)			---- Receptor #2 ----		
Description	Land Use	Daytime	Evening	Night			
Residential - North - Typical	Residential	60	55	50			
		Equipment					
		Impact		Spec	Actual	Receptor	Estimated
Description		Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Dozer		No	40		81.7	170	0
Dozer		No	40		81.7	170	0
Dozer		No	40		81.7	170	0
Backhoe		No	40		77.6	170	0
Front End Loader		No	40		79.1	170	0
Tractor		No	40	84		170	0

		Results		Noise Limits (dBA)	
		Calculated (dBA)		Day	
				Evening	

Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	71	67.1	N/A	N/A	N/A	N/A
Dozer	71	67.1	N/A	N/A	N/A	N/A
Dozer	71	67.1	N/A	N/A	N/A	N/A
Backhoe	66.9	63	N/A	N/A	N/A	N/A
Front End Loader	68.5	64.5	N/A	N/A	N/A	N/A
Tractor	73.4	69.4	N/A	N/A	N/A	N/A
Total	73.4	74.6	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

#### Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 10/23/2019  
Case Description: Marisol SP - Del Mar - Pipeline Site Prep

		---- Receptor #1 ----					
		Baselines (dBA)					
Description	Land Use	Daytime	Evening	Night			
Residential - Closest	Residential	60	55	50			
		Equipment					
		Impact		Spec	Actual	Receptor	Estimated
Description		Device	Usage(%)	Lmax	Lmax	Distance	Shielding
Concrete Saw		No	20	(dBA)	(dBA)	(feet)	(dBA)
					89.6	30	0
		Results					
		Calculated (dBA)			Noise Limits (dBA)		
					Day	Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		94		87	N/A	N/A	N/A
	Total	94		87	N/A	N/A	N/A
*Calculated Lmax is the Loudest value.							
		---- Receptor #2 ----					
		Baselines (dBA)					
Description	Land Use	Daytime	Evening	Night			
Residential - Typical	Residential	60	55	50			
		Equipment					
		Impact		Spec	Actual	Receptor	Estimated
Description		Device	Usage(%)	Lmax	Lmax	Distance	Shielding
Concrete Saw		No	20	(dBA)	(dBA)	(feet)	(dBA)
					89.6	250	0
		Results					
		Calculated (dBA)			Noise Limits (dBA)		
					Day	Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		75.6		68.6	N/A	N/A	N/A
	Total	75.6		68.6	N/A	N/A	N/A
*Calculated Lmax is the Loudest value.							

Report date: 10/28/2019  
Case Description: Marisol SP - Del Mar - Grading

		---- Receptor #1 ----					
		Baselines (dBA)					
Description	Land Use	Daytime	Evening	Night			
Residential - North - Closest	Residential	60	55	50			
		Equipment					
		Impact	Spec	Actual	Receptor	Estimated	
Description		Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Excavator		No	40		80.7	30	0
Excavator		No	40		80.7	75	0
Grader		No	40	85		50	0
Dozer		No	40		81.7	100	0
Scraper		No	40		83.6	150	0
Scraper		No	40		83.6	200	0
Backhoe		No	40		77.6	75	0
Tractor		No	40	84		200	0

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		85.1	81.2	N/A	N/A	N/A	N/A
Excavator		77.2	73.2	N/A	N/A	N/A	N/A
Grader		85	81	N/A	N/A	N/A	N/A
Dozer		75.6	71.7	N/A	N/A	N/A	N/A
Scraper		74	70.1	N/A	N/A	N/A	N/A
Scraper		71.5	67.6	N/A	N/A	N/A	N/A
Backhoe		74	70.1	N/A	N/A	N/A	N/A
Tractor		72	68	N/A	N/A	N/A	N/A
	Total	85.1	85.1	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

		----- Receptor #2 -----					
		Baselines (dBA)					
Description	Land Use	Daytime	Evening	Night			
Residential - North - Typical	Residential	60	55	50			
		Equipment					
		Impact	Spec	Actual	Receptor	Estimated	
Description		Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Excavator		No	40		80.7	170	0
Excavator		No	40		80.7	170	0
Grader		No	40	85		170	0
Dozer		No	40		81.7	170	0
Scraper		No	40		83.6	170	0
Scraper		No	40		83.6	170	0
Backhoe		No	40		77.6	170	0
Tractor		No	40	84		170	0

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		70.1	66.1	N/A	N/A	N/A	N/A

Excavator	70.1	66.1	N/A	N/A	N/A	N/A
Grader	74.4	70.4	N/A	N/A	N/A	N/A
Dozer	71	67.1	N/A	N/A	N/A	N/A
Scraper	73	69	N/A	N/A	N/A	N/A
Scraper	73	69	N/A	N/A	N/A	N/A
Backhoe	66.9	63	N/A	N/A	N/A	N/A
Tractor	73.4	69.4	N/A	N/A	N/A	N/A
Total	74.4	77	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

#### Roadway Construction Noise Model (RCNM), Version 1.1

Report date:

10/23/2019

Case Description:

Marisol SP - Del Mar - Pipeline Installation / Backfill

#### ---- Receptor #1 ----

Description	Land Use	Baselines (dBA)					
		Daytime	Evening	Night			
Residential - Closest	Residential	60	55	50			
Description		Equipment					
		Impact Device	Usage(%)	Spec	Actual	Receptor	Estimated
				Lmax	Lmax	Distance	Shielding
				(dBA)	(dBA)	(feet)	(dBA)
Excavator		No	40		80.7	30	0
Generator		No	50		80.6	75	0
Backhoe		No	40		77.6	50	0

#### Results

Equipment	Calculated (dBA)			Noise Limits (dBA)			
	*Lmax	Leq	Day Lmax	Leq	Evening Lmax	Leq	
Excavator	85.1		81.2	N/A	N/A	N/A	N/A
Generator	77.1		74.1	N/A	N/A	N/A	N/A
Backhoe	77.6		73.6	N/A	N/A	N/A	N/A
Total	85.1		82.5	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

#### ---- Receptor #2 ----

Description	Land Use	Baselines (dBA)					
		Daytime	Evening	Night			
Residential - Typical	Residential	60	55	50			
Description		Equipment					
		Impact Device	Usage(%)	Spec	Actual	Receptor	Estimated
				Lmax	Lmax	Distance	Shielding
				(dBA)	(dBA)	(feet)	(dBA)
Excavator	No	40		80.7	250	0	
Generator	No	50		80.6	250	0	
Backhoe	No	40		77.6	250	0	

#### Results

Equipment	Calculated (dBA)			Noise Limits (dBA)			
	*Lmax	Leq	Day Lmax	Leq	Evening Lmax	Leq	
Excavator	66.7		62.8	N/A	N/A	N/A	N/A
Generator	66.7		63.6	N/A	N/A	N/A	N/A





Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 10/28/2019  
Case Description: Marisol SP - Del Mar - Bldg Construction

		---- Receptor #1 ----				
		Baselines (dBA)				
Description	Land Use	Daytime	Evening	Night		
Residential - North - Closest	Residential	60	55	50		
		Equipment				
		Impact	Spec	Actual	Receptor	Estimated
Description	Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Crane	No	16		80.6	40	0
Man Lift	No	20		74.7	75	0
Man Lift	No	20		74.7	50	0
Man Lift	No	20		74.7	100	0
Generator	No	50		80.6	50	0
Backhoe	No	40		77.6	150	0
Front End Loader	No	40		79.1	75	0
Tractor	No	40	84		200	0
Welder / Torch	No	40		74	75	0

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane		82.5	74.5	N/A	N/A	N/A	N/A
Man Lift		71.2	64.2	N/A	N/A	N/A	N/A
Man Lift		74.7	67.7	N/A	N/A	N/A	N/A
Man Lift		68.7	61.7	N/A	N/A	N/A	N/A
Generator		80.6	77.6	N/A	N/A	N/A	N/A
Backhoe		68	64	N/A	N/A	N/A	N/A
Front End Loader		75.6	71.6	N/A	N/A	N/A	N/A
Tractor		72	68	N/A	N/A	N/A	N/A
Welder / Torch		70.5	66.5	N/A	N/A	N/A	N/A
Total		82.5	80.9	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

		---- Receptor #2 ----				
		Baselines (dBA)				
Description	Land Use	Daytime	Evening	Night		
Residential - North - Typical	Residential	60	55	50		
		Equipment				
		Impact	Spec	Actual	Receptor	Estimated
Description	Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Crane	No	16		80.6	170	0
Man Lift	No	20		74.7	170	0
Man Lift	No	20		74.7	170	0
Man Lift	No	20		74.7	170	0
Generator	No	50		80.6	170	0
Backhoe	No	40		77.6	170	0
Front End Loader	No	40		79.1	170	0
Tractor	No	40	84		170	0
Welder / Torch	No	40		74	170	0

Equipment	Results					
	Calculated (dBA)			Noise Limits (dBA)		
	*Lmax	Leq	Day	Leq	Evening	
Crane	69.9	62	N/A	N/A	N/A	N/A
Man Lift	64.1	57.1	N/A	N/A	N/A	N/A
Man Lift	64.1	57.1	N/A	N/A	N/A	N/A
Man Lift	64.1	57.1	N/A	N/A	N/A	N/A
Generator	70	67	N/A	N/A	N/A	N/A
Backhoe	66.9	63	N/A	N/A	N/A	N/A
Front End Loader	68.5	64.5	N/A	N/A	N/A	N/A
Tractor	73.4	69.4	N/A	N/A	N/A	N/A
Welder / Torch	63.4	59.4	N/A	N/A	N/A	N/A
Total	73.4	73.5	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

Report date: 10/28/2019  
Case Description: Marisol SP - Del Mar - Arch Coating

Roadway Construction Noise Model (RCNM), Version 1.1

Report date: 10/28/2019  
Case Description: Marisol SP - Del Mar - Paving

		---- Receptor #1 ----					
		Baselines (dBA)					
Description	Land Use	Daytime	Evening	Night			
Residential - North - Closest	Residential	60	55	50			
		Equipment					
		Impact	Spec	Actual	Receptor	Estimated	
Description		Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Paver		No	50		77.2	30	0
Paver		No	50		77.2	75	0
Pumps		No	50		80.9	50	0
Pumps		No	50		80.9	100	0
Roller		No	20		80	150	0
Roller		No	20		80	200	0

		Results					
		Calculated (dBA)			Noise Limits (dBA)		
				Day	Evening		
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver		81.7	78.6	N/A	N/A	N/A	N/A
Paver		73.7	70.7	N/A	N/A	N/A	N/A
Pumps		80.9	77.9	N/A	N/A	N/A	N/A
Pumps		74.9	71.9	N/A	N/A	N/A	N/A
Roller		70.5	63.5	N/A	N/A	N/A	N/A
Roller		68	61	N/A	N/A	N/A	N/A
	Total	81.7	82.2	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

		---- Receptor #2 ----					
		Baselines (dBA)					
Description	Land Use	Daytime	Evening	Night			
Residential - North - Typical	Residential	60	55	50			
		Equipment					
		Impact	Spec	Actual	Receptor	Estimated	
Description		Device	Usage(%)	Lmax (dBA)	Lmax (dBA)	Distance (feet)	Shielding (dBA)
Paver		No	50		77.2	170	0
Paver		No	50		77.2	170	0
Pumps		No	50		80.9	170	0
Pumps		No	50		80.9	170	0
Roller		No	20		80	170	0
Roller		No	20		80	170	0

		Results					
		Calculated (dBA)			Noise Limits (dBA)		
				Day	Evening		
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver		66.6	63.6	N/A	N/A	N/A	N/A
Paver		66.6	63.6	N/A	N/A	N/A	N/A

Pumps		70.3	67.3	N/A	N/A	N/A	N/A
Pumps		70.3	67.3	N/A	N/A	N/A	N/A
Roller		69.4	62.4	N/A	N/A	N/A	N/A
Roller		69.4	62.4	N/A	N/A	N/A	N/A
	Total	70.3	72.7	N/A	N/A	N/A	N/A

\*Calculated Lmax is the Loudest value.

# **APPENDIX C**

## ***Traffic Noise Modeling Input/Output Files***



**INPUT: ROADWAYS**
**10414**

Dudek											
MG											
<b>INPUT: ROADWAYS</b>				<b>12 December 2017</b>							
<b>PROJECT/CONTRACT:</b>				<b>TNM 2.5</b>							
<b>RUN:</b>				<b>Del Mar Beach Resort PN 10414 Cal Run</b>				<b>Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA</b>			
<b>Roadway</b>		<b>Points</b>									
<b>Name</b>	<b>Width</b>	<b>Name</b>	<b>No.</b>	<b>Coordinates (pavement)</b>			<b>Flow Control</b>			<b>Segment</b>	
				<b>X</b>	<b>Y</b>	<b>Z</b>	<b>Control Device</b>	<b>Speed Constraint</b>	<b>Percent Vehicles Affected</b>	<b>Pvmt Type</b>	<b>On Struct?</b>
	ft			ft	ft	ft		mph	%		
Hwy 101 n of Via de la Valle	76.0	point1	1	2,476.2	7,183.8	0.00				Average	
		point3	3	2,773.8	5,853.8	0.00				Average	
		point4	4	2,896.3	5,215.0	0.00				Average	
		point5	5	2,992.5	4,795.0	0.00				Average	
		point6	6	3,022.8	4,555.3	0.00				Average	
		point7	7	3,050.4	4,252.1	0.00					
S Sierra Avenue	38.0	point34	34	2,130.7	7,038.5	0.00				Average	
		point17	17	2,263.1	6,255.7	0.00				Average	
		point18	18	2,445.0	5,258.0	0.00				Average	
		point19	19	2,538.7	4,800.5	0.00				Average	
		point20	20	2,632.4	4,320.9	0.00				Average	
		point21	21	2,635.1	4,246.5	0.00					
Via de la Valle	65.0	point37	37	3,057.1	4,246.0	0.00				Average	
		point24	24	3,468.9	4,249.8	0.00				Average	
		point25	25	4,514.1	4,288.0	0.00				Average	
		point26	26	5,278.1	4,315.8	0.00				Average	
		point27	27	5,510.7	4,288.0	0.00				Average	
		point28	28	5,648.5	4,255.0	0.00				Average	
		point29	29	6,128.1	4,097.9	0.00				Average	
		point30	30	6,489.1	3,990.4	0.00				Average	
		point31	31	6,748.2	3,940.8	0.00				Average	
		point32	32	6,875.0	3,946.3	0.00				Average	
		point33	33	7,470.3	4,023.4	0.00				Average	
		point2	2	7,718.4	4,100.6	0.00					
Camino del Mar	64.0	point38	38	3,050.1	4,249.0	58.00				Average	

