Appendix F:
Noise Impact Analysis

FIRSTCARBONSOLUTIONS™

Noise Impact Analysis Report
Anaheim Boulevard Hotel Development
City of Anaheim, Orange County, California

Prepared for:
City of Anaheim
Planning Department
200 South Anaheim Boulevard
1st Floor, Suite 162
Anaheim, CA 92805
714.765.5139

Contact: Christine Saunders, Associate Planner

Prepared by:
FirstCarbon Solutions
250 Commerce, Suite 250
Irvine, CA 92602
714.508.4100

Contact: Frank Coyle, Project Director
Philip Ault, PM, Noise & Air Quality Scientist

Date: February 28, 2018

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ACRONYMS AND ABBREVIATIONS

ADT	average daily traffic
ANSI	American National Standards Institute
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dB	decibel
dBA	A-weighted decibel
FCS	FirstCarbon Solutions
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
Hz	Hertz
L_{dn}	Day-Night Average Sound Level
L_{eq}	Equivalent Sound Level
OSHA	Occupational Safety and Health Administration
PPV	peak particle velocity
RMS	root mean square
SEL	Single Event Level
VdB	Vibration level at 1 microinch per second

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SECTION 1: INTRODUCTION

1.1 - Purpose of Analysis and Study Objectives

This Noise Impact Analysis has been prepared by FirstCarbon Solutions (FCS) to determine the off-site and on-site noise impacts associated with the proposed Anaheim Boulevard Hotel Project. The following is provided in this report:

- A description of the study area, project site, and proposed project
- Information regarding the fundamentals of noise and vibration
- A description of the local noise guidelines and standards
- A description of the existing noise environment
- An analysis of the potential short-term, construction-related noise and vibration impacts from the proposed project
- An analysis of long-term, operations-related noise and vibration impacts from the proposed project

1.2 - Project Summary

1.2.1 - Site Location

The proposed site is at 1601 S Anaheim Boulevard, Anaheim, CA 92805, in the northwest corner of the intersection of Anaheim Boulevard and the Interstate 5 (I-5) on/off ramps (Exhibit 1). The project is located on a 3.5-acre triangularly shaped vacant parcel, currently owned by the City of Anaheim, which the applicant proposed to purchase (Exhibit 2). Surrounding uses include a restaurant and bar to the north, industrial uses to the east, and the I-5 Freeway to the south and west of the site. Surrounding buildings are one to two stories in height.

The project site is within the Commercial-General Zone in the South Anaheim Boulevard Corridor (SABC) Overlay Zone (AMC 18.24) and is designated for General Commercial land uses by the Anaheim General Plan. The proposed project will not be implementing the SABC Overlay Zone, but rather the Commercial-General Zone.

1.2.2 - Project Description

The Anaheim Boulevard Hotel Development project proposes to develop a 14-story, 330-room hotel with two restaurants and a five-level, 360-space parking structure (Exhibit 3). Ground floor amenities would include a pool, fitness room, game room, coffee shop, and restaurant and bar. Rooftop amenities would include a pool, spa, sun/viewing deck, and restaurant and bar. Off-site improvements include connections to adjacent wet and dry utilities.

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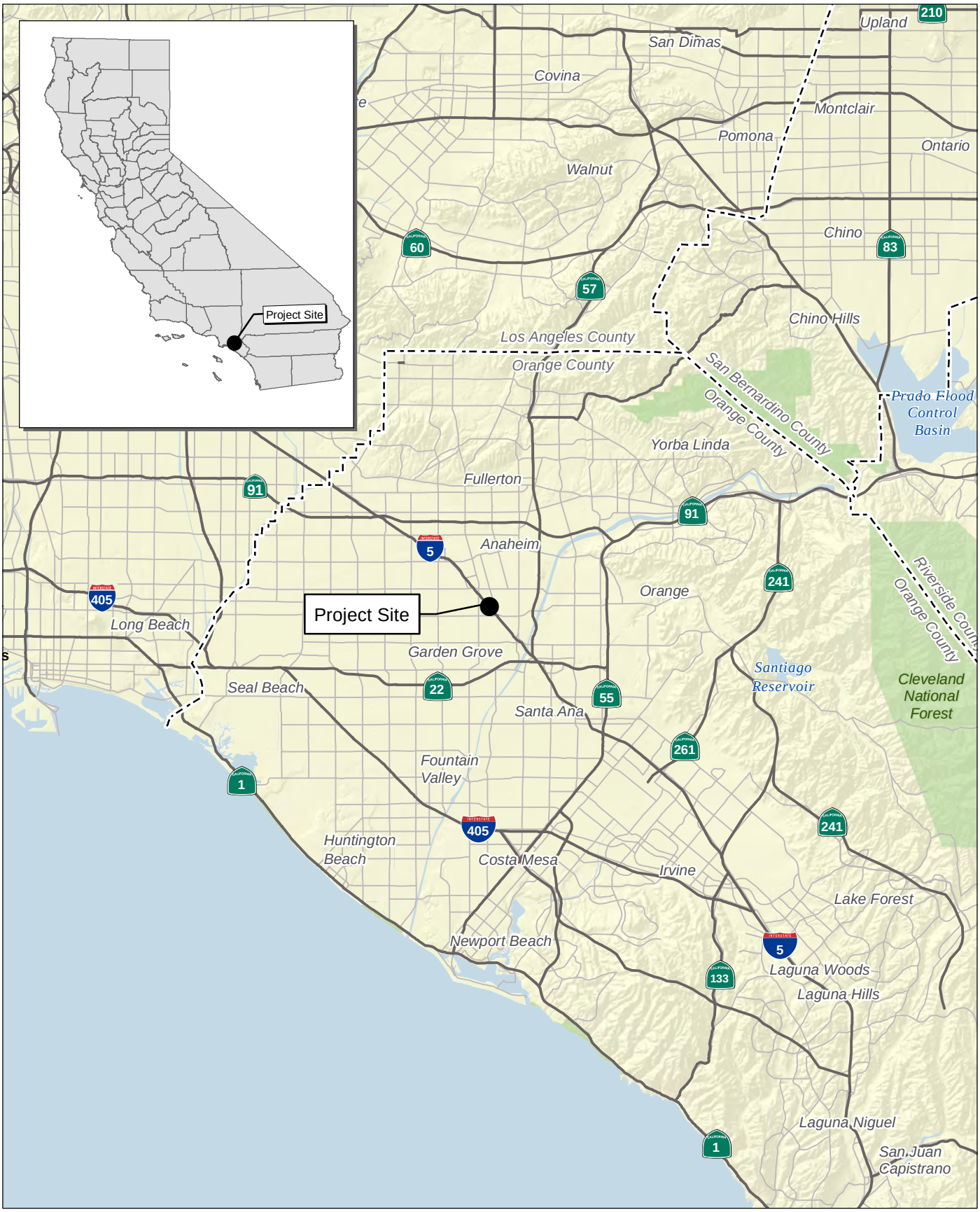

Source: Census 2000 Data, The CaSIL, FCS GIS 2016.

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Exhibit 1
Regional Location Map

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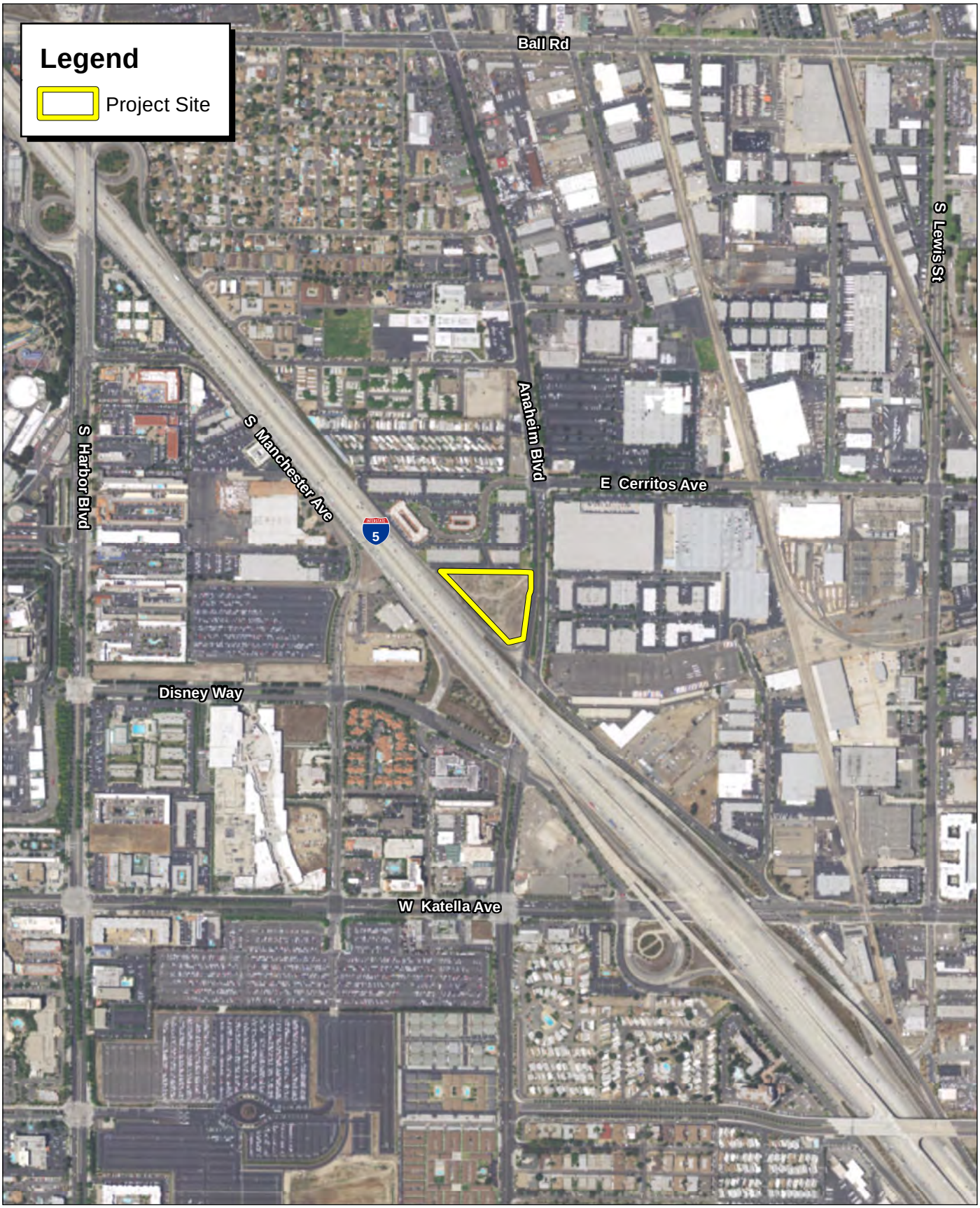

