

NOISE

TECHNICAL STUDY

FOR THE

LUCIA PARK PROJECT

625 N. Maryland Avenue and 620 N. Brand Boulevard Glendale, California 91203

PREPARED FOR:

Cimmarusti Holdings, LLC 3061 Riverside Drive Los Angeles, CA 90039

PREPARED BY:

Westlake Village Office 920 Hampshire Road, Suite A5 Westlake Village, CA 91361



Los Angeles Office 706 S. Hill Street, 11th Floor Los Angeles, CA 90014

January 2022

Table of Contents

Section

Page

Executive Summary	1
Project Description	2
Noise Descriptors	5
Regulatory Setting	
Existing Conditions	12
Methodology	21
Thresholds of Significance	22
Noise Analysis	24
Cumulative Noise	31
Mitigation Measures	32
Certification	38

Attachments

- A Noise Monitoring Data Sheets
- B Construction Noise Worksheet
- C Construction Vibration Worksheet
- D Roadway Noise Worksheets

Figures

Figure	2	Page
1	Regional and Local Vicinity	3
2	Site Map, Existing Conditions	4
3	Common Noise Levels	7
4	Noise Attenuaton by Barriers	8
5a	Noise Monitoring Location (Site 1)	17
5b	Noise Monitoring Location (Site 2)	
5c	Noise Monitoring Location (Site 3)	19
5d	Noise Monitoring Location (Site 4)	20
6	Sensitive Receptor Map	28

Tables

Table Page 1 2 3 Interior and Exterior Presumed Noise Standards 11 4 5 Estimated Existing Roadway Noise Levels 15-16 6 7 8 9 10

EXECUTIVE SUMMARY

Cimmarusti Holdings is proposing to demolish an existing parking structure, two-story office building, and surface parking lots to construct a 24-story (265.5 feet) 294-unit apartment building containing 247 1-bedroom and 47 2-bedroom apartments. A parking garage containing 502 parking spaces, including 373 parking spaces for the proposed apartments and 129 replacement parking spaces for the existing Chase Bank building that would remain on site is also proposed as part of the Project.

In accordance with requirements under the California Environmental Quality Act (CEQA), this Noise Study estimates future noise and vibration levels at surrounding land uses resulting from construction and operation of the Project. The report includes the categories and types of noise and vibration sources resulting from the Project, the calculation procedures used in the analysis, and any assumptions or limitations.

This report summarizes the potential for the Project to generate a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies; generate excessive groundborne vibration or groundborne noise levels; or expose people residing or working in the project area to excessive noise levels. The findings of the analyses are as follows:

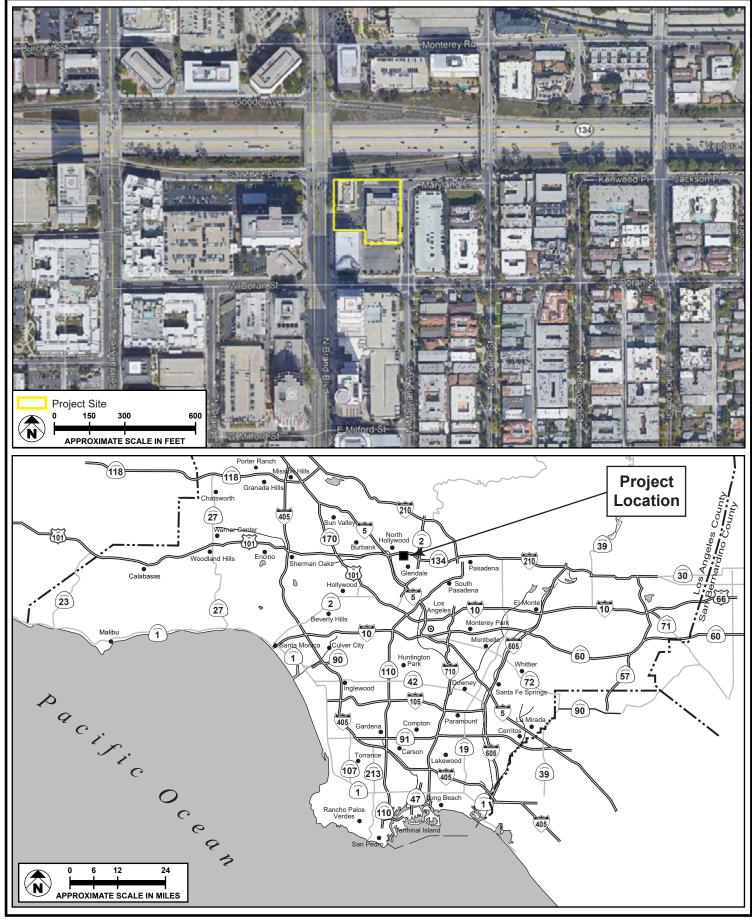
- Construction activities would not result in short-term and temporary noise impacts to nearby noisesensitive receptors due to on-site construction equipment and activities. Compliance with the City's Noise Ordinance and standards established in the local general plan would ensure implementation of noise-attenuation techniques and placement of the construction-staging area and earthmoving equipment away from noise-sensitive sites to reduce construction noise levels below the significance threshold.
- Construction of the Project would generate sporadic, temporary vibration effects adjacent to the Project area but would not be expected to exceed the significance thresholds.
- Noise associated with cumulative construction activities would be reduced to the degree reasonably and technically feasible through proposed recommended measures for each individual project and compliance with locally adopted and enforced noise ordinances. Given that construction activities would be required to comply with the City's allowable hours and would be temporary, construction-related noise would not be significant.
- Noise associated with cumulative operational sources would not be significant.
- Due to the rapid attenuation characteristics of ground-borne vibration and the distance of the cumulative projects to the Project site, no potential exists for cumulative construction- or operational-related impacts with respect to ground-borne vibration.