**INPUT: ROADWAYS****10414**

		point8	8	3,036.6	3,951.7	50.00				Average	
		point9	9	3,022.8	3,700.8	42.00				Average	
		point10	10	2,998.0	3,295.7	35.00				Average	
		point11	11	3,004.6	2,971.9	32.00				Average	
		point12	12	3,041.8	2,689.8	30.00					
Border Ave	38.0	point39	39	2,635.1	4,246.5	0.00				Average	
		point22	22	3,037.5	4,244.9	0.00					
Camino del Mar-2	64.0	point42	42	3,041.8	2,689.8	30.00				Average	
		point13	13	3,149.0	1,950.4	20.00				Average	
		point14	14	3,209.6	1,492.9	12.00				Average	
		point15	15	3,408.0	269.2	12.00					



INPUT: TRAFFIC FOR LAeq1h Volumes

10414

Dudek												
MG												
INPUT: TRAFFIC FOR LAeq1h Volumes												
PROJECT/CONTRACT:	10414											
RUN:	Del Mar Beach Resort PN 10414 Cal Run											
Roadway	Points											
Name	Name	No.	Segment									
			Autos		MTrucks		HTrucks		Buses		Motorcycles	
			V	S	V	S	V	S	V	S	V	S
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
Hwy 101 n of Via de la Valle	point1	1	942	40	6	40	0	0	6	40	0	0
	point3	3	942	40	6	40	0	0	6	40	0	0
	point4	4	942	40	6	40	0	0	6	40	0	0
	point5	5	942	40	6	40	0	0	6	40	0	0
	point6	6	942	40	6	40	0	0	6	40	0	0
	point7	7										
S Sierra Avenue	point34	34	0	0	0	0	0	0	0	0	0	0
	point17	17	0	0	0	0	0	0	0	0	0	0
	point18	18	0	0	0	0	0	0	0	0	0	0
	point19	19	0	0	0	0	0	0	0	0	0	0
	point20	20	0	0	0	0	0	0	0	0	0	0
	point21	21										
Via de la Valle	point37	37	942	40	18	40	0	0	6	40	0	0
	point24	24	942	40	18	40	0	0	6	40	0	0
	point25	25	942	40	18	40	0	0	6	40	0	0
	point26	26	942	40	18	40	0	0	6	40	0	0
	point27	27	942	40	18	40	0	0	6	40	0	0
	point28	28	942	40	18	40	0	0	6	40	0	0
	point29	29	942	40	18	40	0	0	6	40	0	0
	point30	30	942	40	18	40	0	0	6	40	0	0
	point31	31	942	40	18	40	0	0	6	40	0	0
	point32	32	942	40	18	40	0	0	6	40	0	0
	point33	33	942	40	18	40	0	0	6	40	0	0

**INPUT: TRAFFIC FOR LAeq1h Volumes**
**10414**

	point2	2										
Camino del Mar	point38	38	912	25	6	25	0	0	6	25	0	0
	point8	8	912	25	6	25	0	0	6	25	0	0
	point9	9	912	25	6	25	0	0	6	25	0	0
	point10	10	912	25	6	25	0	0	6	25	0	0
	point11	11	912	25	6	25	0	0	6	25	0	0
	point12	12										
Border Ave	point39	39	0	0	0	0	0	0	0	0	0	0
	point22	22										
Camino del Mar-2	point42	42	708	30	12	30	6	30	0	0	6	30
	point13	13	708	30	12	30	6	30	0	0	6	30
	point14	14	708	30	12	30	6	30	0	0	6	30
	point15	15										

**INPUT: RECEIVERS**
**10414**

Dudek												
MG												
<b>INPUT: RECEIVERS</b>												
<b>PROJECT/CONTRACT:</b>	<b>10414</b>											
<b>RUN:</b>	<b>Del Mar Beach Resort PN 10414 Cal Run</b>											
<b>Receiver</b>												
<b>Name</b>	<b>No.</b>	<b>#DUs</b>	<b>Coordinates (ground)</b>			<b>Height</b>	<b>Input Sound Levels and Criteria</b>				<b>Active</b>	
			<b>X</b>	<b>Y</b>	<b>Z</b>	<b>above</b>	<b>Existing</b>	<b>Impact Criteria</b>		<b>NR</b>	<b>in</b>	
						<b>Ground</b>	<b>LAeq1h</b>	<b>LAeq1h</b>	<b>Sub'l</b>	<b>Goal</b>	<b>Calc.</b>	
			ft	ft	ft	ft	dBA	dBA	dB	dB		
ST1 - Preserve south of project site	1	1	2,931.7	3,287.4	72.00	5.00	59.80	66	10.0	8.0	Y	
ST2 - Residences south of project site	2	1	3,202.9	1,054.9	14.00	5.00	58.70	66	10.0	8.0		
ST3 - Residences east of project site	3	1	3,887.5	4,304.4	82.00	5.00	67.50	66	10.0	8.0	Y	
ST4 - Residences north of project site	4	1	2,936.7	4,850.8	68.00	5.00	66.50	66	10.0	8.0	Y	

**RESULTS: SOUND LEVELS**
**10414**

Dudek													
MG													
<b>RESULTS: SOUND LEVELS</b>													
<b>PROJECT/CONTRACT:</b>													
<b>RUN:</b>													
<b>BARRIER DESIGN:</b>													
<b>ATMOSPHERICS:</b>													
<b>Receiver</b>													
<b>Name</b>	<b>No.</b>	<b>#DUs</b>	<b>Existing</b>	<b>No Barrier</b>						<b>With Barrier</b>			
			<b>LAeq1h</b>	<b>LAeq1h</b>		<b>Increase over existing</b>		<b>Type</b>	<b>Calculated</b>	<b>Noise Reduction</b>			
				<b>Calculated</b>	<b>Crit'n</b>	<b>Calculated</b>	<b>Crit'n</b>	<b>Impact</b>	<b>LAeq1h</b>	<b>Calculated</b>	<b>Goal</b>	<b>Calculated</b>	
							<b>Sub'l Inc</b>					<b>minus</b>	
												<b>Goal</b>	
			<b>dBA</b>	<b>dBA</b>	<b>dBA</b>	<b>dB</b>	<b>dB</b>		<b>dBA</b>	<b>dB</b>	<b>dB</b>	<b>dB</b>	
ST1 - Preserve south of project site	1	1	59.8	58.5	66	-1.3	10	----	58.5	0.0	8	-8.0	
ST2 - Residences south of project site	2	1	58.7	59.2	66	0.5	10	----	59.2	0.0	8	-8.0	
ST3 - Residences east of project site	3	1	67.5	66.6	66	-0.9	10	Snd Lvl	66.6	0.0	8	-8.0	
ST4 - Residences north of project site	4	1	66.5	65.8	66	-0.7	10	----	65.8	0.0	8	-8.0	
<b>Dwelling Units</b>		<b># DUs</b>	<b>Noise Reduction</b>										
			<b>Min</b>	<b>Avg</b>	<b>Max</b>								
			<b>dB</b>	<b>dB</b>	<b>dB</b>								
All Selected		4	0.0	0.0	0.0								
All Impacted		1	0.0	0.0	0.0								
All that meet NR Goal		0	0.0	0.0	0.0								

**INPUT: ROADWAYS**
**10414**

Dudek MG												
<b>INPUT: ROADWAYS</b>												
<b>PROJECT/CONTRACT:</b>	<b>10414</b>											
<b>RUN:</b>	<b>Del Mar Beach Resort PN 10414</b>											
<b>Roadway</b>		<b>Points</b>										
<b>Name</b>	<b>Width</b>	<b>Name</b>	<b>No.</b>	<b>Coordinates (pavement)</b>			<b>Flow Control</b>				<b>Segment</b>	
				<b>X</b>	<b>Y</b>	<b>Z</b>	<b>Control</b>	<b>Speed</b>	<b>Percent</b>	<b>Pvmt</b>	<b>On</b>	
							<b>Device</b>	<b>Constraint</b>	<b>Vehicles</b>	<b>Type</b>	<b>Struct?</b>	
									<b>Affected</b>			
	ft			ft	ft	ft		mph	%			
Hwy 101 n of Via de la Valle	76.0	point1	1	2,476.2	7,183.8	67.00				Average		
		point3	3	2,773.8	5,853.8	66.00				Average		
		point4	4	2,896.3	5,215.0	65.00				Average		
		point5	5	2,992.5	4,795.0	64.00				Average		
		point6	6	3,022.8	4,555.3	63.00				Average		
		point7	7	3,050.4	4,252.1	62.00						
S Sierra Avenue	38.0	point34	34	2,130.7	7,038.5	83.00				Average		
		point17	17	2,263.1	6,255.7	82.00				Average		
		point18	18	2,445.0	5,258.0	82.00				Average		
		point19	19	2,538.7	4,800.5	82.00				Average		
		point20	20	2,632.4	4,320.9	81.00				Average		
		point21	21	2,635.1	4,246.5	80.00						
Via de la Valle	65.0	point37	37	3,057.1	4,246.0	80.00				Average		
		point24	24	3,468.9	4,249.8	62.00				Average		
		point25	25	4,514.1	4,288.0	72.00				Average		
		point26	26	5,278.1	4,315.8	58.00				Average		
		point27	27	5,510.7	4,288.0	55.00				Average		
		point28	28	5,648.5	4,255.0	49.00				Average		
		point29	29	6,128.1	4,097.9	35.00				Average		
		point30	30	6,489.1	3,990.4	24.00				Average		
		point31	31	6,748.2	3,940.8	16.00				Average		
		point32	32	6,875.0	3,946.3	17.00				Average		
		point33	33	7,470.3	4,023.4	22.00				Average		
		point2	2	7,718.4	4,100.6	24.00						
Camino del Mar	64.0	point38	38	3,050.4	4,252.1	62.00				Average		

**INPUT: ROADWAYS****10414**

		point8	8	3,036.6	3,951.7	50.00				Average	
		point9	9	3,022.8	3,700.8	42.00				Average	
		point10	10	2,998.0	3,295.7	35.00				Average	
		point11	11	3,004.6	2,971.9	32.00				Average	
		point12	12	3,041.8	2,689.8	30.00				Average	
		point13	13	3,149.0	1,950.4	20.00				Average	
		point14	14	3,209.6	1,492.9	12.00				Average	
		point15	15	3,408.0	269.2	12.00					
Border Ave	38.0	point39	39	2,635.1	4,246.5	80.00				Average	
		point22	22	3,037.5	4,244.9	62.00					

**INPUT: TRAFFIC FOR LAeq1h Percentages**
**10414**

Dudek													
MG													
INPUT: TRAFFIC FOR LAeq1h Percentages													
PROJECT/CONTRACT:	10414												
RUN:	Del Mar Beach Resort PN 10414												
Roadway	Points												
Name	Name	No.	Segment										
			Total	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			Volume	P	S	P	S	P	S	P	S	P	S
			veh/hr	%	mph	%	mph	%	mph	%	mph	%	mph
Hwy 101 n of Via de la Valle	point1	1	1790	97	35	2	35	1	35	0	0	0	0
	point3	3	1790	97	35	2	35	1	35	0	0	0	0
	point4	4	1790	97	35	2	35	1	35	0	0	0	0
	point5	5	1790	97	35	2	35	1	35	0	0	0	0
	point6	6	1790	97	35	2	35	1	35	0	0	0	0
	point7	7											
S Sierra Avenue	point34	34	340	97	25	2	25	1	25	0	0	0	0
	point17	17	340	97	25	2	25	1	25	0	0	0	0
	point18	18	340	97	25	2	25	1	25	0	0	0	0
	point19	19	340	97	25	2	25	1	25	0	0	0	0
	point20	20	340	97	25	2	25	1	25	0	0	0	0
	point21	21											
Via de la Valle	point37	37	1880	97	45	2	45	1	45	0	0	0	0
	point24	24	1880	97	45	2	45	1	45	0	0	0	0
	point25	25	1880	97	45	2	45	1	45	0	0	0	0
	point26	26	1880	97	45	2	45	1	45	0	0	0	0
	point27	27	1880	97	45	2	45	1	45	0	0	0	0
	point28	28	1880	97	45	2	45	1	45	0	0	0	0
	point29	29	1880	97	45	2	45	1	45	0	0	0	0
	point30	30	1880	97	45	2	45	1	45	0	0	0	0
	point31	31	1880	97	45	2	45	1	45	0	0	0	0
	point32	32	1880	97	45	2	45	1	45	0	0	0	0
	point33	33	1880	97	45	2	45	1	45	0	0	0	0

**INPUT: TRAFFIC FOR LAeq1h Percentages**
**10414**

	point2	2											
Camino del Mar	point38	38	1530	97	30	2	30	1	30	0	0	0	0
	point8	8	1530	97	30	2	30	1	30	0	0	0	0
	point9	9	1530	97	30	2	30	1	30	0	0	0	0
	point10	10	1530	97	30	2	30	1	30	0	0	0	0
	point11	11	1530	97	30	2	30	1	30	0	0	0	0
	point12	12	1530	97	30	2	30	1	30	0	0	0	0
	point13	13	1530	97	30	2	30	1	30	0	0	0	0
	point14	14	1530	97	30	2	30	1	30	0	0	0	0
	point15	15											
Border Ave	point39	39	340	97	25	2	25	1	25	0	0	0	0
	point22	22											



**INPUT: RECEIVERS**
**10414**

Dudek												
MG												
<b>INPUT: RECEIVERS</b>												
<b>PROJECT/CONTRACT:</b>	<b>10414</b>											
<b>RUN:</b>	<b>Del Mar Beach Resort PN 10414</b>											
<b>Receiver</b>												
<b>Name</b>	<b>No.</b>	<b>#DUs</b>	<b>Coordinates (ground)</b>			<b>Height</b>	<b>Input Sound Levels and Criteria</b>				<b>Active</b>	
			<b>X</b>	<b>Y</b>	<b>Z</b>	<b>above</b>	<b>Existing</b>	<b>Impact Criteria</b>		<b>NR</b>	<b>in</b>	
						<b>Ground</b>	<b>LAeq1h</b>	<b>LAeq1h</b>	<b>Sub'l</b>	<b>Goal</b>	<b>Calc.</b>	
			ft	ft	ft	ft	dBA	dBA	dB	dB		
ST1 - Preserve south of project site	1	1	2,931.7	3,287.4	72.00	5.00	0.00	66	10.0	8.0	Y	
ST2 - Residences south of project site	2	1	3,202.9	1,054.9	14.00	5.00	0.00	66	10.0	8.0	Y	
ST3 - Residences east of project site	3	1	3,887.5	4,334.2	82.00	5.00	0.00	66	10.0	8.0	Y	
ST4 - Residences north of project site	4	1	2,926.8	4,848.0	68.00	5.00	0.00	66	10.0	8.0	Y	
M1 - Residences northeast of project site	6	1	2,486.1	4,674.7	85.00	5.00	0.00	66	10.0	8.0	Y	
M2 - Residences north of project site	7	1	2,791.4	4,305.0	75.00	5.00	0.00	66	10.0	8.0	Y	