Source: ESRI Imagery

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850 425 0 850
Feet

Exhibit 2
Local Vicinity Map
Aerial Base

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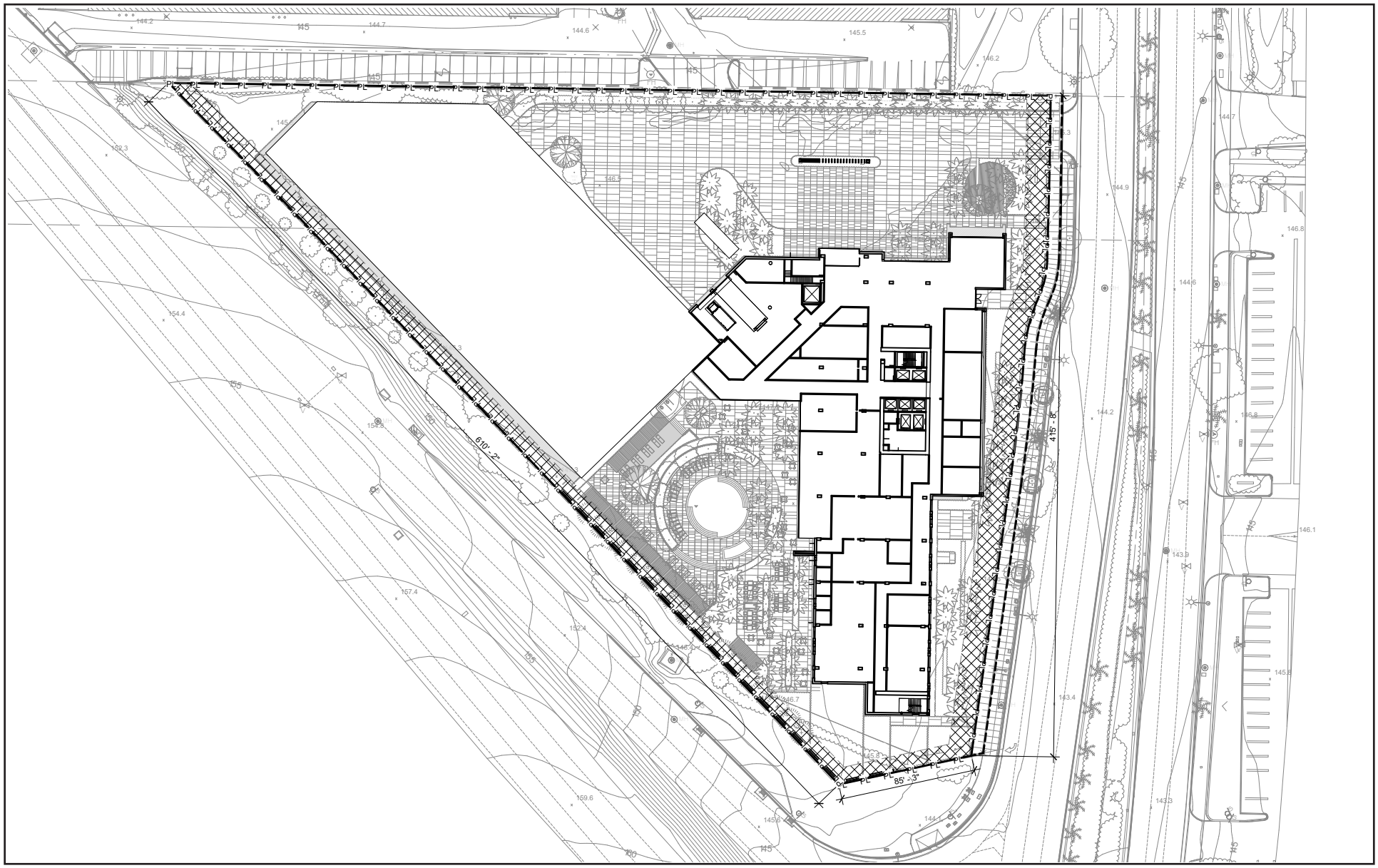

Source: GBO Architects, 2017

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Exhibit 3
Site Plan

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SECTION 2: NOISE AND VIBRATION FUNDAMENTALS

2.1 - Characteristics of Noise

Noise is generally defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, and sleep.

Several noise measurement scales exist which are used to describe noise in a particular location. A *decibel* (dB) is a unit of measurement that indicates the relative intensity of a sound. The 0 point on the dB scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Changes of 3.0 dB or less are only perceptible in laboratory environments. Audible increases in noise levels generally refer to a change of 3.0 dB or more, as this level has been found to be barely perceptible to the human ear in outdoor environments. Sound levels in dB are calculated on a logarithmic basis. An increase of 10 dB represents a 10-fold increase in acoustic energy, while 20 dB is 100 times more intense, 30 dB is 1,000 times more intense. Each 10-dB increase in sound level is perceived as approximately a doubling of loudness. Sound intensity is normally measured through the A-weighted sound level (dBA). This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive.

Noise impacts can be described in three categories. The first is audible impacts, which refers to increases in noise levels noticeable to humans. An audible increase in noise levels generally refers to a change of 3.0 dB or greater, since this level has been found to be barely perceptible in exterior environments. The second category, potentially audible, refers to a change in the noise level between 1.0 and 3.0 dB. This range of noise levels has been found to be noticeable only in laboratory environments. The last category is changes in noise level of less than 1.0 dB, which are inaudible to the human ear. Only audible changes in existing ambient or background noise levels are considered potentially significant.

As noise spreads from a source, it loses energy so that the farther away the noise receiver is from the noise source, the lower the perceived noise level would be. Geometric spreading causes the sound level to attenuate or be reduced, resulting in a 6-dB reduction in the noise level for each doubling of distance from a single point source of noise to the noise-sensitive receptor of concern. A long, closely spaced continuous line of vehicles along a roadway becomes a line source and produces a 3 dBA decrease in sound level for each doubling of distance. However, experimental evidence has shown that where sound from a highway propagates close to “soft” ground (e.g., plowed farmland, grass, crops, etc.), the most suitable dropoff rate to use is not 3 dBA but rather 4.5 dBA per distance doubling. There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. The predominant rating scales for human communities in the State of California are the L_{eq} and community noise equivalent level (CNEL) or the day-night average level (L_{dn}) based on A-weighted decibels (dBA). Equivalent continuous sound level (L_{eq}) is the total sound energy of time-varying noise over a sample period. CNEL is the time-varying noise over a 24-hour period, with a 5-dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and a 10-dBA weighting factor

applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale but without the adjustment for events occurring during the evening hours. CNEL and L_{dn} are within one dBA of each other and are normally exchangeable. The noise adjustments are added to the noise events occurring during the more sensitive hours.

Other noise rating scales of importance when assessing the annoyance factor include the maximum noise level (L_{max}), which is the highest exponential time-averaged sound level that occurs during a stated time period. The noise environments discussed in this analysis are specified in terms of maximum levels denoted by L_{max} for short-term noise impacts. L_{max} reflects peak operating conditions and addresses the annoying aspects of intermittent noise.

Common sources of noise in urban environments include mobile sources, such as traffic, and stationary sources, such as mechanical equipment or construction operations.

Construction is performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on each construction site and, therefore, would change the noise levels as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 1 shows typical noise levels of construction equipment as measured at a distance of 50 feet from the operating equipment. Construction-period noise levels are higher than background ambient noise levels, but they eventually cease once construction is complete.

Table 1: Typical Construction Equipment Maximum Noise Levels, L_{max}

Category	Impact Device? (Yes/No)	Specification Maximum Sound Levels for Analysis (dBA at 50 feet)
Pickup Truck	No	55
Pumps	No	77
Air Compressors	No	80
Backhoe	No	80
Front-End Loaders	No	80
Portable Generators	No	82
Dump Truck	No	84
Tractors	No	84
Auger Drill Rig	No	85
Concrete Mixer Truck	No	85
Cranes	No	85
Dozers	No	85
Excavators	No	85

Table 1 (cont.): Typical Construction Equipment Maximum Noise Levels, L_{max}

Type of Equipment	Impact Device? (Yes/No)	Specification Maximum Sound Levels for Analysis (dBA at 50 feet)
Graders	No	85
Jackhammers	Yes	85
Man Lift	No	85
Paver	No	85
Pneumatic Tools	No	85
Rollers	No	85
Scrapers	No	85
Concrete/Industrial Saws	No	90
Impact Pile Driver	Yes	95
Vibratory Pile Driver	No	95
Source: FHWA, 2006.		

2.2 - Characteristics of Groundborne Vibration

Groundborne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. Vibrating objects in contact with the ground radiate vibration waves through various soil and rock strata to the foundations of nearby buildings.

Although groundborne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. When assessing annoyance from groundborne vibration, vibration is typically expressed as root mean square (rms) velocity in units of decibels of 1 micro-inch per second. To distinguish vibration levels from noise levels, the unit is written as "VdB."

In extreme cases, excessive groundborne vibration has the potential to cause structural damage to buildings. Common sources of groundborne vibration include construction activities such as blasting, pile driving, and operating heavy earthmoving equipment. However, construction vibration impacts on building structures are generally assessed in terms of peak particle velocity (PPV). For purposes of this analysis, project-related impacts are expressed in terms of PPV. Typical vibration source levels from construction equipment are shown in Table 2.

Table 2: Vibration Levels of Construction Equipment

Construction Equipment	PPV at 25 Feet (inches/second)	RMS Velocity in Decibels (VdB) at 25 Feet
Water Trucks	0.001	57
Scraper	0.002	58

Table 2 (cont.): Vibration Levels of Construction Equipment

Construction Equipment	PPV at 25 Feet (inches/second)	RMS Velocity in Decibels (VdB) at 25 Feet
Bulldozer—small	0.003	58
Jackhammer	0.035	79
Concrete Mixer	0.046	81
Concrete Pump	0.046	81
Paver	0.046	81
Pickup Truck	0.046	81
Auger Drill Rig	0.051	82
Backhoe	0.051	82
Crane (Mobile)	0.051	82
Excavator	0.051	82
Grader	0.051	82
Loader	0.051	82
Loaded Trucks	0.076	86
Bulldozer—Large	0.089	87
Caisson drilling	0.089	87
Vibratory Roller (small)	0.101	88
Compactor	0.138	90
Clam shovel drop	0.202	94
Vibratory Roller (large)	0.210	94
Pile Driver (impact-typical)	0.644	104
Pile Driver (impact-upper range)	1.518	112
Source: Compilation of scientific and academic literature, generated by FTA and FHWA.		

Propagation of vibration through soil can be calculated using the vibration reference equation:

$$PPV = PPV_{ref} * (25/D)^n \text{ (in/sec)}$$

Where:

PPV=reference measurement at 25 feet from vibration source
D=distance from equipment to property line
n=vibration attenuation rate through ground

According to Chapter 12 of the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment manual (2006), an "n" value of 1.5 is recommended to calculate vibration propagation through typical soil conditions.

SECTION 3: REGULATORY SETTING

3.1 - Federal Regulations

3.1.1 - United States Environmental Protection Agency

In 1972, Congress enacted the Noise Control Act. This act authorized the United States Environmental Protection Agency (EPA) to publish descriptive data on the effects of noise and establish levels of sound "requisite to protect the public welfare with an adequate margin of safety." These levels are separated into health (hearing loss levels) and welfare (annoyance levels) categories, as shown in Table 3. The EPA cautions that these identified levels are not standards because they do not take into account the cost or feasibility of the levels.

For protection against hearing loss, 96 percent of the population would be protected if sound levels are less than or equal to an $L_{eq(24)}$ of 70 dBA. The "(24)" signifies an L_{eq} duration of 24 hours. The EPA activity and interference guidelines are designed to ensure reliable speech communication at about 5 feet in the outdoor environment. For outdoor and indoor environments, interference with activity and annoyance should not occur if levels are below 55 dBA and 45 dBA, respectively.

Table 3: Summary of EPA Recommended Noise Levels to Protect Public Welfare

Effect	Level	Area
Hearing loss	$L_{eq}(24) \leq 70$ dB	All areas
Outdoor activity interference and annoyance	$L_{dn} \leq 55$ dB	Outdoors in residential areas and farms and other outdoor areas where people spend widely varying amounts of time and other places in which quiet is a basis for use
	$L_{eq}(24) \leq 55$ dB	Outdoor areas where people spend limited amounts of time, such as school yards, playgrounds, etc.
Indoor activity interference and annoyance	$L_{eq} \leq 45$ dB	Indoor residential areas
	$L_{eq}(24) \leq 45$ dB	Other indoor areas with human activities such as schools, etc.
Source: EPA, 1974.		

3.1.2 - Federal Transit Administration

The FTA has established industry accepted standards for vibration impact criteria and impact assessment. These guidelines are published in its Transit Noise and Vibration Impact Assessment document (FTA 2006). The FTA guidelines include thresholds for construction vibration impacts for various structural categories as shown in Table 4.