PROJECT DESCRIPTION

The Project site is located directly south of State Route (SR-) 134 (Ventura) Freeway, east of Interstate (I-) 5 and west of SR-2 as shown in **Figure 1: Regional and Local Vicinity**. The Project site is located at 625 N. Maryland Avenue and 620 N. Brand Boulevard and bounded by the SR-134 Eastbound On-Ramp to the north, an existing commercial building, and an associated surface parking lot to the south, N. Brand Boulevard to the west, and N. Maryland Avenue to the east as shown in **Figure 2: Site Map, Existing Conditions**. The Project site includes two parcels, Assessor Parcel Numbers (APNs) 5643018032 and 5643018031.

The Project site is currently occupied by a two-story office building providing 5,297 square feet of floor area, an existing six-story commercial Chase Bank building (Chase Building) providing approximately 45,125 square feet of office floor area, an associated parking structure, and surface parking lots. Cimmarusti Holdings is proposing to demolish the existing parking structure, two-story office building, and surface parking lots and construct a 24-story (265.5 feet) 294-unit apartment building containing 247 1-bedroom and 47 2-bedroom apartments. A parking garage containing 502 parking spaces, including 373 parking spaces for the proposed apartments and 129 replacement parking spaces for the existing Chase Building that would remain is also proposed as part of the Project.

The Project would include landscaping and a publicly accessible open space plaza on the first level, a number of community spaces throughout the building, including outdoor and private terraces and a pool on the fourth-floor and a dog park on the fifth floor. Terraces are also proposed on the sixth, seventeenth, nineteenth, and twenty-first floors, including roof terraces on the twenty-third and twenty-fourth floors. The existing six-story commercial Chase Building would remain on site but the Project would demolish the existing parking structure. The Project when complete would include 129 replacement parking spaces for the existing commercial Chase Building in the two above-ground levels of parking in addition to the four-level subterranean parking garage containing 373 parking spaces for the proposed apartments. The total 502 automobile parking spaces and 115 bicycle parking spaces (96 long term and 19 short term) would be proposed.