**RESULTS: SOUND LEVELS**
**10414**

Dudek MG													
<b>RESULTS: SOUND LEVELS</b>													
<b>PROJECT/CONTRACT:</b>													
<b>RUN:</b>													
<b>BARRIER DESIGN:</b>													
<b>ATMOSPHERICS:</b>													
<b>Receiver</b>													
<b>Name</b>	<b>No.</b>	<b>#DUs</b>	<b>Existing</b>	<b>No Barrier</b>					<b>With Barrier</b>				
			<b>LAeq1h</b>	<b>LAeq1h</b>		<b>Increase over existing</b>		<b>Type</b>	<b>Calculated</b>	<b>Noise Reduction</b>			
				<b>Calculated</b>	<b>Crit'n</b>	<b>Calculated</b>	<b>Crit'n</b>	<b>Impact</b>	<b>LAeq1h</b>	<b>Calculated</b>	<b>Goal</b>	<b>Calculated</b>	
							<b>Sub'l Inc</b>					<b>minus</b>	
												<b>Goal</b>	
			<b>dBA</b>	<b>dBA</b>	<b>dBA</b>	<b>dB</b>	<b>dB</b>		<b>dBA</b>	<b>dB</b>	<b>dB</b>	<b>dB</b>	
ST1 - Preserve south of project site	1	1	0.0	63.5	66	63.5	10	----	63.5	0.0	8	-8.0	
ST2 - Residences south of project site	2	1	0.0	62.4	66	62.4	10	----	62.4	0.0	8	-8.0	
ST3 - Residences east of project site	3	1	0.0	68.7	66	68.7	10	Snd Lvl	68.7	0.0	8	-8.0	
ST4 - Residences north of project site	4	1	0.0	66.9	66	66.9	10	Snd Lvl	66.9	0.0	8	-8.0	
M1 - Residences northeast of project site	6	1	0.0	56.7	66	56.7	10	----	56.7	0.0	8	-8.0	
M2 - Residences north of project site	7	1	0.0	61.3	66	61.3	10	----	61.3	0.0	8	-8.0	
<b>Dwelling Units</b>		<b># DUs</b>	<b>Noise Reduction</b>										
			<b>Min</b>	<b>Avg</b>	<b>Max</b>								
			<b>dB</b>	<b>dB</b>	<b>dB</b>								
All Selected		6	0.0	0.0	0.0								
All Impacted		2	0.0	0.0	0.0								
All that meet NR Goal		0	0.0	0.0	0.0								

**INPUT: ROADWAYS**
**10414**

Dudek MG												
<b>INPUT: ROADWAYS</b>												
<b>PROJECT/CONTRACT:</b>	<b>10414</b>											
<b>RUN:</b>	<b>Del Mar Beach Resort PN 10414 Ex + Proj</b>											
<b>Roadway</b>		<b>Points</b>										
<b>Name</b>	<b>Width</b>	<b>Name</b>	<b>No.</b>	<b>Coordinates (pavement)</b>			<b>Flow Control</b>				<b>Segment</b>	
				<b>X</b>	<b>Y</b>	<b>Z</b>	<b>Control</b>	<b>Speed</b>	<b>Percent</b>	<b>Pvmt</b>	<b>On</b>	
							<b>Device</b>	<b>Constraint</b>	<b>Vehicles</b>	<b>Type</b>	<b>Struct?</b>	
									<b>Affected</b>			
	ft			ft	ft	ft		mph	%			
Hwy 101 n of Via de la Valle	76.0	point1	1	2,476.2	7,183.8	67.00				Average		
		point3	3	2,773.8	5,853.8	66.00				Average		
		point4	4	2,896.3	5,215.0	65.00				Average		
		point5	5	2,992.5	4,795.0	64.00				Average		
		point6	6	3,022.8	4,555.3	63.00				Average		
		point7	7	3,050.4	4,252.1	62.00						
S Sierra Avenue	38.0	point34	34	2,130.7	7,038.5	83.00				Average		
		point17	17	2,263.1	6,255.7	82.00				Average		
		point18	18	2,445.0	5,258.0	82.00				Average		
		point19	19	2,538.7	4,800.5	82.00				Average		
		point20	20	2,632.4	4,320.9	81.00				Average		
		point21	21	2,635.1	4,246.5	80.00						
Via de la Valle	65.0	point37	37	3,057.1	4,246.0	80.00				Average		
		point24	24	3,468.9	4,249.8	62.00				Average		
		point25	25	4,514.1	4,288.0	72.00				Average		
		point26	26	5,278.1	4,315.8	58.00				Average		
		point27	27	5,510.7	4,288.0	55.00				Average		
		point28	28	5,648.5	4,255.0	49.00				Average		
		point29	29	6,128.1	4,097.9	35.00				Average		
		point30	30	6,489.1	3,990.4	24.00				Average		
		point31	31	6,748.2	3,940.8	16.00				Average		
		point32	32	6,875.0	3,946.3	17.00				Average		
		point33	33	7,470.3	4,023.4	22.00				Average		
		point2	2	7,718.4	4,100.6	24.00						
Camino del Mar	64.0	point38	38	3,050.4	4,252.1	62.00				Average		

**INPUT: ROADWAYS****10414**

		point8	8	3,036.6	3,951.7	50.00				Average	
		point9	9	3,022.8	3,700.8	42.00				Average	
		point10	10	2,998.0	3,295.7	35.00				Average	
		point11	11	3,004.6	2,971.9	32.00				Average	
		point12	12	3,041.8	2,689.8	30.00				Average	
		point13	13	3,149.0	1,950.4	20.00				Average	
		point14	14	3,209.6	1,492.9	12.00				Average	
		point15	15	3,408.0	269.2	12.00					
Border Ave	38.0	point39	39	2,635.1	4,246.5	80.00				Average	
		point22	22	3,037.5	4,244.9	62.00					

INPUT: TRAFFIC FOR LAeq1h Percentages

10414

Dudek													
MG													
INPUT: TRAFFIC FOR LAeq1h Percentages													
PROJECT/CONTRACT:	10414												
RUN:	Del Mar Beach Resort PN 10414 Ex + Proj												
Roadway	Points												
Name	Name	No.	Segment										
			Total	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			Volume	P	S	P	S	P	S	P	S	P	S
			veh/hr	%	mph	%	mph	%	mph	%	mph	%	mph
Hwy 101 n of Via de la Valle	point1	1	1810	97	35	2	35	1	35	0	0	0	0
	point3	3	1810	97	35	2	35	1	35	0	0	0	0
	point4	4	1810	97	35	2	35	1	35	0	0	0	0
	point5	5	1810	97	35	2	35	1	35	0	0	0	0
	point6	6	1810	97	35	2	35	1	35	0	0	0	0
	point7	7											
S Sierra Avenue	point34	34	346	97	25	2	25	1	25	0	0	0	0
	point17	17	346	97	25	2	25	1	25	0	0	0	0
	point18	18	346	97	25	2	25	1	25	0	0	0	0
	point19	19	346	97	25	2	25	1	25	0	0	0	0
	point20	20	346	97	25	2	25	1	25	0	0	0	0
	point21	21											
Via de la Valle	point37	37	1977	97	45	2	45	1	45	0	0	0	0
	point24	24	1977	97	45	2	45	1	45	0	0	0	0
	point25	25	1977	97	45	2	45	1	45	0	0	0	0
	point26	26	1977	97	45	2	45	1	45	0	0	0	0
	point27	27	1977	97	45	2	45	1	45	0	0	0	0
	point28	28	1977	97	45	2	45	1	45	0	0	0	0
	point29	29	1977	97	45	2	45	1	45	0	0	0	0
	point30	30	1977	97	45	2	45	1	45	0	0	0	0
	point31	31	1977	97	45	2	45	1	45	0	0	0	0
	point32	32	1977	97	45	2	45	1	45	0	0	0	0
	point33	33	1977	97	45	2	45	1	45	0	0	0	0

**INPUT: TRAFFIC FOR LAeq1h Percentages****10414**

	point2	2											
Camino del Mar	point38	38	1545	97	30	2	30	1	30	0	0	0	0
	point8	8	1545	97	30	2	30	1	30	0	0	0	0
	point9	9	1545	97	30	2	30	1	30	0	0	0	0
	point10	10	1545	97	30	2	30	1	30	0	0	0	0
	point11	11	1545	97	30	2	30	1	30	0	0	0	0
	point12	12	1545	97	30	2	30	1	30	0	0	0	0
	point13	13	1545	97	30	2	30	1	30	0	0	0	0
	point14	14	1545	97	30	2	30	1	30	0	0	0	0
	point15	15											
Border Ave	point39	39	346	97	25	2	25	1	25	0	0	0	0
	point22	22											

**INPUT: RECEIVERS**
**10414**

Dudek												
MG												
<b>INPUT: RECEIVERS</b>												
<b>PROJECT/CONTRACT:</b>	<b>10414</b>											
<b>RUN:</b>	<b>Del Mar Beach Resort PN 10414 Ex + Proj</b>											
<b>Receiver</b>												
<b>Name</b>	<b>No.</b>	<b>#DUs</b>	<b>Coordinates (ground)</b>			<b>Height</b>	<b>Input Sound Levels and Criteria</b>				<b>Active</b>	
			<b>X</b>	<b>Y</b>	<b>Z</b>	<b>above</b>	<b>Existing</b>	<b>Impact Criteria</b>		<b>NR</b>	<b>in</b>	
						<b>Ground</b>	<b>LAeq1h</b>	<b>LAeq1h</b>	<b>Sub'l</b>	<b>Goal</b>	<b>Calc.</b>	
			ft	ft	ft	ft	dBA	dBA	dB	dB		
ST1 - Preserve south of project site	1	1	2,931.7	3,287.4	72.00	5.00	0.00	66	10.0	8.0	Y	
ST2 - Residences south of project site	2	1	3,202.9	1,054.9	14.00	5.00	0.00	66	10.0	8.0	Y	
ST3 - Residences east of project site	3	1	3,887.5	4,334.1	82.00	5.00	0.00	66	10.0	8.0	Y	
ST4 - Residences north of project site	4	1	2,926.8	4,848.0	68.00	5.00	0.00	66	10.0	8.0	Y	
M1 - Residences northeast of project site	6	1	2,486.1	4,674.7	85.00	5.00	0.00	66	10.0	8.0	Y	
M2 - Residences north of project site	7	1	2,791.4	4,305.0	75.00	5.00	0.00	66	10.0	8.0	Y	

## RESULTS: SOUND LEVELS

10414

Dudek												
MG												
RESULTS: SOUND LEVELS												
PROJECT/CONTRACT:		10414										
RUN:		Del Mar Beach Resort PN 10414 Ex + Proj										
BARRIER DESIGN:		INPUT HEIGHTS										
ATMOSPHERICS:		68 deg F, 50% RH										
Receiver												
Name	No.	#DUs	Existing	No Barrier					With Barrier			
			LAeq1h	LAeq1h		Increase over existing	Type	Calculated	Noise Reduction			
				Calculated	Crit'n	Calculated	Crit'n	Impact	LAeq1h	Calculated	Goal	Calculated
							Sub'l Inc					minus
												Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
ST1 - Preserve south of project site	1	1	0.0	63.6	66	63.6	10	----	63.6	0.0	8	-8.0
ST2 - Residences south of project site	2	1	0.0	62.5	66	62.5	10	----	62.5	0.0	8	-8.0
ST3 - Residences east of project site	3	1	0.0	68.9	66	68.9	10	Snd Lvl	68.9	0.0	8	-8.0
ST4 - Residences north of project site	4	1	0.0	67.0	66	67.0	10	Snd Lvl	67.0	0.0	8	-8.0
M1 - Residences northeast of project site	6	1	0.0	56.8	66	56.8	10	----	56.8	0.0	8	-8.0
M2 - Residences north of project site	7	1	0.0	61.4	66	61.4	10	----	61.4	0.0	8	-8.0
Dwelling Units		# DUs	Noise Reduction									
			Min	Avg	Max							
			dB	dB	dB							
All Selected		6	0.0	0.0	0.0							
All Impacted		2	0.0	0.0	0.0							
All that meet NR Goal		0	0.0	0.0	0.0							



**INPUT: ROADWAYS**
**10414**

Dudek MG												
<b>INPUT: ROADWAYS</b>												
<b>PROJECT/CONTRACT:</b>	<b>10414</b>											
<b>RUN:</b>	<b>Del Mar Beach Resort PN 10414 Future</b>											
<b>Roadway</b>		<b>Points</b>										
<b>Name</b>	<b>Width</b>	<b>Name</b>	<b>No.</b>	<b>Coordinates (pavement)</b>			<b>Flow Control</b>				<b>Segment</b>	
				<b>X</b>	<b>Y</b>	<b>Z</b>	<b>Control</b>	<b>Speed</b>	<b>Percent</b>	<b>Pvmt</b>	<b>On</b>	
							<b>Device</b>	<b>Constraint</b>	<b>Vehicles</b>	<b>Type</b>	<b>Struct?</b>	
									<b>Affected</b>			
	ft			ft	ft	ft		mph	%			
Hwy 101 n of Via de la Valle	76.0	point1	1	2,476.2	7,183.8	67.00				Average		
		point3	3	2,773.8	5,853.8	66.00				Average		
		point4	4	2,896.3	5,215.0	65.00				Average		
		point5	5	2,992.5	4,795.0	64.00				Average		
		point6	6	3,022.8	4,555.3	63.00				Average		
		point7	7	3,050.4	4,252.1	62.00						
S Sierra Avenue	38.0	point34	34	2,130.7	7,038.5	83.00				Average		
		point17	17	2,263.1	6,255.7	82.00				Average		
		point18	18	2,445.0	5,258.0	82.00				Average		
		point19	19	2,538.7	4,800.5	82.00				Average		
		point20	20	2,632.4	4,320.9	81.00				Average		
		point21	21	2,635.1	4,246.5	80.00						
Via de la Valle	65.0	point37	37	3,057.1	4,246.0	80.00				Average		
		point24	24	3,468.9	4,249.8	62.00				Average		
		point25	25	4,514.1	4,288.0	72.00				Average		
		point26	26	5,278.1	4,315.8	58.00				Average		
		point27	27	5,510.7	4,288.0	55.00				Average		
		point28	28	5,648.5	4,255.0	49.00				Average		
		point29	29	6,128.1	4,097.9	35.00				Average		
		point30	30	6,489.1	3,990.4	24.00				Average		
		point31	31	6,748.2	3,940.8	16.00				Average		
		point32	32	6,875.0	3,946.3	17.00				Average		
		point33	33	7,470.3	4,023.4	22.00				Average		
		point2	2	7,718.4	4,100.6	24.00						
Camino del Mar	64.0	point38	38	3,050.4	4,252.1	62.00				Average		