Table 4: Federal Transit Administration Construction Vibration Impact Criteria

Building Category	PPV (in/sec)	Approximate VdB
I. Reinforced—Concrete, Steel or Timber (no plaster)	0.5	102
II. Engineered Concrete and Masonry (no plaster)	0.3	98
III. Non Engineered Timber and Masonry Buildings	0.2	94
IV. Buildings Extremely Susceptible to Vibration Damage	0.12	90

Note:
VdB = velocity in decibels
Source: FTA, 2006.

3.2 - State Regulations

The State of California has established regulations that help prevent adverse impacts to occupants of buildings located near noise sources. Referred to as the "State Noise Insulation Standard," it requires buildings to meet performance standards through design and/or building materials that would offset any noise source in the vicinity of the receptor. State regulations include requirements for the construction of new hotels, motels, apartment houses, and dwellings other than detached single-family dwellings that are intended to limit the extent of noise transmitted into habitable spaces. These requirements are found in the California Code of Regulations, Title 24 (known as the Building Standards Administrative Code), Part 2 (known as the California Building Code), Appendix Chapters 12 and 12A. For limiting noise transmitted between adjacent dwelling units, the noise insulation standards specify the extent to which walls, doors, and floor-ceiling assemblies must block or absorb sound. For limiting noise from exterior noise sources, the noise insulation standards set an interior standard of 45 dBA CNEL in any habitable room with all doors and windows closed. In addition, the standards require preparation of an acoustical analysis demonstrating the manner in which dwelling units have been designed to meet this interior standard, where such units are proposed in an area with exterior noise levels greater than 60 dBA CNEL.

The State has also established land use compatibility guidelines for determining acceptable noise levels for specified land uses.

3.3 - Local Regulations

The project site is located within the City of Anaheim and this analysis was performed using the City's noise regulations. The City of Anaheim addresses noise in the Noise Element of its General Plan (2004) and in the City of Anaheim Municipal Code (2017).

General Plan

The City has adopted the State of California's exterior noise and land use compatibility standards for land use development in the Noise Element of its General Plan, as shown in Table 5. The land use category that is applicable to this project is Transient Lodging-Motels/Hotels. Under this designation, noise environments with ambient noise levels up to 65 dBA CNEL are considered

"Normally Acceptable" for Transient Lodging-Motel, Hotel land uses. Noise environments with ambient noise levels from 60 dBA to 70 dBA CNEL are considered "Conditionally Acceptable" for new Transient Lodging-Motel/Hotel land uses developments; under this circumstance, development may be permitted only after detailed analysis of the noise reduction requirements and needed noise insulation features are included in the project design. Conventional construction, but with closed windows and a fresh air supply system or air conditioning, will normally suffice as a noise insulation feature for these conditionally acceptable environments.

In addition to the land use compatibility standards established by the City, the City of Anaheim has adopted the State of California's interior and exterior noise standards, as shown in Table 6. According to this standard, for a hotel, interior noise levels up to 45 dBA CNEL are considered acceptable.

The City of Anaheim General Plan contains goals and policies that address noise. The following goals and policies are presented in the City's General Plan and are applicable to the proposed project:

- **Goal 1.1:** Protect sensitive land uses from excessive noise through diligent planning and regulation.

Policies

3) Consider the compatibility of proposed land uses with the noise environment when preparing, revising or reviewing development proposals.
4) Require mitigation where sensitive uses are to be placed along transportation routes to ensure that noise levels are minimized through appropriate means of mitigation thereby maintaining quality of life standards.
5) Encourage proper site planning and architecture to reduce noise impacts.
6) Discourage the siting of sensitive uses in areas in excess of 65 dBA CNEL without appropriate mitigation.
7) Require that site-specific noise studies be conducted by a qualified acoustic consultant utilizing acceptable methodologies while reviewing the development of sensitive land uses or development that has the potential to impact sensitive land uses.

- **Goal 2.1:** Encourage the reduction of noise from transportation-related noise sources such as motor vehicles, aircraft operations, and railroad movements.

Policies

3) Require that development generating increased traffic and subsequent increases in the ambient noise level adjacent to noise-sensitive land uses provide appropriate mitigation measures.
5) Require sound walls, berms and landscaping along existing and future freeways and railroad rights-of-way to beautify the landscape and reduce noise, where appropriate.

- **Goal 3.1:** Protect residents from the effects of "spill over" or nuisance noise emanating from the City's activity centers.

Policies

1) Discourage new projects located in commercial or entertainment areas from exceeding stationary-source noise standards at the property line of proximate residential or commercial uses, as appropriate.
3) Enforce standards to regulate noise from construction activities. Particular emphasis shall be placed on the restriction of the hours in which work other than emergency work may occur. Discourage construction on weekends or holidays except in the case of construction proximate to schools where these operations could disturb the classroom environment.
4) Require that construction equipment operate with mufflers and intake silencers no less effective than originally equipped.
5) Encourage the use of portable noise barriers for heavy equipment operations performed within 100 feet of existing residences or make applicant provide evidence as to why the use of such barriers is infeasible.

Table 5: Land Use Compatibility for Community Noise Exposure (dBA CNEL or L_{dn})

Land Use Category	55	60	65	70	75	80
Residential—Low-Density Single-Family, Duplex, and Mobile Homes						
Residential—Multi-Family						
Transient Lodging—Hotels, Motels						
Schools, Libraries, Churches, Hospitals, Nursing Homes						
Auditoriums, Concert Halls, Amphitheaters						

Table 5 (cont.): State of California Community Noise Exposure (dBA CNEL or L_{dn})

Land Use Category	55	60	65	70	75	80
Sports Arenas, Outdoor Spectator Sports						
Playgrounds, Neighborhood Parks						
Golf Courses, Riding Stables, Water Recreation, Cemeteries						
Office Buildings, Businesses, Commercial and Professional						
Industrial, Manufacturing, Utilities, Agriculture						

Source: Governor's Office of Planning and Research. 2003. State of California General Plan Guidelines, Appendix C, Guidelines for the Preparation and Content of the Noise Element of the General Plan. October 2003.

Key:

	Normally Acceptable: Specified land use is satisfactory based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
	Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice. Outdoor environment will seem noisy.
	Normally Unacceptable: New construction and development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made with needed noise insulation features included in the design. Outdoor areas must be shielded.
	Clearly Unacceptable: New construction or development should generally not be undertaken. Construction costs to make the indoor environment acceptable would be prohibitive and the outdoor environment would not be usable.

Table 6: State of California Interior and Exterior Noise Standards

Land Use		CNEL (dBA)	
Categories	**Uses**	**Interior[1]**	**Exterior[2]**
Residential	Single and multiple-family, duplex	45[3]	65
	Mobile homes	—	65[4]
Commercial	Hotel, motel, transient housing	45	—
	Commercial retail, bank, restaurant	55	—
	Office building, research and development, professional offices	50	—
	Amphitheater, concert hall, auditorium, movie theater	45	—
	Gymnasium (Multipurpose)	50	—
	Sports Club	55	—
	Manufacturing, warehousing, wholesale, utilities	65	—
	Movie Theaters	45	—
Institutional/ Public	Hospital, school classrooms/playgrounds	45	65
	Church, library	45	—
Open Space	Parks	—	65

Notes:
[1] Indoor environment excluding: bathrooms, kitchens, toilets, closets, and corridors
[2] Outdoor environment limited to:
- Private yard of single-family dwellings
- Multiple-family private patios or balconies accessed from within the dwelling (Balconies 6 feet deep or less are exempt)
- Mobile home parks
- Park picnic areas
- School playgrounds
- Hospital patios

[3] Noise level requirement with closed windows, mechanical ventilation or other means of natural ventilation shall be provided as per Chapter 12, Section 1205 of the Uniform Building Code.
[4] Exterior noise levels should be such that interior noise levels will not exceed 45 dBA CNEL.
Source: City of Anaheim, 2004.

Municipal Code

The City addresses noise in the noise ordinances of its Municipal Code. These ordinances are summarized below.

According to the noise ordinances, sound produced in excess of the sound pressure levels permitted by the Municipal Code are objectionable and constitute an infringement upon the right and quiet enjoyment of property in the City. No person within the City shall create any sound radiated for extended periods from any premises which produces a sound pressure level at any point on the property line in excess of 60 dBA in accordance with the noise measurement requirements listed in the noise ordinance.

The City has provided certain exemptions for various noise sources from its noise performance standards. For example, sound created by construction or building repair of any premises within the City shall be exempt from the applications of this chapter during the hours of 7:00 a.m. to 7:00 p.m. Additional work hours may be permitted if deemed necessary by the Director of Public Works or Building Official.

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SECTION 4: EXISTING NOISE CONDITIONS

The following section describes the existing ambient noise environment of the project vicinity.

4.1 - Existing Noise Sources

The proposed project site is located in the City of Anaheim, California. The project site is bounded by a restaurant and bar to the north, Canary Trading and Wholesale Shoes Stop to the east, and the I-5 Freeway to the south and west of the site. Surrounding buildings are one to two stories in height.

4.2 - Existing Ambient and Traffic Noise Levels

The existing ambient noise levels on the project site were documented through a noise monitoring effort taken on the project site.

Three short-term noise measurements were taken on Tuesday, August 22, 2017 starting at 11:24 a.m. and ending at 12:05 p.m., during the midday peak noise hours. These short-term noise measurements are summarized in Table 7. The first measurement was taken in the northwest corner of the project site near the closest residential receptor. The resulting measurement showed that ambient noise levels at this location averaged 71.7 dBA L_{eq}. As was observed by the technician at the time of the noise measurement, the dominant noise source in the project vicinity was traffic on the I-5 Freeway.

The second measurement was taken in the center of the north boundary of the project site near the closest residential receptor with a direct line of sight to portions of the project site. The resulting measurement showed that ambient noise levels at this location averaged 67.6 dBA L_{eq}. As was observed by the technician at the time of the noise measurement, the dominant noise source in the project vicinity was traffic on the I-5 Freeway.

The third measurement was taken in the northeast corner of the project site near the closest residential receptor. The resulting measurement showed that ambient noise levels at this location averaged 70.6 dBA L_{eq}. As was observed by the technician at the time of the noise measurement, the dominant noise source in the project vicinity was traffic on Anaheim Boulevard.

Table 7: Short-term Noise Monitoring Summary

Site Location	Description	L_{eq}	L_{max}	L_{min}
ST-1	Northwest corner of the project site near the closest residential receptor	71.7	76.4	66.3
ST-2	Center of the north boundary of the project site near the closest residential receptor with a direct line of sight to portions of the project site	67.6	68.5	65.1
ST-3	Northeast corner of the project site near the closest residential receptor	70.6	91.5	60.1
Source: FirstCarbon Solutions, 2017.				

The ambient noise measurement locations are shown in Exhibit 4. The noise monitoring survey data sheets are provided in Appendix A.

4.3 - Existing Stationary Source Noise Levels

Surrounding land uses include a restaurant and bar to the north, industrial uses to the east, and the I-5 Freeway to the south and west of the site. These surrounding land uses generate noise from truck deliveries, loading/unloading activities, and typical parking lot activities. Typical medium truck (step-van type with roll-doors) loading and unloading activities in the project vicinity result in maximum noise levels from 70 dBA to 80 dBA L_{max} at 50 feet. Representative parking activities, such as people conversing or doors slamming, generate approximately 60 dBA to 70 dBA L_{max} at 50 feet. These activities are potential point sources of noise that contribute to the existing ambient noise environment in the project vicinity.