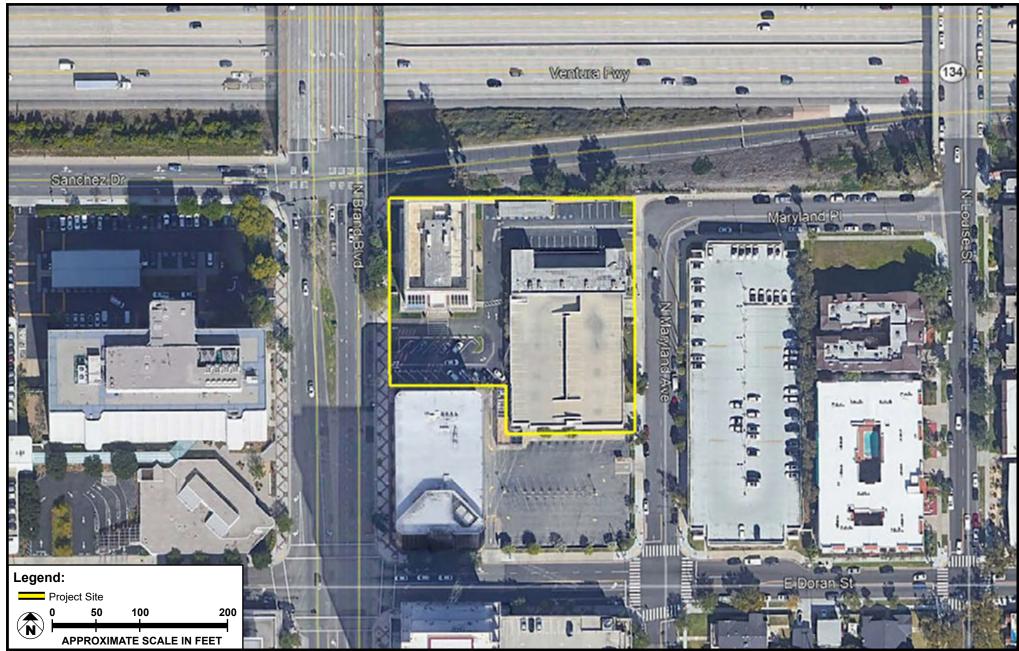


SOURCE: Google Earth - 2021; Meridian Consultants, LLC - 2021



Regional and Local Vicinity

FIGURE 1



SOURCE: Google Earth - 2021

FIGURE 2



Site Map, Existing Conditions

184-003-21

NOISE DESCRIPTORS Fundamentals of Sound

Because the human ear does not respond uniformly to sounds at all frequencies, sound-pressure level alone is not a reliable indicator of loudness. For example, the human ear is less sensitive to low and high frequencies than to the medium frequencies that more closely correspond to human speech. In response to the sensitivity of the human ear to certain sound frequencies, the A-weighted noise level, referenced in units of dBA, was developed to better correspond with people's subjective judgment of sound levels. To support assessing a community reaction to noise, scales have been developed that average sound-pressure levels over time and quantify the result in terms of a single numerical descriptor. Several scales have been developed that address community noise levels. The equivalent sound level (Leq) is the average A-weighted sound level measured over a given time interval. Leq can be measured over any period but is typically measured for 1-minute, 15-minute, 1-hour, or 24-hour periods.

 Table 1: Noise Descriptors identifies various noise descriptors developed to measure sound levels over different periods of time.

A doubling of sound energy results in a 3 dBA increase in sound, which means that a doubling of sound wave energy (e.g., doubling the volume of traffic on a roadway) would result in a barely perceptible change in sound level. In general, changes in a noise level of less than 3 dBA are not noticed by the human ear.¹ Changes from 3 to 5 dBA may be noticed by some individuals who are extremely sensitive to changes in noise. An increase of greater than 5 dBA is readily noticeable, while the human ear perceives a 10 dBA increase in sound level to be a doubling of sound volume.

Noise sources can generally be categorized in two types: (1) point sources, such as stationary equipment; and (2) line sources, such as a roadway. Sound generated by a point source typically diminishes (attenuates) at a rate of 6 dBA for each doubling of distance from the source to the receptor at acoustically hard sites, and at a rate of 7.5 dBA at acoustically soft sites.² A hard or reflective site consists of asphalt, concrete, or very hard-packed soil, which does not provide any excess ground-effect attenuation. An acoustically soft or absorptive site is characteristic of normal earth and most ground with vegetation. As an example, a 60-dBA noise level measured at 50 feet from a point source at an acoustically hard site would be 54 dBA at 100 feet from the source and 48 dBA at 200 feet from the source. Noise from the source. Sound generated by a line source typically attenuates at a rate of 3 dBA and 4.5 dBA per doubling of distance from the source to the receptor for hard and soft sites, respectively.³ Noise levels generated by a variety of activities are shown in **Figure 3: Common Noise**

¹ US Department of Transportation, Federal Highway Administration (USDOT FHWA), Fundamentals and Abatement of Highway Traffic Noise (Springfield, VA: Author, September 1980), 81.

² USDOT FHWA, Fundamentals and Abatement, 97.

³ USDOT FHWA, Fundamentals and Abatement, 97.

Levels. Man-made or natural barriers can also attenuate sound levels, as illustrated in Figure 4: Noise Attenuation by Barriers.