**INPUT: ROADWAYS****10414**

		point8	8	3,036.6	3,951.7	50.00				Average	
		point9	9	3,022.8	3,700.8	42.00				Average	
		point10	10	2,998.0	3,295.7	35.00				Average	
		point11	11	3,004.6	2,971.9	32.00				Average	
		point12	12	3,041.8	2,689.8	30.00				Average	
		point13	13	3,149.0	1,950.4	20.00				Average	
		point14	14	3,209.6	1,492.9	12.00				Average	
		point15	15	3,408.0	269.2	12.00					
Border Ave	38.0	point39	39	2,635.1	4,246.5	80.00				Average	
		point22	22	3,037.5	4,244.9	62.00					

INPUT: TRAFFIC FOR LAeq1h Percentages

10414

Dudek													
MG													
INPUT: TRAFFIC FOR LAeq1h Percentages													
PROJECT/CONTRACT:	10414												
RUN:	Del Mar Beach Resort PN 10414 Future												
Roadway	Points												
Name	Name	No.	Segment										
			Total	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			Volume	P	S	P	S	P	S	P	S	P	S
			veh/hr	%	mph	%	mph	%	mph	%	mph	%	mph
Hwy 101 n of Via de la Valle	point1	1	2660	97	35	2	35	1	35	0	0	0	0
	point3	3	2660	97	35	2	35	1	35	0	0	0	0
	point4	4	2660	97	35	2	35	1	35	0	0	0	0
	point5	5	2660	97	35	2	35	1	35	0	0	0	0
	point6	6	2660	97	35	2	35	1	35	0	0	0	0
	point7	7											
S Sierra Avenue	point34	34	390	97	25	2	25	1	25	0	0	0	0
	point17	17	390	97	25	2	25	1	25	0	0	0	0
	point18	18	390	97	25	2	25	1	25	0	0	0	0
	point19	19	390	97	25	2	25	1	25	0	0	0	0
	point20	20	390	97	25	2	25	1	25	0	0	0	0
	point21	21											
Via de la Valle	point37	37	2170	97	45	2	45	1	45	0	0	0	0
	point24	24	2170	97	45	2	45	1	45	0	0	0	0
	point25	25	2170	97	45	2	45	1	45	0	0	0	0
	point26	26	2170	97	45	2	45	1	45	0	0	0	0
	point27	27	2170	97	45	2	45	1	45	0	0	0	0
	point28	28	2170	97	45	2	45	1	45	0	0	0	0
	point29	29	2170	97	45	2	45	1	45	0	0	0	0
	point30	30	2170	97	45	2	45	1	45	0	0	0	0
	point31	31	2170	97	45	2	45	1	45	0	0	0	0
	point32	32	2170	97	45	2	45	1	45	0	0	0	0
	point33	33	2170	97	45	2	45	1	45	0	0	0	0

**INPUT: TRAFFIC FOR LAeq1h Percentages**
**10414**

	point2	2											
Camino del Mar	point38	38	1820	97	30	2	30	1	30	0	0	0	0
	point8	8	1820	97	30	2	30	1	30	0	0	0	0
	point9	9	1820	97	30	2	30	1	30	0	0	0	0
	point10	10	1820	97	30	2	30	1	30	0	0	0	0
	point11	11	1820	97	30	2	30	1	30	0	0	0	0
	point12	12	1820	97	30	2	30	1	30	0	0	0	0
	point13	13	1820	97	30	2	30	1	30	0	0	0	0
	point14	14	1820	97	30	2	30	1	30	0	0	0	0
	point15	15											
Border Ave	point39	39	390	97	25	2	25	1	25	0	0	0	0
	point22	22											

**INPUT: RECEIVERS**
**10414**

Dudek												
MG												
<b>INPUT: RECEIVERS</b>												
<b>PROJECT/CONTRACT:</b>	<b>10414</b>											
<b>RUN:</b>	<b>Del Mar Beach Resort PN 10414 Future</b>											
<b>Receiver</b>												
<b>Name</b>	<b>No.</b>	<b>#DUs</b>	<b>Coordinates (ground)</b>			<b>Height</b>	<b>Input Sound Levels and Criteria</b>				<b>Active</b>	
			<b>X</b>	<b>Y</b>	<b>Z</b>	<b>above</b>	<b>Existing</b>	<b>Impact Criteria</b>		<b>NR</b>	<b>in</b>	
						<b>Ground</b>	<b>LAeq1h</b>	<b>LAeq1h</b>	<b>Sub'l</b>	<b>Goal</b>	<b>Calc.</b>	
			ft	ft	ft	ft	dBA	dBA	dB	dB		
ST1 - Preserve south of project site	1	1	2,931.7	3,287.4	72.00	5.00	0.00	66	10.0	8.0	Y	
ST2 - Residences south of project site	2	1	3,202.9	1,054.9	14.00	5.00	0.00	66	10.0	8.0	Y	
ST3 - Residences east of project site	3	1	3,887.5	4,334.1	82.00	5.00	0.00	66	10.0	8.0	Y	
ST4 - Residences north of project site	4	1	2,926.8	4,848.0	68.00	5.00	0.00	66	10.0	8.0	Y	
M1 - Residences northeast of project site	6	1	2,486.1	4,674.7	85.00	5.00	0.00	66	10.0	8.0	Y	
M2 - Residences north of project site	7	1	2,791.4	4,305.0	75.00	5.00	0.00	66	10.0	8.0	Y	

**RESULTS: SOUND LEVELS**
**10414**

Dudek MG												
<b>RESULTS: SOUND LEVELS</b>												
<b>PROJECT/CONTRACT:</b>												
<b>RUN:</b>												
<b>BARRIER DESIGN:</b>												
<b>ATMOSPHERICS:</b>												
<b>Receiver</b>												
<b>Name</b>	<b>No.</b>	<b>#DUs</b>	<b>Existing</b>	<b>No Barrier</b>					<b>With Barrier</b>			
			<b>LAeq1h</b>	<b>LAeq1h</b>		<b>Increase over existing</b>		<b>Type</b>	<b>Calculated</b>	<b>Noise Reduction</b>		
				<b>Calculated</b>	<b>Crit'n</b>	<b>Calculated</b>	<b>Crit'n</b>	<b>Impact</b>	<b>LAeq1h</b>	<b>Calculated</b>	<b>Goal</b>	<b>Calculated</b>
							<b>Sub'l Inc</b>					<b>minus</b>
												<b>Goal</b>
			<b>dBA</b>	<b>dBA</b>	<b>dBA</b>	<b>dB</b>	<b>dB</b>		<b>dBA</b>	<b>dB</b>	<b>dB</b>	<b>dB</b>
ST1 - Preserve south of project site	1	1	0.0	64.3	66	64.3	10	----	64.3	0.0	8	-8.0
ST2 - Residences south of project site	2	1	0.0	63.2	66	63.2	10	----	63.2	0.0	8	-8.0
ST3 - Residences east of project site	3	1	0.0	69.3	66	69.3	10	Snd Lvl	69.3	0.0	8	-8.0
ST4 - Residences north of project site	4	1	0.0	68.7	66	68.7	10	Snd Lvl	68.7	0.0	8	-8.0
M1 - Residences northeast of project site	6	1	0.0	57.6	66	57.6	10	----	57.6	0.0	8	-8.0
M2 - Residences north of project site	7	1	0.0	62.3	66	62.3	10	----	62.3	0.0	8	-8.0
<b>Dwelling Units</b>		<b># DUs</b>	<b>Noise Reduction</b>									
			<b>Min</b>	<b>Avg</b>	<b>Max</b>							
			<b>dB</b>	<b>dB</b>	<b>dB</b>							
All Selected		6	0.0	0.0	0.0							
All Impacted		2	0.0	0.0	0.0							
All that meet NR Goal		0	0.0	0.0	0.0							

**INPUT: ROADWAYS**
**10414**

Dudek MG												
<b>INPUT: ROADWAYS</b>												
<b>PROJECT/CONTRACT:</b>	<b>10414</b>											
<b>RUN:</b>	<b>Del Mar BchRsrt PN10414 FWP OnSite</b>											
<b>Roadway</b>		<b>Points</b>										
<b>Name</b>	<b>Width</b>	<b>Name</b>	<b>No.</b>	<b>Coordinates (pavement)</b>			<b>Flow Control</b>				<b>Segment</b>	
				<b>X</b>	<b>Y</b>	<b>Z</b>	<b>Control</b>	<b>Speed</b>	<b>Percent</b>	<b>Pvmt</b>	<b>On</b>	
							<b>Device</b>	<b>Constraint</b>	<b>Vehicles</b>	<b>Type</b>	<b>Struct?</b>	
									<b>Affected</b>			
	ft			ft	ft	ft		mph	%			
Hwy 101 n of Via de la Valle	76.0	point1	1	2,476.2	7,183.8	67.00				Average		
		point3	3	2,773.8	5,853.8	66.00				Average		
		point4	4	2,896.3	5,215.0	65.00				Average		
		point5	5	2,992.5	4,795.0	64.00				Average		
		point6	6	3,022.8	4,555.3	63.00				Average		
		point7	7	3,050.4	4,252.1	62.00						
S Sierra Avenue	38.0	point34	34	2,130.7	7,038.5	83.00				Average		
		point17	17	2,263.1	6,255.7	82.00				Average		
		point18	18	2,445.0	5,258.0	82.00				Average		
		point19	19	2,538.7	4,800.5	82.00				Average		
		point20	20	2,632.4	4,320.9	81.00				Average		
		point21	21	2,635.1	4,246.5	80.00						
Via de la Valle	65.0	point37	37	3,057.1	4,246.0	80.00				Average		
		point24	24	3,468.9	4,249.8	62.00				Average		
		point25	25	4,514.1	4,288.0	72.00				Average		
		point26	26	5,278.1	4,315.8	58.00				Average		
		point27	27	5,510.7	4,288.0	55.00				Average		
		point28	28	5,648.5	4,255.0	49.00				Average		
		point29	29	6,128.1	4,097.9	35.00				Average		
		point30	30	6,489.1	3,990.4	24.00				Average		
		point31	31	6,748.2	3,940.8	16.00				Average		
		point32	32	6,875.0	3,946.3	17.00				Average		
		point33	33	7,470.3	4,023.4	22.00				Average		
		point2	2	7,718.4	4,100.6	24.00						
Border Ave	38.0	point39	39	2,635.1	4,246.5	80.00				Average		

**INPUT: ROADWAYS****10414**

		point22	22	3,037.5	4,244.9	62.00					
Camino del Mar	64.0	point38	38	3,050.1	4,249.0	62.00				Average	
		point8	8	3,036.6	3,951.7	50.00				Average	
		point9	9	3,022.8	3,700.8	42.00				Average	
		point10	10	2,998.0	3,295.7	35.00				Average	
		point11	11	3,004.6	2,971.9	32.00				Average	
		point42	42	3,041.8	2,689.8	30.00				Average	
		point13	13	3,149.0	1,950.4	20.00				Average	
		point14	14	3,209.6	1,492.9	12.00				Average	
		point15	15	3,408.0	269.2	12.00					



INPUT: TRAFFIC FOR LAeq1h Percentages

10414

Dudek													
MG													
INPUT: TRAFFIC FOR LAeq1h Percentages													
PROJECT/CONTRACT:	10414												
RUN:	Del Mar BchRsrt PN10414 FWP OnSite												
Roadway	Points												
Name	Name	No.	Segment										
			Total	Autos	MTrucks		HTrucks		Buses		Motorcycles		
			Volume	P	S	P	S	P	S	P	S	P	S
			veh/hr	%	mph	%	mph	%	mph	%	mph	%	mph
Hwy 101 n of Via de la Valle	point1	1	2680	97	35	2	35	1	35	0	0	0	0
	point3	3	2680	97	35	2	35	1	35	0	0	0	0
	point4	4	2680	97	35	2	35	1	35	0	0	0	0
	point5	5	2680	97	35	2	35	1	35	0	0	0	0
	point6	6	2680	97	35	2	35	1	35	0	0	0	0
	point7	7											
S Sierra Avenue	point34	34	396	97	25	2	25	1	25	0	0	0	0
	point17	17	396	97	25	2	25	1	25	0	0	0	0
	point18	18	396	97	25	2	25	1	25	0	0	0	0
	point19	19	396	97	25	2	25	1	25	0	0	0	0
	point20	20	396	97	25	2	25	1	25	0	0	0	0
	point21	21											
Via de la Valle	point37	37	2267	97	45	2	45	1	45	0	0	0	0
	point24	24	2267	97	45	2	45	1	45	0	0	0	0
	point25	25	2267	97	45	2	45	1	45	0	0	0	0
	point26	26	2267	97	45	2	45	1	45	0	0	0	0
	point27	27	2267	97	45	2	45	1	45	0	0	0	0
	point28	28	2267	97	45	2	45	1	45	0	0	0	0
	point29	29	2267	97	45	2	45	1	45	0	0	0	0
	point30	30	2267	97	45	2	45	1	45	0	0	0	0
	point31	31	2267	97	45	2	45	1	45	0	0	0	0
	point32	32	2267	97	45	2	45	1	45	0	0	0	0
	point33	33	2267	97	45	2	45	1	45	0	0	0	0

**INPUT: TRAFFIC FOR LAeq1h Percentages**
**10414**

	point2	2											
Border Ave	point39	39	396	97	25	2	25	1	25	0	0	0	0
	point22	22											
Camino del Mar	point38	38	1835	97	30	2	30	1	30	0	0	0	0
	point8	8	1835	97	30	2	30	1	30	0	0	0	0
	point9	9	1835	97	30	2	30	1	30	0	0	0	0
	point10	10	1835	97	30	2	30	1	30	0	0	0	0
	point11	11	1835	97	30	2	30	1	30	0	0	0	0
	point42	42	1835	97	30	2	30	1	30	0	0	0	0
	point13	13	1835	97	30	2	30	1	30	0	0	0	0
	point14	14	1835	97	30	2	30	1	30	0	0	0	0
	point15	15											