4.4 - Existing Traffic Noise

Existing traffic noise levels along roadway segments in the project vicinity will be calculated using the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA RD-77-108) upon receipt of the final data from the traffic analysis prepared for this project. This model requires parameters—including traffic volumes, vehicle mix, vehicle speed, and roadway geometry—to compute typical equivalent noise levels during daytime, evening, and nighttime hours. The resultant noise levels will be weighted and summed over 24-hour periods to determine the average community noise level (CNEL) values.

The daily traffic volumes were obtained from the traffic analysis prepared for the project by Iteris, Inc. (2017). The traffic volumes described here correspond to the existing without project conditions traffic scenario as described in the transportation analysis. The model inputs and outputs—including the 60 dBA, 65 dBA, and 70 dBA CNEL noise contour distances—are provided in Appendix A of this document. A summary of the modeling results is shown in Table 8.

Table 8: Existing Traffic Noise Levels

Roadway Segment	Approximate ADT	Centerline to 70 CNEL (feet)	Centerline to 65 CNEL (feet)	Centerline to 60 CNEL (feet)	CNEL (dBA) 50 feet from Centerline of Outermost Lane
Ball Road—Harbor Boulevard and Anaheim Boulevard	38,300	66	125	261	67.8
Disney Way—I-5 SB Off-ramp and Anaheim Boulevard	13,600	< 50	< 50	107	61.7
Katella Avenue—Harbor Boulevard and Clementine	38,400	66	125	261	67.8
Katella Avenue—Clementine Street and Haster Street/ Anaheim Boulevard	40,300	68	129	270	68.0

Table 8 (cont.): Existing Traffic Noise Levels

Roadway Segment	Approximate ADT	Centerline to 70 CNEL (feet)	Centerline to 65 CNEL (feet)	Centerline to 60 CNEL (feet)	CNEL (dBA) 50 feet from Centerline of Outermost Lane
Katella Avenue—Haster Street/ Anaheim Boulevard and I-5 SB Loop Off-ramp	37,900	66	124	259	67.8
Anaheim Boulevard—Ball Road and Cerritos Avenue	28,000	< 50	104	213	66.4
Anaheim Boulevard—Cerritos Avenue and Anaheim Way	37,500	77	151	319	69.1
Anaheim Boulevard—Anaheim Way and Manchester Avenue	32,000	71	137	287	68.4
Anaheim Boulevard—Manchester Avenue and Katella Avenue	22,100	< 50	110	226	66.8
Anaheim Way—Anaheim Boulevard and Disney Way Westbound Ramp	10,500	< 50	78	166	66.5
Anaheim Way—Disney Way Westbound Ramp and Katella Avenue	9,700	< 50	74	157	66.2
Interstate 5—north of Anaheim Boulevard	240,900	540	1,152	2,477	80.6

Note:
Modeling results do not take into account mitigating features such as topography, vegetative screening, fencing, building design, or structure screening. Rather, it assumes a worst case of having a direct line of site on flat terrain.
Source: FirstCarbon Solutions, 2017.

The projected noise levels for existing traffic along the eastern boundary of the project site range up to 69.1 dBA CNEL from traffic along Anaheim Boulevard between Cerritos Avenue and Anaheim Way. The projected noise levels for existing traffic along the southern boundary of the project site range up to 80.6 dBA CNEL from traffic along I-5.

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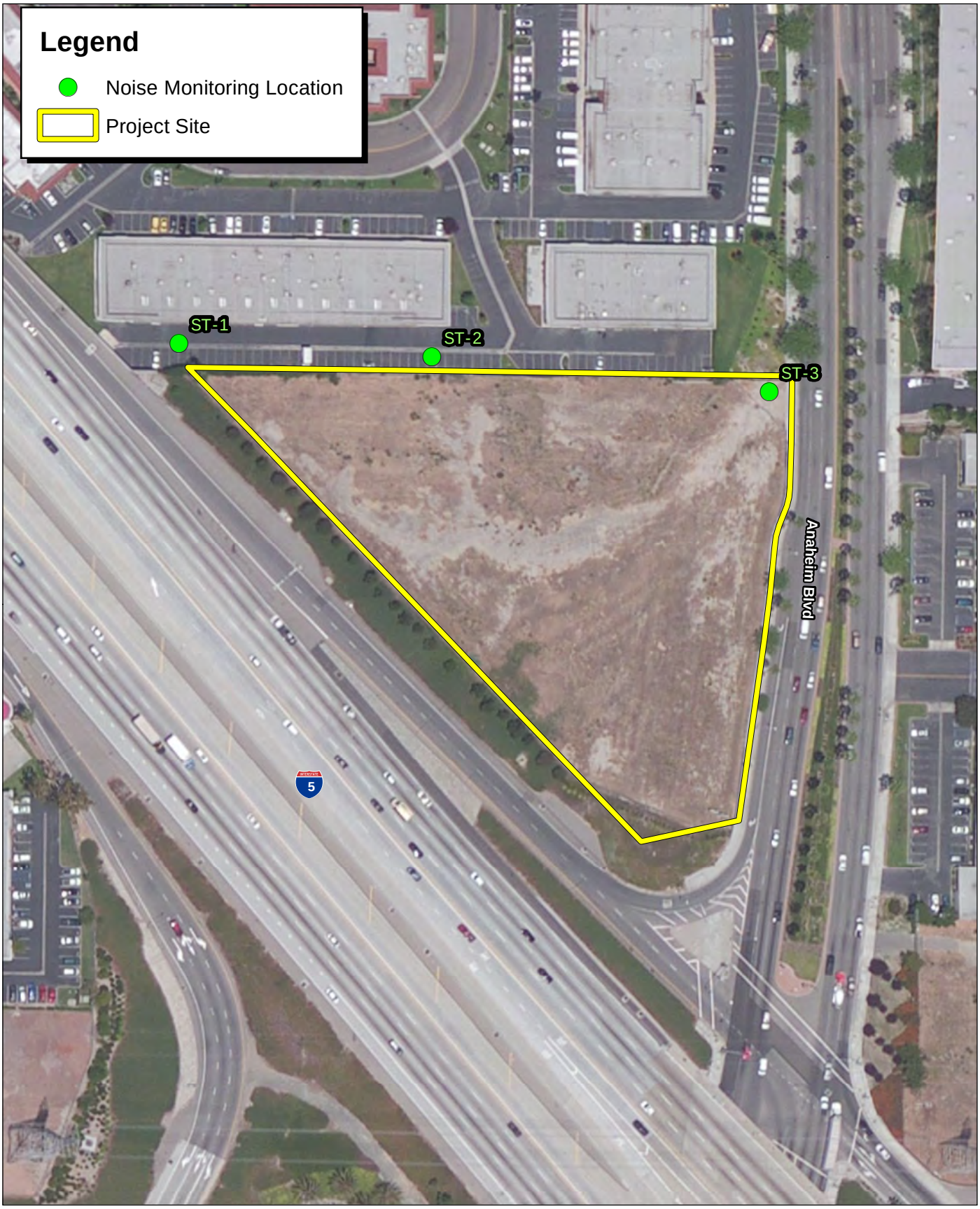

Source: ESRI Imagery

FIRSTCARBON SOLUTIONS™

125 62.5 0 125
Feet

Exhibit 4
Noise Monitoring Locations Map

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SECTION 5: THRESHOLDS OF SIGNIFICANCE AND IMPACT ANALYSIS

5.1 - Thresholds of Significance

This report analyzes potential project impacts according to the following criteria of significance. The proposed project would result in a significant impact if the project would result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

b) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;

c) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project; or

d) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

e) Exposure of people residing or working in the project area to excessive noise levels if the project is located within an area covered by an airport land use plan, or where such plan has not been adopted within two miles of a public airport or public use airport?

f) Exposure of people residing or working in the project area to excessive noise levels if the project is located in the vicinity of a private airstrip?

5.2 - Exceedance of Noise Standards Impacts

A significant impact would occur for the proposed hotel land use development if the project would be exposed to noise levels in excess of the City's land use compatibility standard; if interior noise levels for the proposed land use exceeded the State of California's interior noise standard; or if sound emanating from any premises exceeds the City's noise performance standards as indicated in the City's Municipal Code.

Noise environments with ambient noise levels up to 65 dBA CNEL are considered "Normally Acceptable" for Transient Lodging-Motel, Hotel land uses and environments with ambient noise levels from 60 dBA to 70 dBA CNEL are considered "Conditionally Acceptable." In the event that conditions for the proposed type of land use have been designated "Conditionally Acceptable," construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice. Land use compatibility designations are summarized in Table 5. The City has adopted the State of California's interior noise standards, as shown in Table 6. According to this standard, for a hotel, interior noise levels up to 45 dBA CNEL are considered acceptable.

According to the City's noise ordinances, no person within the City shall create any sound radiated for extended periods from any premises which produces a sound pressure level at any point on the property line in excess of 60 dBA in accordance with the noise measurement requirements listed in the noise ordinance.

5.2.1 - Mobile Source Operational Noise Impacts

A significant impact would occur for the proposed hotel land use development if the project would be exposed to transportation noise levels in excess of the City's "normally acceptable" land use compatibility standard of 65 dBA CNEL or if the project were exposed to interior noise levels that would exceed the State of California's interior noise standard of 45 dBA CNEL.

The FHWA highway traffic noise prediction model (FHWA RD-77-108) was used to evaluate existing and future traffic noise conditions in the vicinity of the project site. The projected future traffic noise levels adjacent to the project site were analyzed to determine compliance with the City's noise and land use compatibility standards. The daily traffic volumes were obtained from the traffic analysis prepared for the project by Iteris, Inc. (2017). The resultant noise levels were weighed and summed over a 24-hour period in order to determine the CNEL values. The traffic noise modeling input and output files are included in Appendix A of this document. Table 9 shows a summary of the traffic noise levels for existing, existing plus project, General Plan buildout (2035), and General Plan buildout (2035) plus project conditions as measured at 50 feet from the centerline of the outermost travel lane.

Table 9: Traffic Noise Model Results Summary

Roadway Segment	Existing No Project (dBA) CNEL	Existing Plus Project (dBA) CNEL	Increase over Existing No Project (dBA)	General Plan Buildout (2035) (dBA) CNEL	General Plan Buildout (2035) Plus Project (dBA) CNEL	Increase over Existing No Project (dBA)
Ball Road—Harbor Boulevard and Anaheim Boulevard	67.8	67.8	0.0	68.4	68.4	0.0
Disney Way—I-5 SB Off-ramp and Anaheim Boulevard	61.7	61.8	0.1	64.3	64.3	0.0
Katella Avenue—Harbor Boulevard and Clementine	67.8	67.8	0.0	69.9	69.9	0.0
Katella Avenue—Clementine Street and Haster Street/Anaheim Boulevard	68.0	68.0	0.0	70.2	70.3	0.1
Katella Avenue—Haster Street/Anaheim Boulevard and I-5 SB Loop Off-ramp	67.8	67.8	0.0	68.6	68.6	0.0
Anaheim Boulevard—Ball Road and Cerritos Avenue	66.4	66.5	0.1	67.7	67.7	0.0
Anaheim Boulevard—Cerritos Avenue and Anaheim Way	69.1	69.4	0.3	70.0	70.2	0.2

Table 9 (cont.): Traffic Noise Model Results Summary

Roadway Segment	Existing No Project (dBA) CNEL	Existing Plus Project (dBA) CNEL	Increase over Existing No Project (dBA)	General Plan Buildout (2035) (dBA) CNEL	General Plan Buildout (2035) Plus Project (dBA) CNEL	Increase over Existing No Project (dBA)
Anaheim Boulevard—Anaheim Way and Manchester Avenue	68.4	68.6	0.2	69.2	69.3	0.1
Anaheim Boulevard—Manchester Avenue and Katella Avenue	66.8	66.9	0.1	66.8	66.9	0.1
Anaheim Way—Anaheim Boulevard and Disney Way Westbound Ramp	66.5	66.6	0.1	67.5	67.6	0.1
Anaheim Way—Disney Way Westbound Ramp and Katella Avenue	66.2	66.3	0.1	68.3	68.4	0.1
Interstate 5—north of Anaheim Boulevard	80.6	80.6	0.0	80.6	80.6	0.0

Note:
CNEL (dBA) is stated as measured at 50 feet from the centerline of the outermost travel lane.
Source: FirstCarbon Solutions, 2017.