TABLE 1 NOISE DESCRIPTORS				
Term	Definition			
Decibel (dB)	The unit for measuring the volume of sound equal to 10 times the logarithm (base 10) of the ratio of the pressure of a measure sound to a reference pressure.			
A-weighted decibel (dBA)	A sound measurement scale that adjusts the pressure of individual frequencies according to human sensitivities. The scale accounts for the fact that the region of highest sensitivity for the human ear is between 2,000 and 4,000 cycles per second (hertz).			
Hertz (Hz)	The frequency of the pressure vibration, which is measured in cycles per second.			
Kilo hertz (kHz)	One thousand cycles per second.			
Equivalent sound level (Leq)	The sound level containing the same total energy as a time varying signal over a given time period. The Leq is the value that expresses the time averaged total energy of a fluctuating sound level. Leq can be measured over any time period, but is typically measured for 1-minute, 15-minute, 1-hour, or 24-hour periods.			
Community noise equivalent level (CNEL)	A rating of community noise exposure to all sources of sound that differentiates between daytime, evening, and nighttime noise exposure. These adjustments add 5 dBA for the evening, 7:00 PM to 10:00 PM, and add 10 dBA for the night, 10:00 PM to 7:00 AM. The 5- and 10-dB penalties are applied to account for increased noise sensitivity during the evening and nighttime hours. The logarithmic effect of adding these penalties to the 1-hour Leq measurements typically results in a CNEL measurement that is within approximately 3 dBA of the peak-hour Lean ^a			
Nighttime (Lights)	Lights is the average noise exposure during the hourly periods from 10:00 PM to 7:00 AM.			
Sound pressure level	The sound pressure is the force of sound on a surface area perpendicular to the direction of the sound. The sound pressure level is expressed in dB.			
Ambient noise	The level of noise that is all encompassing within a given environment, being usually a composite of sounds from many and varied sources near to and far from the observer. No specific source is identified in the ambient environment.			

^a California Department of Transportation, Technical Noise Supplement; A Technical Supplement to the Traffic Noise Analysis Protocol, (Sacramento, California: November 2009), pp. N51-N54.

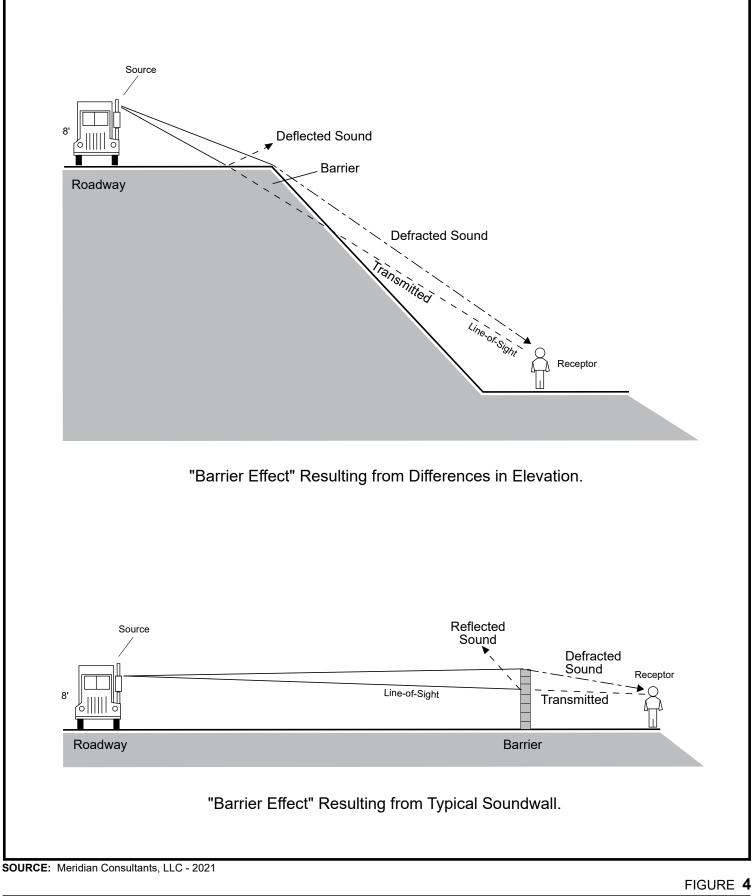
EXAMPLES		DECIBELS $(dB)^{\ddagger}$	SUBJECTIVE EVALUATIONS
NEAR JET ENGINE		140	
THRESHOLD OF PAIN		—— 130	DEAFENING
THRESHOLD OF FEELING- HARD ROCK BAND		—— 120	
ACCELERATING MOTORCYCLE AT A FEW FEET AWAY*		110	
LOUD AUTO HORN AT 10' AWAY		100	
NOISY URBAN STREET	continuous exposure above		VERY LOUD
NOISY FACTORY	85db is likely to degrade the hearing of most people —	90 HEARIN	G PROTECTION RECOMMENDED
GAS LAWN MOWER		80	
FREIGHT TRAIN	Range	70	LOUD
NEAR FREEWAY AUTO TRAFFIC			
	of Speech	60	
AVERAGE OFFICE	ech	50	MODERATE
SOFT RADIO MUSIC IN APARTMENT		40	
AVERAGE RESIDENCE WITHOUT STEREO PLAYING			FAINT
AVERAGE WHISPER		20	
RUSTLE OF LEAVES IN WIND HUMAN BREATHING		10	VERY FAINT
THRESHOLD OF AUDIBILITY		0	