**INPUT: RECEIVERS**
**10414**

Dudek						9 September 2019					
MG						TNM 2.5					
INPUT: RECEIVERS											
PROJECT/CONTRACT:		10414									
RUN:		Del Mar BchRsrt PN10414 FWP OnSite									
Receiver											
Name	No.	#DUs	Coordinates (ground)			Height	Input Sound Levels and Criteria				Active
			X	Y	Z	above	Existing	Impact Criteria		NR	in
						Ground	LAeq1h	LAeq1h	Sub'I	Goal	Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
ST1 - Preserve south of project site	1	1	2,931.7	3,287.4	72.00	5.00	59.80	66	10.0	8.0	Y
ST2 - Residences south of project site	3	1	3,202.9	1,054.9	14.00	5.00	58.70	66	10.0	8.0	Y
ST3 - Residences east of project site	4	1	3,887.5	4,334.1	82.00	5.00	67.50	66	10.0	8.0	Y
ST4 - Residences north of project site	5	1	2,926.8	4,848.0	68.00	5.00	66.50	66	10.0	8.0	Y
M1 - Residences northeast of project site	6	1	2,486.1	4,674.7	85.00	5.00	0.00	66	10.0	8.0	
M2 - Residences north of project site	7	1	2,791.4	4,305.0	75.00	5.00	0.00	66	10.0	8.0	

**10414**

C:\TNM25\Project Files\Del Mar Beach Resort PN 10414\Fut w Proj 1 9 Se

**INPUT: ROADWAYS**
**10414**

Dudek											
MG											
<b>INPUT: ROADWAYS</b>								<b>Average pavement type shall be used unless</b>			
<b>PROJECT/CONTRACT:</b>				<b>10414</b>				<b>a State highway agency substantiates the use</b>			
<b>RUN:</b>				<b>Del Mar BchRsrt FWP Rev 2019</b>				<b>of a different type with the approval of FHWA</b>			
<b>Roadway</b>		<b>Points</b>									
<b>Name</b>	<b>Width</b>	<b>Name</b>	<b>No.</b>	<b>Coordinates (pavement)</b>			<b>Flow Control</b>			<b>Segment</b>	
				<b>X</b>	<b>Y</b>	<b>Z</b>	<b>Control</b>	<b>Speed</b>	<b>Percent</b>	<b>Pvmt</b>	<b>On</b>
							<b>Device</b>	<b>Constraint</b>	<b>Vehicles</b>	<b>Type</b>	<b>Struct?</b>
									<b>Affected</b>		
	ft			ft	ft	ft		mph	%		
Hwy 101 n of Via de la Valle	76.0	point1	1	2,476.2	7,183.8	67.00				Average	
		point3	3	2,773.8	5,853.8	66.00				Average	
		point4	4	2,896.3	5,215.0	65.00				Average	
		point5	5	2,992.5	4,795.0	64.00				Average	
		point6	6	3,022.8	4,555.3	63.00				Average	
		point7	7	3,050.4	4,252.1	62.00					
S Sierra Avenue	38.0	point34	34	2,130.7	7,038.5	83.00				Average	
		point17	17	2,263.1	6,255.7	82.00				Average	
		point18	18	2,445.0	5,258.0	82.00				Average	
		point19	19	2,538.7	4,800.5	82.00				Average	
		point20	20	2,632.4	4,320.9	81.00				Average	
		point21	21	2,635.1	4,246.5	80.00					
Via de la Valle	65.0	point37	37	3,057.1	4,246.0	62.00				Average	
		point24	24	3,468.9	4,249.8	68.00				Average	
		point25	25	4,514.1	4,288.0	72.00				Average	
		point26	26	5,278.1	4,315.8	58.00				Average	
		point27	27	5,510.7	4,288.0	55.00				Average	
		point28	28	5,648.5	4,255.0	49.00				Average	
		point29	29	6,128.1	4,097.9	35.00				Average	
		point30	30	6,489.1	3,990.4	24.00				Average	
		point31	31	6,748.2	3,940.8	16.00				Average	
		point32	32	6,875.0	3,946.3	17.00				Average	
		point33	33	7,470.3	4,023.4	22.00				Average	
		point2	2	7,718.4	4,100.6	24.00					
Border Ave	38.0	point39	39	2,635.1	4,246.5	80.00				Average	

**INPUT: ROADWAYS****10414**

		point22	22	3,037.5	4,244.9	62.00					
Camino del Mar	64.0	point38	38	3,050.1	4,249.0	62.00				Average	
		point8	8	3,036.6	3,951.7	50.00				Average	
		point9	9	3,022.8	3,700.8	42.00				Average	
		point10	10	2,998.0	3,295.7	35.00				Average	
		point11	11	3,004.6	2,971.9	32.00				Average	
		point42	42	3,041.8	2,689.8	30.00				Average	
		point13	13	3,149.0	1,950.4	20.00				Average	
		point14	14	3,209.6	1,492.9	12.00				Average	
		point15	15	3,408.0	269.2	12.00					

INPUT: TRAFFIC FOR LAeq1h Percentages

10414

Dudek													
MG													
INPUT: TRAFFIC FOR LAeq1h Percentages													
PROJECT/CONTRACT:				10414									
RUN:				Del Mar BchRsrt FWP Rev 2019									
Roadway	Points												
Name	Name	No.	Segment										
			Total	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			Volume	P	S	P	S	P	S	P	S	P	S
			veh/hr	%	mph	%	mph	%	mph	%	mph	%	mph
Hwy 101 n of Via de la Valle	point1	1	2680	97	35	2	35	1	35	0	0	0	0
	point3	3	2680	97	35	2	35	1	35	0	0	0	0
	point4	4	2680	97	35	2	35	1	35	0	0	0	0
	point5	5	2680	97	35	2	35	1	35	0	0	0	0
	point6	6	2680	97	35	2	35	1	35	0	0	0	0
	point7	7											
S Sierra Avenue	point34	34	396	97	25	2	25	1	25	0	0	0	0
	point17	17	396	97	25	2	25	1	25	0	0	0	0
	point18	18	396	97	25	2	25	1	25	0	0	0	0
	point19	19	396	97	25	2	25	1	25	0	0	0	0
	point20	20	396	97	25	2	25	1	25	0	0	0	0
	point21	21											
Via de la Valle	point37	37	2267	97	45	2	45	1	45	0	0	0	0
	point24	24	2267	97	45	2	45	1	45	0	0	0	0
	point25	25	2267	97	45	2	45	1	45	0	0	0	0
	point26	26	2267	97	45	2	45	1	45	0	0	0	0
	point27	27	2267	97	45	2	45	1	45	0	0	0	0
	point28	28	2267	97	45	2	45	1	45	0	0	0	0
	point29	29	2267	97	45	2	45	1	45	0	0	0	0
	point30	30	2267	97	45	2	45	1	45	0	0	0	0
	point31	31	2267	97	45	2	45	1	45	0	0	0	0
	point32	32	2267	97	45	2	45	1	45	0	0	0	0
	point33	33	2267	97	45	2	45	1	45	0	0	0	0

**INPUT: TRAFFIC FOR LAeq1h Percentages****10414**

	point2	2											
Border Ave	point39	39	396	97	25	2	25	1	25	0	0	0	0
	point22	22											
Camino del Mar	point38	38	1835	97	30	2	30	1	30	0	0	0	0
	point8	8	1835	97	30	2	30	1	30	0	0	0	0
	point9	9	1835	97	30	2	30	1	30	0	0	0	0
	point10	10	1835	97	30	2	30	1	30	0	0	0	0
	point11	11	1835	97	30	2	30	1	30	0	0	0	0
	point42	42	1835	97	30	2	30	1	30	0	0	0	0
	point13	13	1835	97	30	2	30	1	30	0	0	0	0
	point14	14	1835	97	30	2	30	1	30	0	0	0	0
	point15	15											



**INPUT: RECEIVERS**
**10414**

Dudek											
MG											
<b>INPUT: RECEIVERS</b> <b>PROJECT/CONTRACT: 10414</b> <b>RUN: Del Mar BchRsrt FWP Rev 2019</b>											
Receiver											
Name	No.	#DUs	Coordinates (ground)			Height	Input Sound Levels and Criteria				Active
			X	Y	Z	above	Existing	Impact Criteria		NR	in
						Ground	L <sub>Aeq</sub> 1h	L <sub>Aeq</sub> 1h	Sub'l	Goal	Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
M3	169	1	2,874.1	4,188.8	62.00	5.00	0.00	66	10.0	8.0	Y
M4	170	1	2,934.0	4,193.7	62.00	5.00	0.00	66	10.0	8.0	Y
M5	171	1	2,959.0	4,150.0	62.00	5.00	0.00	66	10.0	8.0	Y
M6	172	1	2,922.2	4,092.9	62.00	5.00	0.00	66	10.0	8.0	Y
M7	173	1	2,933.3	4,025.1	62.00	5.00	0.00	66	10.0	8.0	Y
M8	174	1	2,923.1	3,939.7	62.00	5.00	0.00	66	10.0	8.0	Y
M9	175	1	2,910.1	3,819.1	62.00	5.00	0.00	66	10.0	8.0	Y
M10	177	1	2,899.7	3,712.1	82.00	5.00	0.00	66	10.0	8.0	Y
M11	179	1	2,847.6	3,597.7	82.00	5.00	0.00	66	10.0	8.0	Y
M12	180	1	2,772.7	3,506.0	82.00	5.00	0.00	66	10.0	8.0	Y
M13	184	1	2,761.4	3,454.9	82.00	5.00	0.00	66	10.0	8.0	Y
M14	185	1	2,707.0	3,381.7	82.00	5.00	0.00	66	10.0	8.0	Y
M15	188	1	2,645.8	3,339.4	82.00	5.00	0.00	66	10.0	8.0	Y
M16	191	1	2,541.8	3,238.5	82.00	5.00	0.00	66	10.0	8.0	Y
M17	193	1	2,548.6	3,308.6	92.00	5.00	0.00	66	10.0	8.0	Y
M18	194	1	2,401.8	3,578.9	82.00	5.00	0.00	66	10.0	8.0	Y
M19	195	1	2,672.6	3,641.6	82.00	5.00	0.00	66	10.0	8.0	Y
M20	197	1	2,574.2	3,640.5	82.00	5.00	0.00	66	10.0	8.0	Y
M21	200	1	2,699.7	3,745.6	82.00	5.00	0.00	66	10.0	8.0	Y
M22	201	1	2,575.9	3,780.5	82.00	5.00	0.00	66	10.0	8.0	Y
M23	202	1	2,714.9	3,910.4	82.00	5.00	0.00	66	10.0	8.0	Y
M24	203	1	2,610.3	3,915.6	82.00	5.00	0.00	66	10.0	8.0	Y

**INPUT: RECEIVERS****10414**

M25	204	1	2,422.9	3,956.4	82.00	5.00	0.00	66	10.0	8.0	Y
M26	205	1	2,232.9	3,859.5	82.00	5.00	0.00	66	10.0	8.0	Y
M27	207	1	2,229.6	3,973.5	82.00	5.00	0.00	66	10.0	8.0	Y
M28	208	1	2,601.5	4,025.2	82.00	5.00	0.00	66	10.0	8.0	Y
M29	209	1	2,420.8	4,056.6	82.00	5.00	0.00	66	10.0	8.0	Y
M30	210	1	2,267.1	4,038.8	82.00	5.00	0.00	66	10.0	8.0	Y
M31	211	1	2,668.0	4,137.8	82.00	5.00	0.00	66	10.0	8.0	Y
M32	212	1	2,525.5	4,173.0	82.00	5.00	0.00	66	10.0	8.0	Y
M33	213	1	2,378.7	4,147.0	82.00	5.00	0.00	66	10.0	8.0	Y
M34	214	1	2,251.0	4,191.9	82.00	5.00	0.00	66	10.0	8.0	Y
M3-2	221	1	2,874.1	4,188.8	62.00	15.00	0.00	66	10.0	8.0	Y
M4-2	222	1	2,934.0	4,193.7	62.00	15.00	0.00	66	10.0	8.0	Y
M5-2	223	1	2,959.0	4,150.0	62.00	15.00	0.00	66	10.0	8.0	Y
M6-2	224	1	2,922.2	4,092.9	62.00	15.00	0.00	66	10.0	8.0	Y
M7-2	225	1	2,933.3	4,025.1	62.00	15.00	0.00	66	10.0	8.0	Y
M8-2	226	1	2,923.1	3,939.7	62.00	15.00	0.00	66	10.0	8.0	Y
M9-2	227	1	2,910.1	3,819.1	62.00	15.00	0.00	66	10.0	8.0	Y
M10-2	228	1	2,899.7	3,712.1	82.00	15.00	0.00	66	10.0	8.0	Y
M11-2	229	1	2,847.6	3,597.7	82.00	15.00	0.00	66	10.0	8.0	Y
M12-2	230	1	2,772.7	3,506.0	82.00	15.00	0.00	66	10.0	8.0	Y
M13-2	231	1	2,761.4	3,454.9	82.00	15.00	0.00	66	10.0	8.0	Y
M14-2	232	1	2,707.0	3,381.7	82.00	15.00	0.00	66	10.0	8.0	Y
M15-2	233	1	2,645.8	3,339.4	82.00	15.00	0.00	66	10.0	8.0	Y
M19-2	234	1	2,672.6	3,641.6	82.00	15.00	0.00	66	10.0	8.0	Y
M21-2	235	1	2,699.7	3,745.6	82.00	15.00	0.00	66	10.0	8.0	Y
M23-2	236	1	2,714.9	3,910.4	82.00	15.00	0.00	66	10.0	8.0	Y
M31-2	237	1	2,668.0	4,137.8	82.00	15.00	0.00	66	10.0	8.0	Y
M32-2	238	1	2,525.5	4,173.0	82.00	15.00	0.00	66	10.0	8.0	Y
M10-3	239	1	2,899.7	3,712.1	82.00	25.00	0.00	66	10.0	8.0	Y
M11-3	240	1	2,847.6	3,597.7	82.00	25.00	0.00	66	10.0	8.0	Y
M12-3	241	1	2,772.7	3,506.0	82.00	25.00	0.00	66	10.0	8.0	Y
M13-3	242	1	2,761.4	3,454.9	82.00	25.00	0.00	66	10.0	8.0	Y
M19-3	243	1	2,672.6	3,641.6	82.00	25.00	0.00	66	10.0	8.0	Y
M21-3	244	1	2,699.7	3,745.6	82.00	25.00	0.00	66	10.0	8.0	Y
M23-3	245	1	2,714.9	3,910.4	82.00	25.00	0.00	66	10.0	8.0	Y
M31-3	246	1	2,668.0	4,137.8	82.00	25.00	0.00	66	10.0	8.0	Y