The traffic noise model results show that projected traffic noise levels along Anaheim Boulevard adjacent to the project site would range up to 69.4 dBA CNEL as measured at 50 feet from the centerline of the nearest travel lane under existing plus project conditions; and up to 70.2 dBA CNEL under General Plan buildout (2035) plus project conditions. These traffic noise levels are within the City's normally unacceptable range for new Transient Lodging-Motels, Hotels land use developments. Under these conditions, new construction and development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made with needed noise insulation features included in the design, and outdoor areas must be shielded.

The proposed hotel façade facing Anaheim would be exposed to traffic noise levels ranging up to 70 dBA CNEL under General Plan buildout (2035) plus project traffic conditions. The façades with direct line of sight to I-5 would be exposed to traffic noise levels ranging up to 75.5 dBA CNEL.

According to design details available at the time of this analysis, the proposed project will include mechanical ventilation systems that will permit windows to remain closed. In addition, the proposed exterior façade design calls for a Vision Systems C600 glazing system, which has a Sound Transmission Class (STC) rating of 40. The proposed wall assembly would meet a minimum STC-52 rating, with design equivalent of two layers of $^{5}/_{8}$-inch gypsum board on the interior, and exterior sheathing of not less than ¾ inch thick, with 3-inch think batt or sprayed insulation in the wall-cavity

and metal framing. Therefore, the proposed window and wall assembly would achieve a minimum STC-40 rating.

With these design features, traffic noise levels would be reduced to meet the interior noise standard of 45 dBA CNEL (75.5 - 40 = 35.5). Therefore, traffic noise impacts to interior areas of the proposed project would be less than significant.

However, in addition to meeting the interior noise level standard, the project must also shield outdoor uses from excessive traffic noise levels. The project would include a pool area that would also be exposed to traffic noise levels of up to 75.5 dBA CNEL at the points nearest I-5. The project would include construction of a 14-foot-high soundwall along the project's western and southern boundaries that would block the line of sight to the northbound on-ramp traffic noise. However, the portion of I-5 at the overpass of Anaheim Boulevard is elevated above the project's pad elevation at the project's most southern boundary. Therefore, this soundwall would be expected to reduce traffic noise levels at the outdoor pool area by up to only 8 dBA at the most southern portion of the outdoor pool area. However, this would reduce traffic noise levels to 67.5 dBA CNEL in this outdoor pool area, which is within the City's "conditionally acceptable" range for new Transient Lodging-Motels, Hotels land use developments. Therefore, with inclusion of the 14-foot soundwall design feature, traffic noise impacts to outdoor use areas of the project would be reduced to less than significant.

5.2.2 - Stationary Source Operational Noise Impacts

The proposed project would include new stationary noise sources, such as typical parking lot activities and mechanical ventilation systems. A significant impact would occur if the proposed parking lot or mechanical ventilation systems exceed the City's noise performance standard. According to the City's noise ordinances, no person within the City shall create any sound radiated for extended periods from any premises which produces a sound pressure level at any point on the property line in excess of 60 dBA L_{eq} in accordance with the noise measurement requirements listed in the noise ordinance.

Typical parking lot activities include people conversing, doors shutting, or vehicles idling generate noise levels of approximately 60 dBA to 70 dBA L_{max} at 50 feet. These activities are expected to occur sporadically throughout the day, as visitors and staff arrive and leave the parking lot areas. These noise levels are typical of what is currently experienced in the project vicinity from existing parking lot activities. Parking lot activities could be located as close as 640 feet to the nearest sensitive off-site receptors, the mobile homes located north of the project site. At this distance, noise generated by typical parking lot activities would attenuate to approximately 48 dBA L_{max} at the nearest off-site residential receptors. Therefore, parking lot activities would not exceed the City's noise performance standard of 60 dBA L_{eq}. The impact of project-related parking lot activities on sensitive off-site receptors would be less than significant.

At the time of preparation of this analysis, details were not available pertaining to proposed rooftop mechanical ventilation systems for the project; therefore, a reference noise level for typical rooftop mechanical ventilation systems was used. Noise levels from typical rooftop mechanical ventilation equipment are anticipated to range up to approximately 60 dBA L_{eq} at a distance of 25 feet. Rooftop

mechanical ventilation systems could be located as close as 640 feet of the nearest off-site receptors, the mobile homes located north of the project site. At this distance, noise generated by rooftop mechanical ventilation equipment would attenuate to approximately 32 dBA L_{eq} at the nearest off-site residential receptors. Therefore, mechanical ventilation equipment operational noise levels would not exceed the City's noise performance standard of 60 dBA L_{eq}. The impact of mechanical ventilation equipment operational noise levels on sensitive off-site receptors would be less than significant.

5.3 - Substantial Permanent Increase Impacts

As noted in the characteristics of noise discussion, audible increases in noise levels generally refer to a change of 3 dBA or more, as this level has been found to be barely perceptible to the human ear in outdoor environments. A change of 5 dBA is the minimum change considered readily perceptible to the human ear in outdoor environments. A significant impact would occur if construction of the proposed hotel resulted in noise levels that would create ambient noise levels more than 5 dBA above existing background noise levels in the project vicinity.

This highest traffic noise level increase with implementation of the project would occur along Anaheim Boulevard from Cerritos Avenue to Anaheim Way under existing plus project conditions. The project would result in an increase of 0.3 dBA along this roadway segment. This increase is below the level that is considered a perceptible change in outdoor environments (a 3 dBA increase), and is well below a 5 dBA increase that would be considered a substantial permanent increase in noise levels compared with noise levels that would exist without the project. Therefore, project-related traffic noise impacts on existing ambient noise levels would be less than significant.

As shown in the impact discussion of Section 5.2.2, new stationary noise sources resulting from implementation of the project would not result in noise levels above existing background noise levels as measured at off-site sensitive receptors. Therefore, project-related stationary sources would not result in a substantial permanent increase compared with noise levels existing without the project, and noise impacts on off-site receptors would be less than significant.

5.4 - Substantial Temporary or Periodic Increase Impacts

5.4.1 - Construction Noise Impacts

Two types of short-term noise impacts could occur during the construction of the proposed project. First, construction crew commutes and the transport of construction equipment and materials to the project site would incrementally increase noise levels on access roads leading to the project site. Although there would be a relatively high single-event noise exposure potential causing intermittent noise nuisance, the effect on longer-term (hourly or daily) ambient noise levels would be small. Therefore, short-term construction-related impacts associated with worker commute and equipment transport to the project site would be less than significant.

The second type of short-term noise impact is related to noise generated during construction on the project site. Construction is completed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would

change the character of the noise generated on the site and, therefore, the noise levels surrounding the site as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction related noise ranges to be categorized by work phase. Table 1 lists typical construction equipment noise levels, based on a distance of 50 feet between the equipment and a noise receptor. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full-power operation followed by 3 or 4 minutes at lower power settings. Impact equipment such as impact pile drivers are not expected to be used during construction of this project. However, for the foundation construction of the proposed structures, the project will utilize Geopier construction. The Geopier rammed aggregate pier installation is constructed by drilling out a volume of compressible soil to create a cavity and then vibratory ramming of select aggregate into the cavity in thin lifts using the patented beveled tamper.

The site preparation and grading phase of the project is expected to require the use of rubber-tired dozers, tractors, front-end loaders, backhoes, excavators, and graders. The building construction phase is expected to require the use of cranes, forklifts, portable generators, tractors, front-end loaders, backhoes, and welder torches.

Construction of the project is expected to require the use of scrapers, bulldozers, water trucks, haul trucks, and pickup trucks. Based on the information provide in Table 1, the maximum noise level generated by each scraper is assumed to be 85 dBA L_{max} at 50 feet from this equipment. Each bulldozer would also generate 85 dBA L_{max} at 50 feet. The maximum noise level generated by graders is approximately 85 dBA L_{max} at 50 feet. Geopier rammed aggregate pier construction is documented to generate maximum noise levels of up to 98 dBA L_{max} at 10 feet from the operating equipment (Geopier Foundation Company 2018); these noise levels would attenuate to below 84 dBA L_{max} at 50 feet from the operating equipment. Each doubling of the sound sources with equal strength increases the noise level by 3 dBA. Assuming that each piece of construction equipment operates at some distance from the other equipment, a reasonable worst-case combined noise level during this phase of construction would be 90 dBA L_{max} at a distance of 50 feet from the acoustic center of a construction area. This would result in a reasonable worst-case hourly average of 86 dBA L_{eq}.

The nearest off-site receptor are mobile homes located to the north of the project site, approximately 640 feet from where heavy construction equipment would potentially operate during construction of the proposed private street. At this distance, construction noise levels would range up to approximately 68 dBA L_{max}, with a relative worst-case hourly average of 64 dBA L_{eq}, if multiple pieces of heavy construction equipment operate simultaneously during construction of the proposed private street.

The City of Anaheim Municipal Code outlines the City's standards for noise-producing construction activities. According to this ordinance, construction and building repair activities are exempt from the applications of the Municipal Code between the hours of 7:00 a.m. and 7:00 p.m. Therefore, restricting construction activities to these stated time periods, as well as implementing the best management noise reduction techniques and practices outlined in Mitigation Measure (MM) NOI-2, would ensure that construction noise impacts would not result in substantial temporary increases at the off-site sensitive receptors above standards established in the General Plan or Municipal Code,

and construction noise impacts on sensitive receptors in the project vicinity would be reduced to less than significant.

Mitigation Measures

MM NOI-2 Implementation of the following multi-part mitigation measure is required to reduce potential construction period noise impacts:

- The construction contractor shall ensure that all equipment driven by internal combustion engines shall be equipped with mufflers, which are in good condition and appropriate for the equipment.
- The construction contractor shall ensure that unnecessary idling of internal combustion engines (i.e., idling in excess of 5 minutes) is prohibited.
- The construction contractor shall utilize "quiet" models of air compressors and other stationary noise sources where technology exists.
- At all times during project grading and construction, the construction contractor shall ensure that stationary noise-generating equipment shall be located as far as practicable from sensitive receptors and placed so that emitted noise is directed away from adjacent residences.
- The construction contractor shall ensure that the construction staging areas shall be located to create the greatest feasible distance between the staging area and noise-sensitive receptors nearest the project site.
- The construction contractor shall ensure that all on-site construction activities, including deliveries and engine warm-up, shall be restricted to the hours of 7:00 a.m. to 7:00 p.m. daily.

5.5 - Excessive Groundborne Vibration Impacts

Project-related construction and operational groundborne vibration impacts are analyzed separately below. Groundborne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. Vibrating objects in contact with the ground radiate vibration waves through various soil and rock strata to the foundations of nearby buildings.

In extreme cases, excessive groundborne vibration has the potential to cause structural damage to buildings. Common sources of groundborne vibration include construction activities such as blasting, pile driving, and operating heavy earthmoving equipment.

5.5.1 - Short-term Construction Vibration Impacts

Of the variety of equipment used during construction, the vibratory rollers that are anticipated to be used in the site preparation phase of construction would produce the greatest groundborne vibration levels. Large vibratory rollers produce groundborne vibration levels ranging up to 0.210 inch per second (in/sec) peak particle velocity (PPV) at 25 feet from the operating equipment. For the foundation construction of the proposed structures, the project will utilize Geopier construction. The Geopier rammed aggregate pier installation is constructed by drilling out a volume of

compressible soil to create a cavity and then vibratory ramming of select aggregate into the cavity in thin lifts using the patented beveled tamper. Geopier rammed aggregate pier construction are documented to generate peak particle velocities of up to 0.75 in/sec PPV at 5 feet from the operating equipment (Geopier Foundation Company, 2018), which under typical soil conditions would attenuate to below 0.07 in/sec PPV at 25 feet from the operating equipment.