SOURCE: Meridian Consultants, LLC - 2021



FIGURE 3

Common Noise Levels





Noise Attenuation by Barriers

Fundamentals of Vibration

Vibration is commonly defined as an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. The peak particle velocity (PPV) or root-mean-square (RMS) velocity is typically used to describe vibration amplitudes. PPV is defined as the maximum instantaneous peak of the vibration signal, while RMS is defined as the square root of the average of the squared amplitude of the signal. PPV is typically used for evaluating potential building damage, whereas RMS is typically more suitable for evaluating human response to ground-borne vibration. The RMS vibration velocity level can be presented in inches per second (ips) or in VdB (a decibel unit referenced to 1 microinch per second). Commonly, ground-borne vibration generated by man-made activities (i.e., road traffic, construction) attenuates rapidly with distance from the source of the vibration.

The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people. Most perceptible indoor vibration is caused by sources within buildings such as the operation of mechanical equipment, the movement of people, or the slamming of doors. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration from traffic is barely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration velocity, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings.

REGULATORY SETTING

City of Glendale General Plan Noise Element

The City of Glendale General Plan Noise Element establishes noise criteria for the various land uses throughout the City.⁴ **Table 2: Land Use Compatibility for Community Noise Exposure**, identifies the acceptable limit of noise exposure for various land-use categories within the City. Noise exposure for commercial uses is "normally acceptable" when the CNEL at exterior commercial locations is equal to or below 70 dBA, "conditionally acceptable" when the CNEL is between 67.5 to 77.5 dBA, and "normally unacceptable" when the CNEL exceeds 75 dBA. Noise exposure for low density residential uses is "normally acceptable" when the CNEL at exterior is equal to or below 60 dBA, "conditionally acceptable" when the CNEL at exterior residential locations is equal to or below 60 dBA, "conditionally acceptable" when the CNEL is between 55 to 70 dBA, "normally unacceptable" when the CNEL is between 70 to 75 dBA, and "clearly unacceptable" when the CNEL exceeds 75 dBA. These guidelines apply to noise sources such as vehicular traffic, aircraft, and rail movements.

⁴ City of Glendale, General Plan, "Noise Element" (2007).

	Community Noise Equivalent Level (CNEL)						
 Land Use Categories	55	60	65	70	75	80	
esidential—Low-Density Single-Family, Duplex, Mobile Homes				_	_		
Residential—Multifamily				_			
Transient Lodging - Motel, Hotels				_		-	
chools, Libraries, Churches, Hospitals, Nursing Homes				-			
Auditoriums, Concert Halls, Amphitheaters							
Sports Arena, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks				-			
olf Courses, Riding Stables, Water Recreation, Cemeteries				-			
Office Buildings, Businesses, Commercial, and Professional							

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

the noise reduction requirements is made and needed noise insulation features included in the design. Conventiona construction, but with closed windows and fresh air supply systems or air conditioning will suffice.

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

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

Source: City of Glendale, General Plan, "Noise Element" (2007).