INPUT: RECEIVERS

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M32-3	247	1	2,525.5	4,173.0	82.00	25.00	0.00	66	10.0	8.0	Y
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## INPUT: BARRIERS

10414

Dudek					9 September 2019														
MG					TNM 2.5														
INPUT: BARRIERS																			
PROJECT/CONTRACT:		10414																	
RUN:		Del Mar BchRsrt FWP Rev 2019																	
Barrier										Points									
Name	Type	Height		If Wall	If Berm			Add'tnl		Name	No.	Coordinates	(bottom)	Height	Segment				
		Min	Max	\$ per Unit	\$ per Unit	Top Width	Run:Rise	\$ per Unit				X	Y	Z	at Point	Seg Ht	Perturbs	On	Important
				Area	Vol.			Length								Incre-	#Up	#Dn	Reflec-
		ft	ft	\$/sq ft	\$/cu yd	ft	ft:ft	\$/ft				ft	ft	ft	ft	ft			tions?
Barrier24	W	0.00	99.99	0.00				0.00		point232	232	2,754.4	4,202.4	62.00	20.00	0.00	0	0	
										point234	234	2,823.4	4,187.1	62.00	20.00	0.00	0	0	
										point235	235	2,892.8	4,188.2	62.00	20.00	0.00	0	0	
										point236	236	2,891.7	4,192.6	62.00	20.00	0.00	0	0	
										point237	237	2,968.8	4,192.6	62.00	20.00	0.00	0	0	
										point238	238	2,967.7	4,152.1	62.00	20.00	0.00	0	0	
										point239	239	2,816.8	4,151.0	62.00	20.00	0.00	0	0	
										point240	240	2,744.6	4,166.9	62.00	20.00				
Barrier25	W	0.00	99.99	0.00				0.00		point414	414	2,818.0	3,970.0	62.00	20.00	0.00	0	0	
										point242	242	2,829.3	4,047.3	62.00	20.00	0.00	0	0	
										point243	243	2,884.9	4,038.6	62.00	20.00	0.00	0	0	
										point244	244	2,891.0	4,084.6	62.00	20.00	0.00	0	0	
										point245	245	2,896.2	4,083.7	62.00	20.00	0.00	0	0	
										point246	246	2,896.2	4,091.6	62.00	20.00	0.00	0	0	
										point247	247	2,942.2	4,087.2	62.00	20.00	0.00	0	0	
										point248	248	2,941.3	4,078.5	62.00	20.00	0.00	0	0	
										point249	249	2,937.9	4,076.8	62.00	20.00	0.00	0	0	
										point250	250	2,914.4	3,898.0	62.00	20.00	0.00	0	0	
										point251	251	2,888.4	3,901.4	62.00	20.00	0.00	0	0	
										point252	252	2,886.6	3,888.4	62.00	20.00	0.00	0	0	
										point253	253	2,864.9	3,892.7	62.00	20.00	0.00	0	0	
										point254	254	2,873.6	3,963.9	62.00	20.00				
Barrie26	W	0.00	99.99	0.00				0.00		point255	255	2,862.7	3,875.4	62.00	20.00	0.00	0	0	
										point256	256	2,913.0	3,867.2	62.00	20.00	0.00	0	0	
										point257	257	2,900.5	3,766.1	62.00	20.00	0.00	0	0	
										point258	258	2,905.9	3,764.5	62.00	20.00	0.00	0	0	
										point259	259	2,903.7	3,734.9	62.00	20.00	0.00	0	0	
										point260	260	2,811.3	3,733.8	62.00	20.00	0.00	0	0	
										point261	261	2,811.8	3,772.7	62.00	20.00	0.00	0	0	
										point262	262	2,851.2	3,772.1	62.00	20.00				
Barrier27	W	0.00	99.99	0.00				0.00		point418	418	2,833.3	3,696.6	82.00	30.00	0.00	0	0	
										point264	264	2,906.4	3,696.6	82.00	30.00	0.00	0	0	
										point265	265	2,903.6	3,651.1	82.00	30.00	0.00	0	0	
										point266	266	2,879.9	3,651.5	82.00	30.00	0.00	0	0	
										point267	267	2,880.9	3,642.5	82.00	30.00	0.00	0	0	

## INPUT: BARRIERS

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									point268	268	2,863.0	3,643.9	82.00	30.00	0.00	0	0		
									point269	269	2,862.6	3,635.0	82.00	30.00	0.00	0	0		
									point270	270	2,844.7	3,634.6	82.00	30.00	0.00	0	0		
									point271	271	2,844.7	3,572.6	82.00	30.00	0.00	0	0		
									point272	272	2,825.4	3,572.6	82.00	30.00	0.00	0	0		
									point273	273	2,825.4	3,563.6	82.00	30.00	0.00	0	0		
									point274	274	2,808.2	3,564.0	82.00	30.00	0.00	0	0		
									point275	275	2,808.0	3,554.9	82.00	30.00	0.00	0	0		
									point276	276	2,788.8	3,555.1	82.00	30.00	0.00	0	0		
									point277	277	2,788.8	3,545.9	82.00	30.00	0.00	0	0		
									point278	278	2,770.0	3,546.0	82.00	30.00	0.00	0	0		
									point279	279	2,770.3	3,457.7	82.00	30.00	0.00	0	0		
									point280	280	2,751.2	3,458.0	82.00	30.00	0.00	0	0		
									point281	281	2,751.7	3,448.9	82.00	30.00	0.00	0	0		
									point282	282	2,714.0	3,449.2	82.00	20.00	0.00	0	0		
									point283	283	2,714.8	3,385.8	82.00	20.00	0.00	0	0		
									point284	284	2,696.2	3,386.3	82.00	20.00	0.00	0	0		
									point285	285	2,696.2	3,378.4	82.00	20.00	0.00	0	0		
									point286	286	2,677.3	3,378.9	82.00	20.00	0.00	0	0		
									point287	287	2,678.7	3,369.9	82.00	20.00	0.00	0	0		
									point288	288	2,660.4	3,369.3	82.00	20.00	0.00	0	0		
									point289	289	2,659.5	3,359.5	82.00	20.00	0.00	0	0		
									point290	290	2,641.1	3,360.4	82.00	20.00	0.00	0	0		
									point291	291	2,640.8	3,351.4	82.00	20.00	0.00	0	0		
									point292	292	2,623.0	3,350.9	82.00	20.00	0.00	0	0		
									point293	293	2,622.9	3,335.9	82.00	20.00	0.00	0	0		
									point294	294	2,603.7	3,335.9	82.00	10.00	0.00	0	0		
									point295	295	2,603.7	3,319.9	82.00	10.00	0.00	0	0		
									point296	296	2,590.8	3,313.2	82.00	10.00	0.00	0	0		
									point297	297	2,590.5	3,267.2	82.00	10.00	0.00	0	0		
									point298	298	2,571.6	3,267.5	82.00	10.00	0.00	0	0		
									point299	299	2,571.6	3,247.5	82.00	10.00	0.00	0	0		
									point300	300	2,551.6	3,247.9	82.00	10.00	0.00	0	0		
									point301	301	2,551.9	3,242.7	82.00	10.00	0.00	0	0		
									point302	302	2,514.7	3,242.0	82.00	10.00	0.00	0	0		
									point303	303	2,513.7	3,248.9	82.00	10.00	0.00	0	0		
									point304	304	2,497.5	3,248.5	82.00	10.00	0.00	0	0		
									point305	305	2,496.8	3,287.1	82.00	10.00	0.00	0	0		
									point306	306	2,509.5	3,286.8	82.00	10.00	0.00	0	0		
									point307	307	2,508.9	3,297.5	82.00	10.00	0.00	0	0		
									point308	308	2,481.3	3,298.2	82.00	10.00	0.00	0	0		
									point309	309	2,466.8	3,396.7	82.00	10.00	0.00	0	0		
									point310	310	2,433.0	3,398.8	82.00	20.00	0.00	0	0		
									point311	311	2,437.9	3,478.0	82.00	20.00	0.00	0	0		
									point312	312	2,426.8	3,478.0	82.00	20.00	0.00	0	0		
									point313	313	2,428.9	3,546.9	82.00	20.00	0.00	0	0		
									point314	314	2,450.3	3,546.9	82.00	30.00	0.00	0	0		
									point315	315	2,453.0	3,665.0	82.00	30.00	0.00	0	0		
									point316	316	2,516.4	3,663.4	82.00	30.00	0.00	0	0		

## INPUT: BARRIERS

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									point317	317	2,517.0	3,614.7	82.00	30.00	0.00	0	0		
									point318	318	2,771.8	3,612.6	82.00	30.00	0.00	0	0		
									point319	319	2,770.8	3,644.3	82.00	30.00	0.00	0	0		
									point320	320	2,833.1	3,644.8	82.00	30.00					
Barrier28	W	0.00	99.99	0.00				0.00	point420	420	2,651.7	3,715.4	82.00	30.00	0.00	0	0		
									point322	322	2,680.3	3,672.9	82.00	30.00	0.00	0	0		
									point323	323	2,679.5	3,651.2	82.00	30.00	0.00	0	0		
									point324	324	2,670.8	3,643.3	82.00	30.00	0.00	0	0		
									point325	325	2,650.8	3,639.0	82.00	30.00	0.00	0	0		
									point326	326	2,647.3	3,652.9	82.00	30.00	0.00	0	0		
									point327	327	2,594.4	3,649.4	82.00	30.00	0.00	0	0		
									point328	328	2,582.3	3,671.1	82.00	30.00	0.00	0	0		
									point329	329	2,590.1	3,708.5	82.00	30.00					
Barrier29	W	0.00	99.99	0.00				0.00	point423	423	2,624.5	3,821.5	82.00	30.00	0.00	0	0		
									point399	399	2,692.2	3,817.2	82.00	30.00	0.00	0	0		
									point400	400	2,707.8	3,775.5	82.00	30.00	0.00	0	0		
									point401	401	2,705.2	3,750.3	82.00	30.00	0.00	0	0		
									point402	402	2,625.4	3,752.9	82.00	30.00	0.00	0	0		
									point403	403	2,623.6	3,819.8	82.00	30.00					
Barrier30	W	0.00	99.99	0.00				0.00	point425	425	2,253.8	3,782.4	82.00	30.00	0.00	0	0		
									point390	390	2,316.3	3,788.5	82.00	30.00	0.00	0	0		
									point391	391	2,325.9	3,748.5	82.00	30.00	0.00	0	0		
									point392	392	2,340.7	3,749.4	82.00	30.00	0.00	0	0		
									point393	393	2,358.0	3,655.6	82.00	30.00	0.00	0	0		
									point394	394	2,309.4	3,646.1	82.00	30.00	0.00	0	0		
									point395	395	2,296.4	3,694.7	82.00	30.00	0.00	0	0		
									point396	396	2,280.7	3,691.2	82.00	30.00					
Barrier31	W	0.00	99.99	0.00				0.00	point426	426	2,448.3	4,079.0	82.00	30.00	0.00	0	0		
									point405	405	2,516.0	4,077.4	82.00	30.00	0.00	0	0		
									point406	406	2,531.6	4,033.0	82.00	30.00	0.00	0	0		
									point407	407	2,529.0	4,007.8	82.00	30.00	0.00	0	0		
									point408	408	2,449.1	4,010.4	82.00	30.00	0.00	0	0		
									point409	409	2,447.4	4,077.2	82.00	30.00					
Barrier32	W	0.00	99.99	0.00				0.00	point428	428	2,591.5	4,134.2	82.00	30.00	0.00	0	0		
									point353	353	2,657.1	4,142.4	82.00	30.00	0.00	0	0		
									point354	354	2,682.5	4,100.8	82.00	30.00	0.00	0	0		
									point355	355	2,685.4	4,074.0	82.00	30.00	0.00	0	0		
									point356	356	2,600.1	4,065.1	82.00	30.00	0.00	0	0		
									point357	357	2,590.7	4,132.5	82.00	30.00					
Barrier33	W	0.00	99.99	0.00				0.00	point430	430	2,449.3	3,753.7	82.00	30.00	0.00	0	0		
									point359	359	2,517.0	3,749.4	82.00	30.00	0.00	0	0		
									point360	360	2,532.6	3,707.7	82.00	30.00	0.00	0	0		
									point361	361	2,530.1	3,682.5	82.00	30.00	0.00	0	0		
									point362	362	2,450.2	3,685.2	82.00	30.00	0.00	0	0		
									point363	363	2,448.4	3,752.0	82.00	30.00					
Barrier34	W	0.00	99.99	0.00				0.00	point432	432	2,638.0	3,924.1	82.00	30.00	0.00	0	0		
									point347	347	2,705.7	3,919.7	82.00	30.00	0.00	0	0		
									point348	348	2,721.4	3,878.0	82.00	30.00	0.00	0	0		
									point349	349	2,718.7	3,852.9	82.00	30.00	0.00	0	0		