The nearest off-site receptor is the commercial buildings located north of the project site, approximately 55 feet from the nearest construction footprint where large vibratory rollers would potentially operate. At this distance, groundborne vibration levels could range up to 0.064 PPV from operation of a large vibratory roller. This is below the industry standard construction vibration damage criteria of 0.2 PPV for this type of structure—buildings of non-engineered timber and masonry construction (see Table 4).

The nearest off-site receptor to the parking deck construction footprint is the commercial buildings located approximately 55 feet to the north of the nearest possible Geopier foundation installation locations . At this distance, groundborne vibration levels could range up to 0.02 in/sec PPV from operation of the Geopier installation operations. This is well below the industry standard construction vibration damage criterion of 0.2 in/sec PPV for this type of structure—buildings of non-engineered timber and masonry construction.

The nearest off-site receptor to the hotel construction footprint is the commercial buildings located approximately 150 feet north of the nearest possible Geopier foundation installation locations. At this distance, groundborne vibration levels could range up to 0.004 in/sec PPV from operation of the Geopier installation operations. This is well below the industry standard construction vibration damage criterion of 0.2 in/sec PPV for this type of structure—buildings of non-engineered timber and masonry construction. Therefore, construction-related groundborne vibration impacts would be considered less than significant as measured at the closest off-site structures.

The nearest off-site sensitive receptor is the residential land uses located approximately 640 feet north of the project site. At this distance, the highest construction-related groundborne vibration levels would attenuate to below 0.002 PPV, well below the FTA vibration damage impact criteria for even the most sensitive type of structures. Therefore, construction-related groundborne vibration impacts would be considered less than significant as measured at the nearest residential land use.

5.5.2 - Operational Vibration Impacts

Implementation of the project would not include any permanent sources that would expose persons in the project vicinity to groundborne vibration levels that could be perceptible without instruments at any existing sensitive land use in the project vicinity. In addition, there are no existing significant permanent sources of groundborne vibration in the project vicinity to which the proposed project would be exposed. Therefore, project operational groundborne vibration level impacts would be considered less than significant.

5.6 - Airport Noise Impact

5.6.1 - Public Airport Noise Impacts

The nearest public airport to the project site is the Fullerton Municipal Airport, located approximately 5.9 miles northwest of the project site. Because of the distance from and orientation of the airport runways, the project site is located well outside of the 65 dBA CNEL airport noise contours. While aircraft noise is occasionally audible on the project site from aircraft flyovers, aircraft noise associated with nearby airport activity would not expose people residing or working near the project site to excessive noise levels. Therefore, implementation of the project would not expose persons residing or working in the project vicinity to noise levels from airport activity that would be in excess of normally acceptable standards for Transient Lodging-Motels, Hotels land use development. Impacts associated with public airport noise would be less than significant.

5.6.2 - Private Airstrips Noise Impacts

The project site is not located within the vicinity of a private airstrip. Therefore, no impacts associated with private airstrip noise would occur.

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SECTION 6: REFERENCES

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Geopier Foundation Company, Inc. 2006. Technical Bulletin No. 9 Vibration and Noise Levels. Website: http://sentezinsaat.com.tr/pdf/TB09%20-%20Vibrations%20and%20Noise%20Levels.pdf. Accessed January 26, 2018.

Federal Highway Administration (FHWA). 2006. Highway Construction Noise Handbook. August.

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Appendix A:
Noise Monitoring and Modeling Data

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Project Number: 10955.0062 Sheet 1 of 3

Project Name: Anaheim Blvd Hotel

Test Personnel: Phillip Myers

Noise Measurement Survey

Site Number: ST-1 Date: 8/22/17 Time: From 11:55AM To 12:05PM

Site Location: Gate Direct North of Project site. South of W. Cerritos Ave. North of Project site has occupied commercial buildings / New life Church of California West of Site is I-5, South of Site is I-5

Primary Noise Sources: Cars/Truck traffic on I-5

Measurement Results

	dBA
Leq	71.1
Lmax	76.4
Lmin	66.3
Lpeak	
L5	
L10	
L50	
L90	
SEL	

Observed Noise Sources/Events

Time	Noise Source/Event	dBA

Comments:

Equipment: Extech 407780

Settings: A-Weighted ☒ Other ☐

Measured Difference: _____ dBA

Slow ☒ Fast ☐ Windscreen ☐

Atmospheric Conditions:

Maximum Wind Velocity (mph)	Average Wind Velocity (mph)	Temperature (F)	Relative Humidity (%)	
0	0	79°	58%	
Comments:				

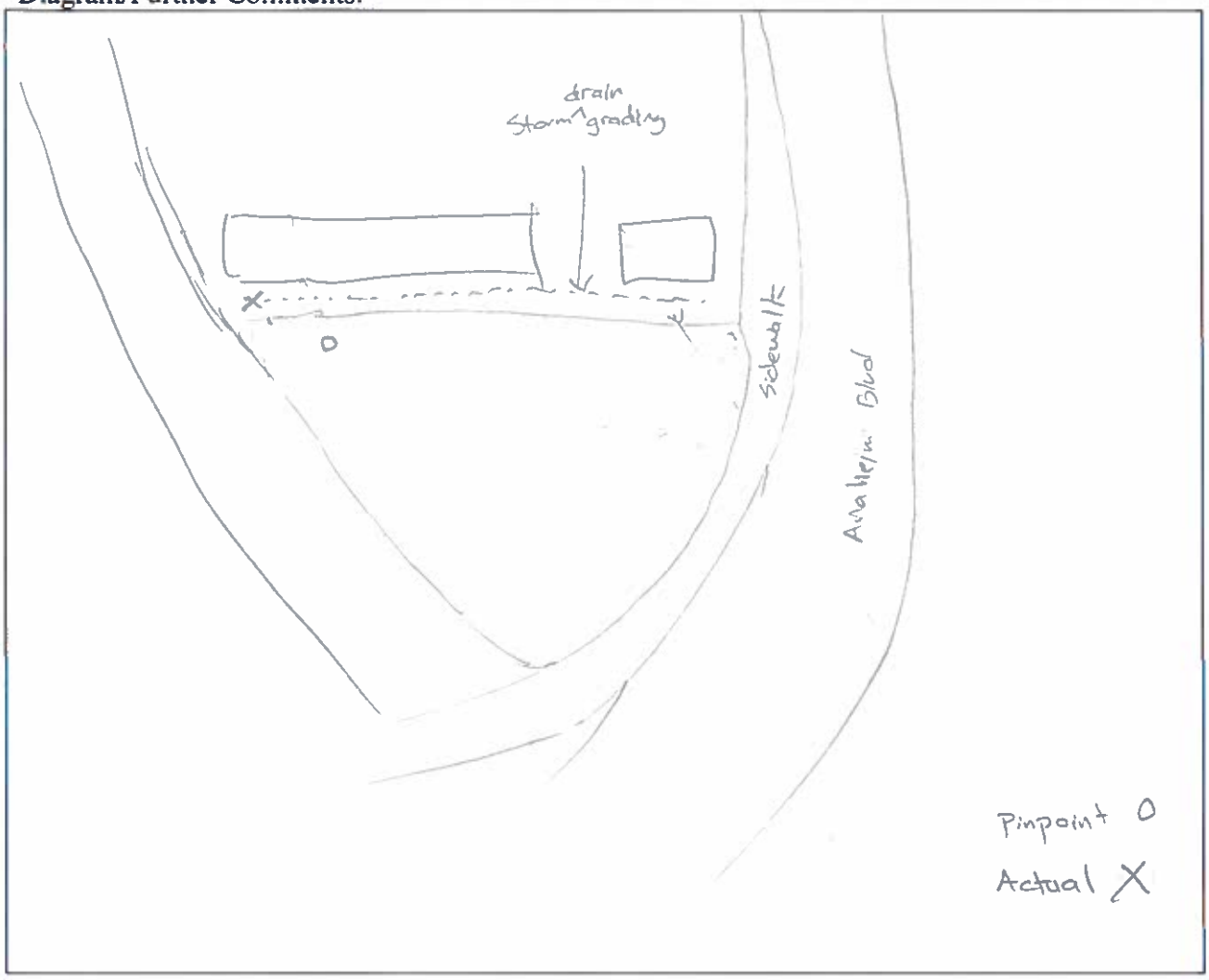
Photos Taken:

Photo Number	Location/Description
1 N	North of site
1 E	East " "
1 S	South " "
1 W	West " "

Traffic Description:

Roadway	# Lanes	Posted Speed	Average Speed	NB/EB Counts	SB/WB Counts

Diagram/Further Comments:



Project Number: 0055.0062 Sheet 2 of 3
Project Name: Anaheim Blvd Hotel
Test Personnel: Philip Huang

Noise Measurement Survey

Site Number: ST-2 Date: 8/22/17 Time: From 11:40 AM To 11:50 AM

Site Location: Direct North of Project Site South of Cerritos Ave. North of Project site has occupied buildings/New life Church of California. West of site is I-5. South of site is I-5

Primary Noise Sources: Car/Truck traffic on I-5

Measurement Results

	dBA
Leq	67.6
Lmax	68.5
Lmin	65.1
Lpeak	
L5	
L10	
L50	
L90	
SEL	

Observed Noise Sources/Events

Time	Noise Source/Event	dBA

Comments:

Equipment: Extech 407780 Measured Difference: _____dBA
Settings: A-Weighted☒ Other☐_____ Slow☒ Fast☐ Windscreen☒

Atmospheric Conditions:

Maximum Wind Velocity (mph)	Average Wind Velocity (mph)	Temperature (F)	Relative Humidity (%)	
~~0~~	~~0~~	79°	58%	
Comments:				

2

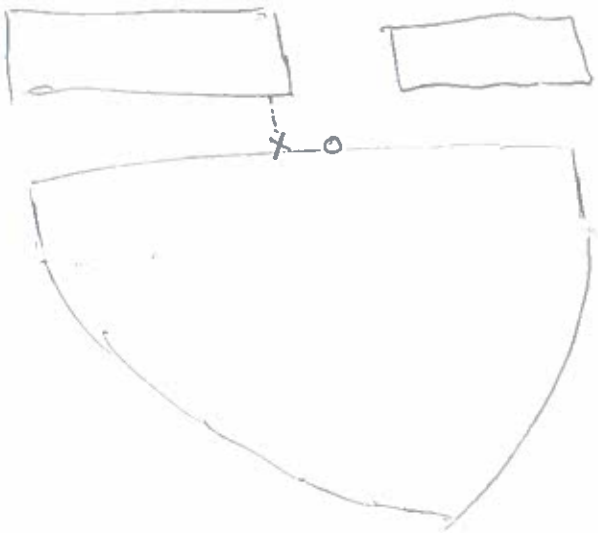
Photos Taken:

Photo Number	Location/Description
2 N	North of Site
2 E	East " "
2 S	South " "
2 W	West " "

Traffic Description:

Roadway	# Lanes	Posted Speed	Average Speed	NB/EB Counts	SB/WB Counts

Diagram/Further Comments:



Pinpoint O
Actual X

Project Number: 00550062 Sheet 3 of 3
Project Name: Anaheim Blvd Hotel
Test Personnel: Philip Vuong

Noise Measurement Survey

Site Number: ST-3 Date: 8/22/17 Time: From 11:24 AM To 11:34 AM

Site Location: Direct North of Project Site. South of W. Cerritos Ave. North of Project site has occupied commercial buildings/New Life Church of California/ Restaurant. East of Site is Anaheim Blvd/ Commercial buildings