City of Glendale Municipal Code

Noise

Noise standards for specific land uses are identified in the City of Glendale's Noise Ordinance, which is located in Chapter 8.36, Section 8.36.040 of the Glendale Municipal Code (GMC). Under Section 8.36.040 of the Noise Ordinance, exterior and interior noise is regulated by reference to "presumed noise standards," which are presented in **Table 3: Interior and Exterior Presumed Noise Standards**. Under Section 8.36.050 of the Noise Ordinance, where noise levels are below the presumed noise standards, the actual ambient noise level controls, and any noise more than 5 dBA above the actual ambient noise

level is considered a violation of the Noise Ordinance. Where the actual ambient noise level exceeds the presumed noise standard, the actual ambient noise level is used, and any noise more than 5 dBA above the actual ambient noise level is considered a violation of the Noise Ordinance. However, under the Noise Ordinance, the actual ambient noise levels are not allowed to exceed the presumed noise level by more than 5 dBA.

The City does not have regulations that establish maximum construction noise levels. However, Section 8.36.080 of the GMC states that it is unlawful for any person within a residential zone, or within a radius of five hundred feet therefrom, to operate equipment or perform any outside construction or repair work on buildings, structures, or projects within the City between the hours of 7:00 PM on one day and 7:00 AM of the next day, or from 7:00 PM on Saturday to 7:00 AM on Monday, or from 7:00 PM preceding a holiday. Moreover, Section 8.36.290(K) of the GMC provides an exemption from the Noise Ordinance for any activity, operation, or noise, which cannot be brought into compliance (with the Noise Ordinance) because it is technically infeasible to do so. "Technical infeasibility" for the purpose of this section means that noise limitations cannot be complied with despite the use of mufflers, shields, sound barriers, and/or any other noise reduction devices or techniques during the operation of the equipment.

TABLE 3 INTERIOR AND EXTERIOR PRESUMED NOISE STANDARDS						
L	and Use Category	Noise St	andards			
Category	Uses	Interior CNEL	Exterior CNEL			
	Single Family	45 ¹	65 ²			
Residential	Multifamily	45 ¹	65 ³			
	Residential within Mixed Use	45 ¹	-			
Commercial	Hotel, Motel, Transient, Lodging	45 ¹	-			
Institutional	Hospital, School, Church, Library	45	-			
Open Space	Parks ⁴	-	65 ¹			

Source: City of Glendale General Plan Noise Element, 2007.

¹ Applies to the indoor environment excluding bathrooms, toilets, closets, and corridors

² Applies to the outdoor environment limited to the private yard of single family residences (normally the rear yard).

³ Applies to the patio area where there is an expectation of privacy (i.e., not a patio area which also serves as, or is adjacent to, the primary entrance to the unit).

⁴ Only applies to parks where peace and quiet are determined to be of prime importance, such as hillside open space areas to the public. Generally, would not apply to urban parks or active-use parks.

Vibration

Section 8.36.210 of the GMC provides that vibration created by the operation of any device would be a violation of City standards if such vibration were above the vibration perception threshold of an individual at or beyond the property boundary of a source on private property. For sources on a public space or public right-of-way, a violation would occur if the vibration perception threshold of an individual were

exceeded at a distance of 150 feet from the source. The Noise Ordinance does not define the level of vibration that is deemed perceptible by an individual and does not establish maximum allowable vibration levels.

EXISTING CONDITIONS

The Gateway District is located in a highly urbanized area in Glendale - an active noise environment. Located at the northern portion of the Downtown Specific Plan (DSP), the Gateway District includes multi-storied towers and features corporate headquarters, hotels, mixed-use and residential buildings, complementary/accessory service and retain businesses at the street level, as well as an introduction of appropriate night-time entertainment uses.⁵

The predominant noise source in the City come from mobile noise sources, including motor vehicles. A number of freeways and arterial roadways expose the City to significant noise levels. The Union Pacific Railroad along the west side of the City also contributes to the overall noise environment. Aircraft operating in the area are not a major contributor of noise in the area. The noise environment in Glendale varies from the busy, high-density corridor along freeways and major arterials to the lower density, residential communities on the hillsides. Other sources of noise within the City are from non-transportation sources including commercial and construction activities.⁶

Ambient Noise Levels

Short-term sound monitoring was conducted at four (4) locations to measure the ambient sound environment in the Project vicinity (refer to **Figure 5: Noise Monitoring Locations**. Measurements were taken over 10-minute intervals on August 16, 2021 and are presented in **Table 4: Ambient Noise Measurements**. As shown in **Table 4**, ambient noise levels ranged from a low of 63.9 dBA (Leq-10minute) at the southeast corner of Doran Street and Maryland Avenue (Site 3) to a high of 71.6 dBA (Leq-10minute) west of the Project site along Sanchez Drive between Central Avenue and Brand Boulevard (Site 4). Ambient noise levels currently exceed the presumed noise standard for multi-family residential uses west of the Project site along Sanchez Drive between Central Avenue and Brand Boulevard. The segment along Sanchez Drive includes a one-way eastbound roadway that connect the SR-134 Freeways ramps in the eastbound direction between Central Avenue and Brand Boulevard.