## INPUT: BARRIERS

10414

									point350	350	2,638.9	3,855.5	82.00	30.00	0.00	0	0		
									point351	351	2,637.1	3,922.3	82.00	30.00					
Barrier35	W	0.00	99.99	0.00				0.00	point435	435	2,445.3	3,864.9	82.00	30.00	0.00	0	0		
									point335	335	2,513.0	3,860.6	82.00	30.00	0.00	0	0		
									point336	336	2,528.6	3,818.9	82.00	30.00	0.00	0	0		
									point337	337	2,526.0	3,793.7	82.00	30.00	0.00	0	0		
									point338	338	2,446.1	3,796.3	82.00	30.00					
Barrier36	W	0.00	99.99	0.00				0.00	point436	436	2,629.1	4,037.6	82.00	30.00	0.00	0	0		
									point341	341	2,696.8	4,033.3	82.00	30.00	0.00	0	0		
									point342	342	2,712.4	3,991.6	82.00	30.00	0.00	0	0		
									point343	343	2,709.8	3,966.4	82.00	30.00	0.00	0	0		
									point344	344	2,629.9	3,969.0	82.00	30.00	0.00	0	0		
									point345	345	2,628.2	4,035.9	82.00	30.00					
Barrier37	W	0.00	99.99	0.00				0.00	point437	437	2,446.1	3,796.3	82.00	30.00	0.00	0	0		
									point339	339	2,444.4	3,863.2	82.00	30.00					
Barrier38	W	0.00	99.99	0.00				0.00	point440	440	2,456.9	3,973.5	82.00	30.00	0.00	0	0		
									point411	411	2,524.6	3,969.2	82.00	30.00	0.00	0	0		
									point412	412	2,540.3	3,927.5	82.00	30.00	0.00	0	0		
									point331	331	2,537.7	3,902.3	82.00	30.00	0.00	0	0		
									point332	332	2,457.8	3,905.0	82.00	30.00					
Barrier39	W	0.00	99.99	0.00				0.00	point444	444	2,447.9	4,193.0	82.00	30.00	0.00	0	0		
									point365	365	2,515.7	4,188.7	82.00	30.00	0.00	0	0		
									point366	366	2,531.3	4,147.0	82.00	30.00	0.00	0	0		
									point367	367	2,528.7	4,121.8	82.00	30.00	0.00	0	0		
									point368	368	2,448.8	4,124.5	82.00	30.00	0.00	0	0		
									point369	369	2,447.1	4,191.3	82.00	30.00					
Barrier40	W	0.00	99.99	0.00				0.00	point446	446	2,263.6	4,201.3	82.00	30.00	0.00	0	0		
									point371	371	2,359.8	4,206.2	82.00	30.00	0.00	0	0		
									point372	372	2,362.0	4,144.9	82.00	30.00	0.00	0	0		
									point373	373	2,267.9	4,137.8	82.00	30.00					
Barrier41	W	0.00	99.99	0.00				0.00	point448	448	2,282.2	4,107.2	82.00	30.00	0.00	0	0		
									point375	375	2,362.5	4,102.3	82.00	30.00	0.00	0	0		
									point376	376	2,350.5	4,033.4	82.00	30.00	0.00	0	0		
									point377	377	2,350.0	4,015.3	82.00	30.00	0.00	0	0		
									point378	378	2,316.0	4,017.5	82.00	30.00	0.00	0	0		
									point379	379	2,313.3	4,037.7	82.00	30.00	0.00	0	0		
									point380	380	2,272.8	4,043.2	82.00	30.00					
Barrier42	W	0.00	99.99	0.00				0.00	point450	450	2,240.0	3,987.4	82.00	30.00	0.00	0	0		
									point382	382	2,335.2	3,991.3	82.00	30.00	0.00	0	0		
									point383	383	2,340.1	3,928.9	82.00	30.00	0.00	0	0		
									point384	384	2,246.0	3,924.5	82.00	30.00					
Barrier43	W	0.00	99.99	0.00				0.00	point452	452	2,254.7	3,816.3	82.00	30.00	0.00	0	0		
									point386	386	2,245.1	3,876.3	82.00	30.00	0.00	0	0		
									point387	387	2,338.8	3,892.1	82.00	30.00	0.00	0	0		
									point388	388	2,347.0	3,830.1	82.00	30.00					

**INPUT: TERRAIN LINES**
**10414**

Dudek			9 September 2019	
MG			TNM 2.5	
INPUT: TERRAIN LINES				
PROJECT/CONTRACT:	10414			
RUN:	Del Mar BchRsrt FWP Rev 2019			
Terrain Line	Points			
Name	No.	Coordinates (ground)		
		X	Y	Z
		ft	ft	ft
Terrain Line1	1	2,030.4	4,245.5	10.00
	3	2,078.5	4,098.9	10.00
	4	2,091.6	4,015.7	10.00
	5	2,093.8	3,910.7	10.00
	6	2,096.0	3,842.9	10.00
	7	2,126.6	3,770.7	10.00
	8	2,144.2	3,755.4	10.00
	9	2,131.0	3,707.2	10.00
	10	2,227.3	3,514.7	10.00
	11	2,341.1	3,208.4	10.00
	12	2,446.1	2,963.4	10.00
	13	2,516.1	2,840.8	10.00
	14	2,538.0	2,781.8	10.00
	15	2,653.9	2,899.9	10.00
	16	2,710.8	2,989.6	15.00
	17	2,802.7	3,215.0	20.00
	18	2,859.6	3,295.9	30.00
	19	2,918.7	3,464.4	35.00
	20	2,955.8	3,626.3	40.00
	21	2,990.8	3,877.9	55.00
	22	3,023.7	4,241.1	60.00
	23	2,671.4	4,221.4	80.00
	24	2,625.5	4,206.1	80.00
	25	2,605.8	4,208.2	80.00



**INPUT: TERRAIN LINES****10414**

	26	2,590.5	4,221.4	80.00
	27	2,581.7	4,241.1	80.00
	2	2,135.4	4,245.5	80.00
Terrain Line2	28	2,966.5	4,218.5	62.00
	30	2,978.9	4,185.4	62.00
	31	2,958.2	3,964.8	75.00
	32	2,933.4	3,804.9	78.00
	33	2,925.1	3,704.3	82.00
	34	2,901.7	3,596.8	82.00
	35	2,860.3	3,530.6	82.00
	36	2,821.7	3,503.0	82.00
	37	2,801.0	3,431.3	82.00
	38	2,769.3	3,361.0	82.00
	39	2,734.9	3,311.4	82.00
	40	2,699.0	3,289.3	82.00
	41	2,648.0	3,307.2	82.00
	42	2,590.1	3,212.1	82.00
	43	2,557.0	3,197.0	82.00
	44	2,512.9	3,195.6	82.00
	45	2,470.2	3,209.4	82.00
	46	2,453.6	3,242.4	82.00
	47	2,426.1	3,304.5	82.00
	48	2,377.8	3,420.3	82.00

## RESULTS: SOUND LEVELS

10414

Dudek												
MG												
RESULTS: SOUND LEVELS												
PROJECT/CONTRACT:		10414										
RUN:		Del Mar BchRsrt FWP Rev 2019										
BARRIER DESIGN:		INPUT HEIGHTS										
ATMOSPHERICS:		68 deg F, 50% RH										
Receiver												
Name	No.	#DUs	Existing	No Barrier					With Barrier			
			LAeq1h	LAeq1h		Increase over existing	Type	Calculated	Noise Reduction			
				Calculated	Crit'n	Calculated	Crit'n	Impact	LAeq1h	Calculated	Goal	Calculated
							Sub'l Inc					minus
												Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
M3	169	1	0.0	59.1	66	59.1	10	----	59.1	0.0	8	-8.0
M4	170	1	0.0	64.3	66	64.3	10	----	64.3	0.0	8	-8.0
M5	171	1	0.0	60.3	66	60.3	10	----	60.3	0.0	8	-8.0
M6	172	1	0.0	59.8	66	59.8	10	----	59.8	0.0	8	-8.0
M7	173	1	0.0	54.0	66	54.0	10	----	54.0	0.0	8	-8.0
M8	174	1	0.0	50.9	66	50.9	10	----	50.9	0.0	8	-8.0
M9	175	1	0.0	48.9	66	48.9	10	----	48.9	0.0	8	-8.0
M10	177	1	0.0	57.3	66	57.3	10	----	57.3	0.0	8	-8.0
M11	179	1	0.0	52.5	66	52.5	10	----	52.5	0.0	8	-8.0
M12	180	1	0.0	51.1	66	51.1	10	----	51.1	0.0	8	-8.0
M13	184	1	0.0	49.7	66	49.7	10	----	49.7	0.0	8	-8.0
M14	185	1	0.0	49.0	66	49.0	10	----	49.0	0.0	8	-8.0
M15	188	1	0.0	49.9	66	49.9	10	----	49.9	0.0	8	-8.0
M16	191	1	0.0	49.3	66	49.3	10	----	49.3	0.0	8	-8.0
M17	193	1	0.0	49.3	66	49.3	10	----	49.3	0.0	8	-8.0
M18	194	1	0.0	34.8	66	34.8	10	----	34.8	0.0	8	-8.0
M19	195	1	0.0	49.1	66	49.1	10	----	49.1	0.0	8	-8.0
M20	197	1	0.0	37.8	66	37.8	10	----	37.8	0.0	8	-8.0
M21	200	1	0.0	50.5	66	50.5	10	----	50.5	0.0	8	-8.0
M22	201	1	0.0	40.1	66	40.1	10	----	40.1	0.0	8	-8.0
M23	202	1	0.0	52.8	66	52.8	10	----	52.8	0.0	8	-8.0
M24	203	1	0.0	44.8	66	44.8	10	----	44.8	0.0	8	-8.0
M25	204	1	0.0	37.9	66	37.9	10	----	37.9	0.0	8	-8.0
M26	205	1	0.0	29.5	66	29.5	10	----	29.5	0.0	8	-8.0

**RESULTS: SOUND LEVELS**
**10414**

M27	207	1	0.0	36.3	66	36.3	10	----	36.3	0.0	8	-8.0
M28	208	1	0.0	39.0	66	39.0	10	----	39.0	0.0	8	-8.0
M29	209	1	0.0	40.7	66	40.7	10	----	40.7	0.0	8	-8.0
M30	210	1	0.0	31.5	66	31.5	10	----	31.5	0.0	8	-8.0
M31	211	1	0.0	56.6	66	56.6	10	----	56.6	0.0	8	-8.0
M32	212	1	0.0	54.5	66	54.5	10	----	54.5	0.0	8	-8.0
M33	213	1	0.0	46.6	66	46.6	10	----	46.6	0.0	8	-8.0
M34	214	1	0.0	44.6	66	44.6	10	----	44.6	0.0	8	-8.0
M3-2	221	1	0.0	61.7	66	61.7	10	----	61.7	0.0	8	-8.0
M4-2	222	1	0.0	64.8	66	64.8	10	----	64.8	0.0	8	-8.0
M5-2	223	1	0.0	61.8	66	61.8	10	----	61.8	0.0	8	-8.0
M6-2	224	1	0.0	61.5	66	61.5	10	----	61.5	0.0	8	-8.0
M7-2	225	1	0.0	61.7	66	61.7	10	----	61.7	0.0	8	-8.0
M8-2	226	1	0.0	59.1	66	59.1	10	----	59.1	0.0	8	-8.0
M9-2	227	1	0.0	53.9	66	53.9	10	----	53.9	0.0	8	-8.0
M10-2	228	1	0.0	61.8	66	61.8	10	----	61.8	0.0	8	-8.0
M11-2	229	1	0.0	57.3	66	57.3	10	----	57.3	0.0	8	-8.0
M12-2	230	1	0.0	56.6	66	56.6	10	----	56.6	0.0	8	-8.0
M13-2	231	1	0.0	55.9	66	55.9	10	----	55.9	0.0	8	-8.0
M14-2	232	1	0.0	54.9	66	54.9	10	----	54.9	0.0	8	-8.0
M15-2	233	1	0.0	52.8	66	52.8	10	----	52.8	0.0	8	-8.0
M19-2	234	1	0.0	51.1	66	51.1	10	----	51.1	0.0	8	-8.0
M21-2	235	1	0.0	51.4	66	51.4	10	----	51.4	0.0	8	-8.0
M23-2	236	1	0.0	55.2	66	55.2	10	----	55.2	0.0	8	-8.0
M31-2	237	1	0.0	58.3	66	58.3	10	----	58.3	0.0	8	-8.0
M32-2	238	1	0.0	57.0	66	57.0	10	----	57.0	0.0	8	-8.0
M10-3	239	1	0.0	61.8	66	61.8	10	----	61.8	0.0	8	-8.0
M11-3	240	1	0.0	59.3	66	59.3	10	----	59.3	0.0	8	-8.0
M12-3	241	1	0.0	57.1	66	57.1	10	----	57.1	0.0	8	-8.0
M13-3	242	1	0.0	55.9	66	55.9	10	----	55.9	0.0	8	-8.0
M19-3	243	1	0.0	51.8	66	51.8	10	----	51.8	0.0	8	-8.0
M21-3	244	1	0.0	51.8	66	51.8	10	----	51.8	0.0	8	-8.0
M23-3	245	1	0.0	56.5	66	56.5	10	----	56.5	0.0	8	-8.0
M31-3	246	1	0.0	59.2	66	59.2	10	----	59.2	0.0	8	-8.0
M32-3	247	1	0.0	57.3	66	57.3	10	----	57.3	0.0	8	-8.0
<b>Dwelling Units</b>		<b># DUs</b>	<b>Noise Reduction</b>									
			<b>Min</b>	<b>Avg</b>	<b>Max</b>							
			<b>dB</b>	<b>dB</b>	<b>dB</b>							
All Selected		59	0.0	0.0	0.0							
All Impacted		0	0.0	0.0	0.0							
All that meet NR Goal		0	0.0	0.0	0.0							



# **APPENDIX D**

## ***Rail Noise Modeling Input/Output Files***



Noise Model Based on Federal Transit Administration General Transit Noise Assessment  
 Developed for Chicago Create Project  
 Copyright 2006, HMMH Inc.  
 Case: Del Mar Resort Project - M3

RESULTS			
Noise Source	Ldn (dB)	Leq - daytime (dB)	Leq - nighttime (dB)
All Sources	60	46	54
Source 1	46	42	39
Source 2	47	43	40
Source 3	56	19	51
Source 4	57	2	51
Source 5	0	0	0
Source 6	0	0	0
Source 7	0	0	0
Source 8	0	0	0

Enter noise receiver land use category below.

LAND USE CATEGORY	
Noise receiver land use category (1, 2 or 3)	2

Enter data for up to 8 noise sources below - see reference list for source numbers.