Primary Noise Sources: Road noise/traffic on Anaheim Blvd

Measurement Results

	dBA
Leq	70.6
Lmax	91.5
Lmin	60.1
Lpeak	
L5	
L10	
L50	
L90	
SEL	

Observed Noise Sources/Events

Time	Noise Source/Event	dBA

Comments:

Equipment: Extech 407780
Settings: A-Weighted☑ Other☐

Measured Difference: _____dBA
Slow☑ Fast☐ Windscreen☑

Atmospheric Conditions:

Maximum Wind Velocity (mph)	Average Wind Velocity (mph)	Temperature (F)	Relative Humidity (%)	
0	0	79°	58%	
Comments:				

Photos Taken:

Photo Number	Location/Description
3 N	North of Site
3 E	East " "
3 S	South " "
3 W	West " "

Traffic Description:

Roadway	# Lanes	Posted Speed	Average Speed	NB/EB Counts	SB/WB Counts
Anaheim Blvd	3			~~NB~~ 98 cars	78 cars
" "	3			9 trucks	8 trucks

Diagram/Further Comments:

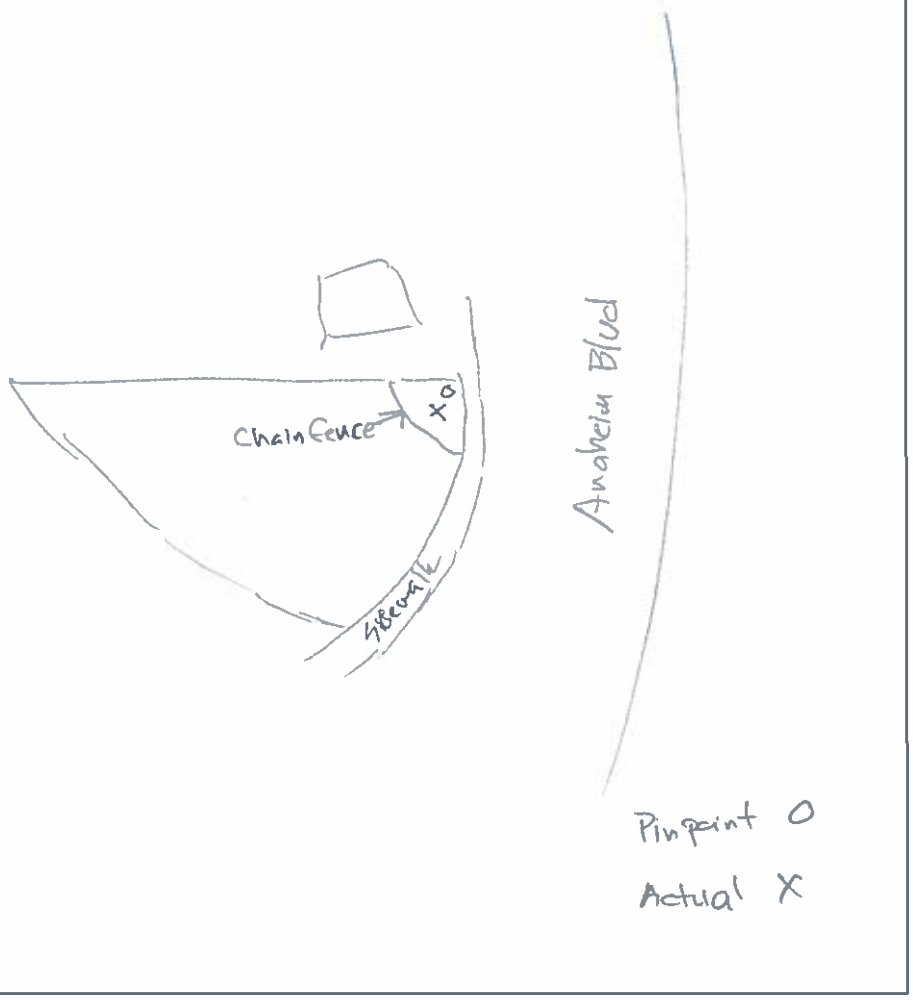


TABLE Existing-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Ball Road - Harbor Boulevard and Anaheim Boulevard
NOTES: Anaheim Boulevard Hotel Development - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 38300 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.80

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
66.3	125.3	261.0	558.0

TABLE Existing-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Disney Way - I-5 SB Off-ramp and Anaheim Boulevard
NOTES: Anaheim Boulevard Hotel Development - Existing

---

* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13600 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.70

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL	70 CNEL	65 CNEL	60 CNEL	55 CNEL
	0.0	0.0	107.5	221.1

TABLE Existing-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Katella Avenue - Harbor Boulevard and Clementine Street
NOTES: Anaheim Boulevard Hotel Development - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 38400 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.81

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
66.4	125.5	261.4	558.9

TABLE Existing-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Katella Avenue - Clementine Street and Haster Street/Anaheim Boulevard
NOTES: Anaheim Boulevard Hotel Development - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 40300 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.02

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
68.0	129.3	269.8	577.1

TABLE Existing-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Katella Avenue - Haste Street/Anaheim Boulevard and I-5 SB Loop Off-ramp
NOTES: Anaheim Boulevard Hotel Development - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 37900 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.76

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
66.0	124.5	259.2	554.1

TABLE Existing-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Boulevard - Ball Road and Cerritos Avenue
NOTES: Anaheim Boulevard Hotel Development - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 28000 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.44

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	103.8	212.9	453.4

TABLE Existing-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Boulevard - Cerritos Avenue and Anaheim Way
NOTES: Anaheim Boulevard Hotel Development - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 37500 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES			
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
77.2	151.5	319.0	683.7

TABLE Existing-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Boulevard - Anaheim Way and Manchester Avenue
NOTES: Anaheim Boulevard Hotel Development - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 32000 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.44

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
71.2	137.2	287.4	615.3

TABLE Existing-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Boulevard - Manchester Avenue and Katella Avenue
NOTES: Anaheim Boulevard Hotel Development - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22100 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.83

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	109.5	225.7	481.4

TABLE Existing-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Way - Anaheim Boulevard and Disney Way Westbound Ramp
NOTES: Anaheim Boulevard Hotel Development - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10500 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES			
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.52

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	77.7	165.7	356.2

TABLE Existing-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Way - Disney Way Westbound Ramp and Katella Avenue
NOTES: Anaheim Boulevard Hotel Development - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 9700 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.17

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL	70 CNEL	65 CNEL	60 CNEL	55 CNEL
	0.0	73.8	157.2	337.9

TABLE Existing-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Interstate 5 - north of Anaheim Boulevard
NOTES: Anaheim Boulevard Hotel Development - Existing

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 240900 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES			
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 84 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 80.63

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
540.2	1152.4	2477.2	5333.4

TABLE Existing + Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Ball Road - Harbor Boulevard and Anaheim Boulevard
NOTES: Anaheim Boulevard Hotel Development - Existing + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 38400 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.81

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL	70 CNEL	65 CNEL	60 CNEL	55 CNEL
	66.4	125.5	261.4	558.9

TABLE Existing + Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Disney Way - I-5 SB Off-ramp and Anaheim Boulevard
NOTES: Anaheim Boulevard Hotel Development - Existing + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13800 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 61.76

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL	70 CNEL	65 CNEL	60 CNEL	55 CNEL
	0.0	0.0	108.4	223.2

TABLE Existing + Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Katella Avenue - Harbor Boulevard and Clementine Street
NOTES: Anaheim Boulevard Hotel Development - Existing + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 38500 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.82

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
66.5	125.7	261.9	559.9

TABLE Existing + Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Katella Avenue - Clementine Street and Haster Street/Anaheim Boulevard
NOTES: Anaheim Boulevard Hotel Development - Existing + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 40500 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.04

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
68.1	129.7	270.7	579.0

TABLE Existing + Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Katella Avenue - Haste Street/Anaheim Boulevard and I-5 SB Loop Off-ramp
NOTES: Anaheim Boulevard Hotel Development - Existing + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 38000 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.77

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
66.1	124.7	259.6	555.1

TABLE Existing + Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Boulevard - Ball Road and Cerritos Avenue
NOTES: Anaheim Boulevard Hotel Development - Existing + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 28300 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.49

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL	70 CNEL	65 CNEL	60 CNEL	55 CNEL
	0.0	104.5	214.4	456.6

TABLE Existing + Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Boulevard - Cerritos Avenue and Anaheim Way
NOTES: Anaheim Boulevard Hotel Development - Existing + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 39600 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.37

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
79.5	156.8	330.7	708.9

TABLE Existing + Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Boulevard - Anaheim Way and Manchester Avenue
NOTES: Anaheim Boulevard Hotel Development - Existing + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 33300 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.61

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
72.7	140.6	295.0	631.8

TABLE Existing + Project-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Boulevard - Manchester Avenue and Katella Avenue
NOTES: Anaheim Boulevard Hotel Development - Existing + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22700 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.95

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	111.3	229.7	490.0

TABLE Existing + Project-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Way - Anaheim Boulevard and Disney Way Westbound Ramp
NOTES: Anaheim Boulevard Hotel Development - Existing + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10800 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.64

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	79.1	168.9	363.0

TABLE Existing + Project-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Way - Disney Way Westbound Ramp and Katella Avenue
NOTES: Anaheim Boulevard Hotel Development - Existing + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 10000 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.30

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	75.2	160.5	344.9

TABLE Existing + Project-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Interstate 5 - north of Anaheim Boulevard
NOTES: Anaheim Boulevard Hotel Development - Existing + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 240900 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 84 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 80.63

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
540.2	1152.4	2477.2	5333.4

TABLE Opening Year 2019-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Ball Road - Harbor Boulevard and Anaheim Boulevard
NOTES: Anaheim Boulevard Hotel Development - Opening Year 2019

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 39200 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.90

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
67.1	127.1	265.0	566.6

TABLE Opening Year 2019-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Disney Way - I-5 SB Off-ramp and Anaheim Boulevard
NOTES: Anaheim Boulevard Hotel Development - Opening Year 2019

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16900 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.64

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	65.2	122.5	254.7

TABLE Opening Year 2019-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Katella Avenue - Harbor Boulevard and Clementine Street
NOTES: Anaheim Boulevard Hotel Development - Opening Year 2019

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 41800 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.18

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
69.2	132.2	276.4	591.3

TABLE Opening Year 2019-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Katella Avenue - Clementine Street and Haster Street/Anaheim Boulevard
NOTES: Anaheim Boulevard Hotel Development - Opening Year 2019

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 45500 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.55

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
72.1	139.3	292.2	625.6

TABLE Opening Year 2019-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Katella Avenue - Haste Street/Anaheim Boulevard and I-5 SB Loop Off-ramp
NOTES: Anaheim Boulevard Hotel Development - Opening Year 2019

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 42600 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.26

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
69.8	133.8	279.8	598.8

TABLE Opening Year 2019-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Boulevard - Ball Road and Cerritos Avenue
NOTES: Anaheim Boulevard Hotel Development - Opening Year 2019

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 29300 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.64

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	106.7	219.2	467.2

TABLE Opening Year 2019-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Boulevard - Cerritos Avenue and Anaheim Way
NOTES: Anaheim Boulevard Hotel Development - Opening Year 2019

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 38700 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.27

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
78.5	154.5	325.7	698.2

TABLE Opening Year 2019-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Boulevard - Anaheim Way and Manchester Avenue
NOTES: Anaheim Boulevard Hotel Development - Opening Year 2019

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 33600 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.65

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
73.0	141.4	296.8	635.6

TABLE Opening Year 2019-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Boulevard - Manchester Avenue and Katella Avenue
NOTES: Anaheim Boulevard Hotel Development - Opening Year 2019

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23200 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.04

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL	70 CNEL	65 CNEL	60 CNEL	55 CNEL
	0.0	112.8	233.0	497.1

TABLE Opening Year 2019-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Way - Anaheim Boulevard and Disney Way Westbound Ramp
NOTES: Anaheim Boulevard Hotel Development - Opening Year 2019