⁵ City of Glendale, Glendale Downtown Specific Plan, accessed November 2021, https://www.glendaleca.gov/home/showdocument?id=25132

⁶ City of Glendale, Noise Element, May 2007, accessed November 2021, https://www.glendaleca.gov/home/showpublisheddocument/828/635231021922170000

	TABLE 4 AMBIENT NOISE MEASUREMENTS							
	Monitoring Site Number/Description	Time Period	Noise Source	Presumed Noise Standard, dBA CNEL	dBA Leq- 10minute			
1	Southwest corner of the Project site along Brand Boulevard between Sanchez Drive and Doran Street	1:06 PM-1:16 PM	Vehicle traffic along N. Brand Boulevard	N/A ¹	71.4			
2	Northeast corner of the Project site along Maryland Avenue and Maryland Place	1:18 PM-1:28 PM	Vehicle traffic along SR-134	N/A ¹	69.5			
3	Southeast corner of Doran Street and Maryland Avenue	1:30 PM-1:40 PM	Vehicle traffic along E. Doran Street and N. Maryland Avenue	65 ²	63.9			
4	West of the Project site along Sanchez Drive between Central Avenue and Brand Boulevard.	1:48 PM-1:58 PM	Vehicle traffic along SR-134 and Sanchez Drive	65 ²	71.6			

Source: Refer to Attachment A for noise monitoring data sheets.

Notes: dBA = A-weighted decibels; Leq = average equivalent sound level.

¹ There are no presumed noise standards for the commercial use.

² Presumed Noise Standard for multi-family residential uses.

Existing Off-Site Roadway Noise Levels

In addition to the ambient noise measurements within the Project site, the existing traffic noise on local roadways in the surrounding areas was calculated to quantify 24-hour CNEL noise levels using information provided in the Project's Transportation Impact Study.⁷ The transportation study analyzed six intersections within the Project vicinity. These intersections and connecting roadway segments were selected for the generation of existing off-site traffic noise.

Table 5: Estimated Existing Roadway Noise Levels provides the calculated 24-hour CNEL noise levels for the analyzed local roadway segments based on existing traffic volumes. As shown in **Table 5**, 24-hour noise levels ranged from a low of 50.0 dBA CNEL at the commercial uses along Maryland Avenue north of Doran Street (Intersection 4) to a high of 63.3 dBA CNEL at the commercial and multi-family residential uses along the Sanchez Drive (SR-134 EB On-Ramp) east of Brand Boulevard (Intersection 2).

In terms of the City's land use noise compatibility categories based on roadway traffic only, all studied intersections are classified as normally acceptable. Specifically, the noise exposure compatibility categories based on roadway traffic only are summarized as follows:

⁷ Linscott, Law, and Greenspan, Transportation Impact Analysis for the 606 N. Maryland Avenue Residential Project, June 22, 2021.

- <u>Normally Acceptable</u>: Locations where commercial and multi-family residential uses are dominant along Brand Boulevard, SR-134 Ramps, and Doran Street. Locations where residential uses are dominant along Maryland Place, Maryland Avenue, Doran Street, and Louise Street.
- <u>Conditionally Acceptable</u>: No existing roadway noise levels would within conditionally acceptable levels.
- <u>Normally Unacceptable</u>: No existing roadway noise levels would be within normally unacceptable levels.
- <u>Clearly Unacceptable</u>: No existing roadway noise levels would be within clearly unacceptable levels.