NOISE SOURCE PARAMETERS								
Parameter	Source 1		Source 2		Source 3		Source 4	
Source Num.	Commuter Diesel Locomotive	2	Commuter Rail Cars	3	Freight Locomotive	9	Freight Cars	10
Distance (source to receiver)	distance (ft)	470	distance (ft)	470	distance (ft)	470	distance (ft)	470
Daytime Hours (7 AM - 10 PM)	speed (mph)	70	speed (mph)	70	speed (mph)	0	speed (mph)	0
	trains/hour	4.73333	trains/hour	4.73333	trains/hour	0	trains/hour	0
	locos/train	1	cars/train	5	locos/train	0	length of cars (ft) / train	0
Nighttime Hours (10 PM - 7 AM)	speed (mph)	70	speed (mph)	70	speed (mph)	50	speed (mph)	50
	trains/hour	2.11111	trains/hour	2.11111	trains/hour	1.22222	trains/hour	1.22222
	locos/train	1	cars/train	5	locos/train	5	length of cars (ft) / train	4800
Wheel Flats?	N	% of cars w/ wheel flats	0.00%	0.00%	% of cars w/ wheel flats	0.00%	% of cars w/ wheel flats	0.00%
Jointed Track?	Y/N	N	Y/N	N	Y/N	N	Y/N	N
Embedded Track?	Y/N	N	Y/N	N	Y/N	N	Y/N	N
Aerial Structure?	Y/N	N	Y/N	N	Y/N	N	Y/N	N
Barrier Present?	Y/N	Y	Y/N	Y	Y/N	Y	Y/N	Y
Intervening Rows of Buildings	number of rows	0	number of rows	0	number of rows	0	number of rows	0

Noise Model Based on Federal Transit Administration General Transit Noise Assessment  
 Developed for Chicago Create Project  
 Copyright 2006, HMMH Inc.  
 Case: Del Mar Resort Project - M4, M7

RESULTS			
Noise Source	Ldn (dB)	Leq - daytime (dB)	Leq - nighttime (dB)
All Sources	62	48	56
Source 1	47	44	40
Source 2	49	45	42
Source 3	58	21	52
Source 4	59	4	53
Source 5	0	0	0
Source 6	0	0	0
Source 7	0	0	0
Source 8	0	0	0

Enter noise receiver land use category below.

LAND USE CATEGORY	
Noise receiver land use category (1, 2 or 3)	2

Enter data for up to 8 noise sources below - see reference list for source numbers.

NOISE SOURCE PARAMETERS							
Parameter	Source 1		Source 2		Source 3		Source 4
Source Num.	Commuter Diesel Locomotive	2	Commuter Rail Cars	3	Freight Locomotive	9	Freight Cars 10
Distance (source to receiver)	distance (ft)	360	distance (ft)	360	distance (ft)	360	distance (ft) 360
Daytime Hours (7 AM - 10 PM)	speed (mph)	70	speed (mph)	70	speed (mph)	0	speed (mph) 0
	trains/hour	4.73333	trains/hour	4.73333	trains/hour	0	trains/hour 0
	locos/train	1	cars/train	5	locos/train	0	length of cars (ft) / train 0
Nighttime Hours (10 PM - 7 AM)	speed (mph)	70	speed (mph)	70	speed (mph)	50	speed (mph) 50
	trains/hour	2.11111	trains/hour	2.11111	trains/hour	1.22222	trains/hour 1.22222
	locos/train	1	cars/train	5	locos/train	5	length of cars (ft) / train 4800
Wheel Flats?		N	% of cars w/ wheel flats	0.00%		0.00%	% of cars w/ wheel flats 0.00%
Jointed Track?	Y/N	N	Y/N	N	Y/N	N	Y/N N
Embedded Track?	Y/N	N	Y/N	N	Y/N	N	Y/N N
Aerial Structure?	Y/N	N	Y/N	N	Y/N	N	Y/N N
Barrier Present?	Y/N	Y	Y/N	Y	Y/N	Y	Y/N Y
Intervening Rows of Buildings	number of rows	0	number of rows	0	number of rows	0	number of rows 0



Noise Model Based on Federal Transit Administration General Transit Noise Assessment  
 Developed for Chicago Create Project  
 Copyright 2006, HMMH Inc.  
 Case: Del Mar Resort Project - M5, M6, M8, M9

RESULTS			
Noise Source	Ldn (dB)	Leq - daytime (dB)	Leq - nighttime (dB)
All Sources	64	49	58
Source 1	49	45	42
Source 2	50	47	43
Source 3	60	22	54
Source 4	61	5	55
Source 5	0	0	0
Source 6	0	0	0
Source 7	0	0	0
Source 8	0	0	0

Enter noise receiver land use category below.

LAND USE CATEGORY	
Noise receiver land use category (1, 2 or 3)	2

Enter data for up to 8 noise sources below - see reference list for source numbers.

NOISE SOURCE PARAMETERS								
Parameter	Source 1		Source 2		Source 3		Source 4	
Source Num.	Commuter Diesel Locomotive	2	Commuter Rail Cars	3	Freight Locomotive	9	Freight Cars	10
Distance (source to receiver)	distance (ft)	280	distance (ft)	280	distance (ft)	280	distance (ft)	280
Daytime Hours (7 AM - 10 PM)	speed (mph)	70	speed (mph)	70	speed (mph)	0	speed (mph)	0
	trains/hour	4.73333	trains/hour	4.73333	trains/hour	0	trains/hour	0
	locos/train	1	cars/train	5	locos/train	0	length of cars (ft) / train	0
Nighttime Hours (10 PM - 7 AM)	speed (mph)	70	speed (mph)	70	speed (mph)	50	speed (mph)	50
	trains/hour	2.11111	trains/hour	2.11111	trains/hour	1.22222	trains/hour	1.22222
	locos/train	1	cars/train	5	locos/train	5	length of cars (ft) / train	4800
Wheel Flats?		N	% of cars w/ wheel flats	0.00%		0.00%	% of cars w/ wheel flats	0.00%
Jointed Track?	Y/N	N	Y/N	N	Y/N	N	Y/N	N
Embedded Track?	Y/N	N	Y/N	N	Y/N	N	Y/N	N
Aerial Structure?	Y/N	N	Y/N	N	Y/N	N	Y/N	N
Barrier Present?	Y/N	Y	Y/N	Y	Y/N	Y	Y/N	Y
Intervening Rows of Buildings	number of rows	0	number of rows	0	number of rows	0	number of rows	0

Noise Model Based on Federal Transit Administration General Transit Noise Assessment  
 Developed for Chicago Create Project  
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 Case: Del Mar Resort Project - M10

RESULTS			
Noise Source	Ldn (dB)	Leq - daytime (dB)	Leq - nighttime (dB)
All Sources	60	46	54
Source 1	46	42	39
Source 2	47	43	40
Source 3	56	19	51
Source 4	57	2	51
Source 5	0	0	0
Source 6	0	0	0
Source 7	0	0	0
Source 8	0	0	0

Enter noise receiver land use category below.

LAND USE CATEGORY	
Noise receiver land use category (1, 2 or 3)	2

Enter data for up to 8 noise sources below - see reference list for source numbers.

NOISE SOURCE PARAMETERS								
Parameter	Source 1		Source 2		Source 3		Source 4	
Source Num.	Commuter Diesel Locomotive	2	Commuter Rail Cars	3	Freight Locomotive	9	Freight Cars	10
Distance (source to receiver)	distance (ft)	470	distance (ft)	470	distance (ft)	470	distance (ft)	470
Daytime Hours (7 AM - 10 PM)	speed (mph)	70	speed (mph)	70	speed (mph)	0	speed (mph)	0
	trains/hour	4.73333	trains/hour	4.73333	trains/hour	0	trains/hour	0
	locos/train	1	cars/train	5	locos/train	0	length of cars (ft) / train	0
Nighttime Hours (10 PM - 7 AM)	speed (mph)	70	speed (mph)	70	speed (mph)	50	speed (mph)	50
	trains/hour	2.11111	trains/hour	2.11111	trains/hour	1.22222	trains/hour	1.22222
	locos/train	1	cars/train	5	locos/train	5	length of cars (ft) / train	4800
Wheel Flats?		N	% of cars w/ wheel flats	0.00%		0.00%	% of cars w/ wheel flats	0.00%
Jointed Track?	Y/N	N	Y/N	N	Y/N	N	Y/N	N
Embedded Track?	Y/N	N	Y/N	N	Y/N	N	Y/N	N
Aerial Structure?	Y/N	N	Y/N	N	Y/N	N	Y/N	N
Barrier Present?	Y/N	Y	Y/N	Y	Y/N	Y	Y/N	Y
Intervening Rows of Buildings	number of rows	0	number of rows	0	number of rows	0	number of rows	0

Noise Model Based on Federal Transit Administration General Transit Noise Assessment  
 Developed for Chicago Create Project  
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 Case: Del Mar Resort Project - M11 M12 M13

RESULTS			
Noise Source	Ldn (dB)	Leq - daytime (dB)	Leq - nighttime (dB)
All Sources	59	45	53
Source 1	45	41	38
Source 2	46	42	39
Source 3	55	18	50
Source 4	56	1	50
Source 5	0	0	0
Source 6	0	0	0
Source 7	0	0	0
Source 8	0	0	0

Enter noise receiver land use category below.

LAND USE CATEGORY	
Noise receiver land use category (1, 2 or 3)	2

Enter data for up to 8 noise sources below - see reference list for source numbers.

NOISE SOURCE PARAMETERS								
Parameter	Source 1		Source 2		Source 3		Source 4	
Source Num.	Commuter Diesel Locomotive	2	Commuter Rail Cars	3	Freight Locomotive	9	Freight Cars	10
Distance (source to receiver)	distance (ft)	550	distance (ft)	550	distance (ft)	550	distance (ft)	550
Daytime Hours (7 AM - 10 PM)	speed (mph)	70	speed (mph)	70	speed (mph)	0	speed (mph)	0
	trains/hour	4.73333	trains/hour	4.73333	trains/hour	0	trains/hour	0
	locos/train	1	cars/train	5	locos/train	0	length of cars (ft) / train	0
Nighttime Hours (10 PM - 7 AM)	speed (mph)	70	speed (mph)	70	speed (mph)	50	speed (mph)	50
	trains/hour	2.11111	trains/hour	2.11111	trains/hour	1.22222	trains/hour	1.22222
	locos/train	1	cars/train	5	locos/train	5	length of cars (ft) / train	4800
Wheel Flats?	N	N	% of cars w/ wheel flats	0.00%	0.00%	0.00%	% of cars w/ wheel flats	0.00%
Jointed Track?	Y/N	N	Y/N	N	Y/N	N	Y/N	N
Embedded Track?	Y/N	N	Y/N	N	Y/N	N	Y/N	N
Aerial Structure?	Y/N	N	Y/N	N	Y/N	N	Y/N	N
Barrier Present?	Y/N	Y	Y/N	Y	Y/N	Y	Y/N	Y
Intervening Rows of Buildings	number of rows	0	number of rows	0	number of rows	0	number of rows	0

Noise Model Based on Federal Transit Administration General Transit Noise Assessment  
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 Case: Del Mar Resort Project - M14 M15

RESULTS			
Noise Source	Ldn (dB)	Leq - daytime (dB)	Leq - nighttime (dB)
All Sources	59	44	53
Source 1	44	41	37
Source 2	45	42	38
Source 3	55	17	49
Source 4	56	0	50
Source 5	0	0	0
Source 6	0	0	0
Source 7	0	0	0
Source 8	0	0	0

Enter noise receiver land use category below.

LAND USE CATEGORY	
Noise receiver land use category (1, 2 or 3)	2

Enter data for up to 8 noise sources below - see reference list for source numbers.

NOISE SOURCE PARAMETERS								
Parameter	Source 1		Source 2		Source 3		Source 4	
Source Num.	Commuter Diesel Locomotive	2	Commuter Rail Cars	3	Freight Locomotive	9	Freight Cars	10
Distance (source to receiver)	distance (ft)	600	distance (ft)	600	distance (ft)	600	distance (ft)	600
Daytime Hours (7 AM - 10 PM)	speed (mph)	70	speed (mph)	70	speed (mph)	0	speed (mph)	0
	trains/hour	4.73333	trains/hour	4.73333	trains/hour	0	trains/hour	0
	locos/train	1	cars/train	5	locos/train	0	length of cars (ft) / train	0
Nighttime Hours (10 PM - 7 AM)	speed (mph)	70	speed (mph)	70	speed (mph)	50	speed (mph)	50
	trains/hour	2.11111	trains/hour	2.11111	trains/hour	1.22222	trains/hour	1.22222
	locos/train	1	cars/train	5	locos/train	5	length of cars (ft) / train	4800
Wheel Flats?	N	N	% of cars w/ wheel flats	0.00%	0.00%	0.00%	% of cars w/ wheel flats	0.00%
Jointed Track?	Y/N	N	Y/N	N	Y/N	N	Y/N	N
Embedded Track?	Y/N	N	Y/N	N	Y/N	N	Y/N	N
Aerial Structure?	Y/N	N	Y/N	N	Y/N	N	Y/N	N
Barrier Present?	Y/N	Y	Y/N	Y	Y/N	Y	Y/N	Y
Intervening Rows of Buildings	number of rows	0	number of rows	0	number of rows	0	number of rows	0

Noise Model Based on Federal Transit Administration General Transit Noise Assessment  
 Developed for Chicago Create Project  
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 Case: Del Mar Resort Project - M16 M17 M18

RESULTS			
Noise Source	Ldn (dB)	Leq - daytime (dB)	Leq - nighttime (dB)
All Sources	57	42	51
Source 1	42	38	35
Source 2	43	40	36
Source 3	53	15	47
Source 4	54	-2	48
Source 5	0	0	0
Source 6	0	0	0
Source 7	0	0	0
Source 8	0	0	0

Enter noise receiver land use category below.

LAND USE CATEGORY	
Noise receiver land use category (1, 2 or 3)	2

Enter data for up to 8 noise sources below - see reference list for source numbers.

NOISE SOURCE PARAMETERS								
Parameter	Source 1		Source 2		Source 3		Source 4	
Source Num.	Commuter Diesel Locomotive	2	Commuter Rail Cars	3	Freight Locomotive	9	Freight Cars	10
Distance (source to receiver)	distance (ft)	820	distance (ft)	820	distance (ft)	820	distance (ft)	820
Daytime Hours (7 AM - 10 PM)	speed (mph)	70	speed (mph)	70	speed (mph)	0	speed (mph)	0
	trains/hour	4.73333	trains/hour	4.73333	trains/hour	0	trains/hour	0
	locos/train	1	cars/train	5	locos/train	0	length of cars (ft) / train	0
Nighttime Hours (10 PM - 7 AM)	speed (mph)	70	speed (mph)	70	speed (mph)	50	speed (mph)	50
	trains/hour	2.11111	trains/hour	2.11111	trains/hour	1.22222	trains/hour	1.22222
	locos/train	1	cars/train	5	locos/train	5	length of cars (ft) / train	4800
Wheel Flats?	N	N	% of cars w/ wheel flats	0.00%	0.00%	0.00%	% of cars w/ wheel flats	0.00%
Jointed Track?	Y/N	N	Y/N	N	Y/N	N	Y/N	N
Embedded Track?	Y/N	N	Y/N	N	Y/N	N	Y/N	N
Aerial Structure?	Y/N	N	Y/N	N	Y/N	N	Y/N	N
Barrier Present?	Y/N	Y	Y/N	Y	Y/N	Y	Y/N	Y
Intervening Rows of Buildings	number of rows	0	number of rows	0	number of rows	0	number of rows	0