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11800 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.02

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	83.8	179.1	385.0

TABLE Opening Year 2019-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Way - Disney Way Westbound Ramp and Katella Avenue
NOTES: Anaheim Boulevard Hotel Development - Opening Year 2019

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11000 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.72

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	80.1	170.9	367.5

TABLE Opening Year 2019-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Interstate 5 - north of Anaheim Boulevard
NOTES: Anaheim Boulevard Hotel Development - Opening Year 2019

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 240900 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 84 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 80.63

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
540.2	1152.4	2477.2	5333.4

TABLE Opening Year 2019 + Project-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Ball Road - Harbor Boulevard and Anaheim Boulevard
NOTES: Anaheim Boulevard Hotel Development - Opening Year 2019 + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 39300 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.91

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
67.1	127.3	265.4	567.6

TABLE Opening Year 2019 + Project-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Disney Way - I-5 SB Off-ramp and Anaheim Boulevard
NOTES: Anaheim Boulevard Hotel Development - Opening Year 2019 + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 17100 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 62.69

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	65.5	123.3	256.7

TABLE Opening Year 2019 + Project-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Katella Avenue - Harbor Boulevard and Clementine Street
NOTES: Anaheim Boulevard Hotel Development - Opening Year 2019 + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 41900 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.19

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
69.2	132.4	276.8	592.3

TABLE Opening Year 2019 + Project-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Katella Avenue - Clementine Street and Haster Street/Anaheim Boulevard
NOTES: Anaheim Boulevard Hotel Development - Opening Year 2019 + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 45700 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.57

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
72.3	139.7	293.0	627.4

TABLE Opening Year 2019 + Project-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Katella Avenue - Haste Street/Anaheim Boulevard and I-5 SB Loop Off-ramp
NOTES: Anaheim Boulevard Hotel Development - Opening Year 2019 + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 42700 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.27

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
69.9	134.0	280.3	599.7

TABLE Opening Year 2019 + Project-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Boulevard - Ball Road and Cerritos Avenue
NOTES: Anaheim Boulevard Hotel Development - Opening Year 2019 + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 29600 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.68

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	107.3	220.7	470.4

TABLE Opening Year 2019 + Project-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Boulevard - Cerritos Avenue and Anaheim Way
NOTES: Anaheim Boulevard Hotel Development - Opening Year 2019 + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 40800 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.50

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
80.7	159.8	337.2	723.1

TABLE Opening Year 2019 + Project-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Boulevard - Anaheim Way and Manchester Avenue
NOTES: Anaheim Boulevard Hotel Development - Opening Year 2019 + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 34900 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.82

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
74.4	144.8	304.3	651.8

TABLE Opening Year 2019 + Project-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Boulevard - Manchester Avenue and Katella Avenue
NOTES: Anaheim Boulevard Hotel Development - Opening Year 2019 + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 23800 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.16

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
62.0	114.5	236.8	505.5

TABLE Opening Year 2019 + Project-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Way - Anaheim Boulevard and Disney Way Westbound Ramp
NOTES: Anaheim Boulevard Hotel Development - Opening Year 2019 + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 12100 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.13

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	85.2	182.1	391.5

TABLE Opening Year 2019 + Project-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Way - Disney Way Westbound Ramp and Katella Avenue
NOTES: Anaheim Boulevard Hotel Development - Opening Year 2019 + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 11300 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.83

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	81.5	174.0	374.1

TABLE Opening Year 2019 + Project-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Interstate 5 - north of Anaheim Boulevard
NOTES: Anaheim Boulevard Hotel Development - Opening Year 2019 + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 240900 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 84 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 80.63

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
540.2	1152.4	2477.2	5333.4

TABLE General Plan Build Out Year (2035)-01
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Ball Road - Harbor Boulevard and Anaheim Boulevard
NOTES: Anaheim Boulevard Hotel Development - General Plan Build Out Year (2035)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 43500 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.35

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
70.5	135.5	283.7	607.2

TABLE General Plan Build Out Year (2035)-02
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Disney Way - I-5 SB Off-ramp and Anaheim Boulevard
NOTES: Anaheim Boulevard Hotel Development - General Plan Build Out Year (2035)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 24700 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.29

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	78.7	155.0	326.7

TABLE General Plan Build Out Year (2035)-03
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Katella Avenue - Harbor Boulevard and Clementine Street
NOTES: Anaheim Boulevard Hotel Development - General Plan Build Out Year (2035)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 62500 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

---

* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.93

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
85.2	170.2	360.1	772.6

TABLE General Plan Build Out Year (2035)-04
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Katella Avenue - Clementine Street and Haster Street/Anaheim Boulevard
NOTES: Anaheim Boulevard Hotel Development - General Plan Build Out Year (2035)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 67300 SPEED (MPH): 35 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.25

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
88.8	178.4	378.1	811.6

TABLE General Plan Build Out Year (2035)-05
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Katella Avenue - Haste Street/Anaheim Boulevard and I-5 SB Loop Off-ramp
NOTES: Anaheim Boulevard Hotel Development - General Plan Build Out Year (2035)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 45600 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.56

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
72.2	139.5	292.6	626.5

TABLE General Plan Build Out Year (2035)-06
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Boulevard - Ball Road and Cerritos Avenue
NOTES: Anaheim Boulevard Hotel Development - General Plan Build Out Year (2035)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 37400 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.70

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
65.6	123.5	257.0	549.2

TABLE General Plan Build Out Year (2035)-07
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Boulevard - Cerritos Avenue and Anaheim Way
NOTES: Anaheim Boulevard Hotel Development - General Plan Build Out Year (2035)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 45900 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.01

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
86.1	172.2	364.5	782.0

TABLE General Plan Build Out Year (2035)-08
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Boulevard - Anaheim Way and Manchester Avenue
NOTES: Anaheim Boulevard Hotel Development - General Plan Build Out Year (2035)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 38100 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.20

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
77.9	153.0	322.4	690.9

TABLE General Plan Build Out Year (2035)-09
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Boulevard - Manchester Avenue and Katella Avenue
NOTES: Anaheim Boulevard Hotel Development - General Plan Build Out Year (2035)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22000 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.81

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	109.2	225.1	479.9

TABLE General Plan Build Out Year (2035)-10
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Way - Anaheim Boulevard and Disney Way Westbound Ramp
NOTES: Anaheim Boulevard Hotel Development - General Plan Build Out Year (2035)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13300 SPEED (MPH): 45 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.54

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	90.6	193.9	417.0

TABLE General Plan Build Out Year (2035)-11
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Way - Disney Way Westbound Ramp and Katella Avenue
NOTES: Anaheim Boulevard Hotel Development - General Plan Build Out Year (2035)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 15900 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.32

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	101.9	218.3	469.7

TABLE General Plan Build Out Year (2035)-12
FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Interstate 5 - north of Anaheim Boulevard
NOTES: Anaheim Boulevard Hotel Development - General Plan Build Out Year (2035)

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 240900 SPEED (MPH): 65 GRADE: .5

	TRAFFIC DISTRIBUTION PERCENTAGES		
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 84 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 80.63

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
540.2	1152.4	2477.2	5333.4

TABLE General Plan Build Out Year (2035) + Project-01

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Ball Road - Harbor Boulevard and Anaheim Boulevard
NOTES: Anaheim Boulevard Hotel Development - General Plan Build Out Year (2035) + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 43600 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.36

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
70.6	135.7	284.1	608.1

TABLE General Plan Build Out Year (2035) + Project-02

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Disney Way - I-5 SB Off-ramp and Anaheim Boulevard
NOTES: Anaheim Boulevard Hotel Development - General Plan Build Out Year (2035) + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 24900 SPEED (MPH): 30 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 64.32

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL	70 CNEL	65 CNEL	60 CNEL	55 CNEL
	0.0	79.0	155.8	328.4

TABLE General Plan Build Out Year (2035) + Project-03

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Katella Avenue - Harbor Boulevard and Clementine Street
NOTES: Anaheim Boulevard Hotel Development - General Plan Build Out Year (2035) + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 62600 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.93

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
85.3	170.4	360.5	773.4

TABLE General Plan Build Out Year (2035) + Project-04

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Katella Avenue - Clementine Street and Haster Street/Anaheim Boulevard
NOTES: Anaheim Boulevard Hotel Development - General Plan Build Out Year (2035) + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 67500 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.26

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
88.9	178.8	378.9	813.2

TABLE General Plan Build Out Year (2035) + Project-05

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Katella Avenue - Haste Street/Anaheim Boulevard and I-5 SB Loop Off-ramp
NOTES: Anaheim Boulevard Hotel Development - General Plan Build Out Year (2035) + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 45700 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES			
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.57

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
72.3	139.7	293.0	627.4

TABLE General Plan Build Out Year (2035) + Project-06

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Boulevard - Ball Road and Cerritos Avenue
NOTES: Anaheim Boulevard Hotel Development - General Plan Build Out Year (2035) + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 37700 SPEED (MPH): 35 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.73

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
65.8	124.1	258.3	552.1

TABLE General Plan Build Out Year (2035) + Project-07

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Boulevard - Cerritos Avenue and Anaheim Way
NOTES: Anaheim Boulevard Hotel Development - General Plan Build Out Year (2035) + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 48000 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 70.20

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
88.2	177.2	375.4	805.7

TABLE General Plan Build Out Year (2035) + Project-08

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Boulevard - Anaheim Way and Manchester Avenue
NOTES: Anaheim Boulevard Hotel Development - General Plan Build Out Year (2035) + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 39400 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 69.34

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
79.2	156.3	329.6	706.5

TABLE General Plan Build Out Year (2035) + Project-09

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Boulevard - Manchester Avenue and Katella Avenue
NOTES: Anaheim Boulevard Hotel Development - General Plan Build Out Year (2035) + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 22600 SPEED (MPH): 40 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 36 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 66.93

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	111.0	229.0	488.6

TABLE General Plan Build Out Year (2035) + Project-10

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Way - Anaheim Boulevard and Disney Way Westbound Ramp
NOTES: Anaheim Boulevard Hotel Development - General Plan Build Out Year (2035) + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 13600 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES			
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 67.64

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	92.0	196.8	423.2

TABLE General Plan Build Out Year (2035) + Project-11

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Anaheim Way - Disney Way Westbound Ramp and Katella Avenue
NOTES: Anaheim Boulevard Hotel Development - General Plan Build Out Year (2035) + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 16200 SPEED (MPH): 45 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES			
	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 12 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 68.40

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL			
70 CNEL	65 CNEL	60 CNEL	55 CNEL
0.0	103.2	221.0	475.5

TABLE General Plan Build Out Year (2035) + Project-12

FHWA ROADWAY NOISE LEVEL ANALYSIS

RUN DATE: 10/24/2017
ROADWAY SEGMENT: Interstate 5 - north of Anaheim Boulevard
NOTES: Anaheim Boulevard Hotel Development - General Plan Build Out Year (2035) + Project

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* * ASSUMPTIONS * *

AVERAGE DAILY TRAFFIC: 240900 SPEED (MPH): 65 GRADE: .5

TRAFFIC DISTRIBUTION PERCENTAGES

	DAY	EVENING	NIGHT
AUTOS	75.51	12.57	9.34
M-TRUCKS	1.56	0.09	0.19
H-TRUCKS	0.64	0.02	0.08

ACTIVE HALF-WIDTH (FT): 84 SITE CHARACTERISTICS: SOFT

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* * CALCULATED NOISE LEVELS * *

CNEL AT 50 FT FROM NEAR TRAVEL LANE CENTERLINE (dB) = 80.63

DISTANCE (FEET) FROM ROADWAY CENTERLINE TO CNEL

70 CNEL	65 CNEL	60 CNEL	55 CNEL
540.2	1152.4	2477.2	5333.4