Sensitive Uses

The Project site is predominantly surrounded by a mix of high-rise commercial office buildings as well as high-rise and low-rise (one-, two- and three-story residential buildings). As mentioned previously, the Project site is bounded by the SR-134 Eastbound On-Ramp to the north, an existing commercial building, and an associated surface parking lot to the south, Brand Boulevard to the west, and Maryland Avenue to the east. Multi-family residential uses are located to the east of the Project site along Maryland Avenue and Louise Street, to the west along Doran Street, and to the north along Monterey Road. An overview of the surrounding land uses relative to the noise monitoring locations provided in **Table 4** above is provided:

- Site 1: Located at the southwest corner of the Project site along Brand Boulevard. There are no sensitive receptors within the vicinity of this noise monitoring location.
- Site 2: Located at the northeast corner of the Project site along N. Maryland Avenue and Maryland Place. Sensitive receptors include the multi-family residential uses along Maryland Place.
- Site 3: Located at the southeast corner of E. Doran Street and N. Maryland Avenue, sensitive receptors include multi-family residential uses along Doran Street and Maryland Avenue.
- Site 4: Located west of the Project site along Sanchez Drive, sensitive receptors include multi-family residential uses along Sanchez Drive.

Vibration Conditions

Based on field observations, the primary source of existing ground-borne vibration in the vicinity of the Project site is vehicle traffic on local roadways and SR-134. According to the Federal Transit Administration,⁸ typical road traffic-induced vibration levels are unlikely to be perceptible by people. Trucks and buses typically generate ground-borne vibration velocity levels of approximately 63 VdB (at a 50-foot distance), and these levels could reach 72 VdB when trucks and buses pass over bumps in the road. A vibration level of 72 VdB is above the 60 VdB level of perceptibility.

⁸ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, FTA report no. 0123 (September 2018), https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf, accessed August 2021.

TABLE 5 ESTIMATED EXISTING ROADWAY NOISE LEVELS					
Intersection	Roadway Segment	Adjacent Land Use	Existing Roadway Noise Level dBA CNEL	Existing Noise Exposure Compatibility Category	
Brand Boulev	vard				
1	North of Goode Avenue (SR-134 WB Off-Ramp)	Commercial	53.1	Normally Acceptable	
I	South of Goode Avenue (SR-134 WB Off-Ramp)	Commercial	53.2	Normally Acceptable	
2	North of Sanchez Drive (SR-134 EB On-Ramp)	Commercial	53.1	Normally Acceptable	
2	South of Sanchez Drive (SR-134 EB On-Ramp)	Commercial	54.2	Normally Acceptable	
2	North of Doran Street	Commercial	54.3	Normally Acceptable	
3	South of Doran Street	Commercial	53.7	Normally Acceptable	
Goode Avenu	e (SR-134 WB Off-Ramp)				
	East of Brand Boulevard	Commercial	57.8	Normally Acceptable	
1	West of Brand Boulevard	Commercial	52.3	Normally Acceptable	
Sanchez Driv	e (SR-134 EB On-Ramp)				
2	East of Brand Boulevard	Commercial/Residential (Multi- family)	63.3	Normally Acceptable	
	West of Brand Boulevard	Commercial	60.5	Normally Acceptable	
Doran Street					
2	East of Brand Boulevard	Commercial/Residential	53.2	Normally Acceptable	
3	West of Brand Boulevard	Commercial/Residential	63.0	Normally Acceptable	
4	East of Maryland Avenue	Residential (Multi-family)	61.3	Normally Acceptable	
4	West of Maryland Avenue	Commercial	56.7	Normally Acceptable	
5	East of Louise Street	Residential (Multi-family)	61.0	Normally Acceptable	

TABLE 5 ESTIMATED EXISTING ROADWAY NOISE LEVELS

Intersection	Roadway Segment	Adjacent Land Use	Existing Roadway Noise Level dBA CNEL	Existing Noise Exposure Compatibility Category
	West of Louise Street	Residential (Multi-family)	61.2	Normally Acceptable
Maryland Ave	enue			
	North of Doran Street	Commercial	50.0	Normally Acceptable
4	South of Doran Street	Commercial/Residential (Multi- family)	60.5	Normally Acceptable
Maryland Pla	ice			
5	East of Louise Street	N/A	N/A	N/A
5	West of Louise Street	Residential/Commercial	51.7	Normally Acceptable
Louise Street	•			
5	North of Maryland Place	Residential (Multi-Family)	54.9	Normally Acceptable
	South of Maryland Place	Residential (Multi-Family)	61.0	Normally Acceptable
6	North of Doran Street	Residential (Multi-Family)	61.2	Normally Acceptable
	South of Doran Street	Residential (Multi-Family)	60.3	Normally Acceptable

Source: Linscott, Law, and Greenspan, Transportation Impact Analysis for the 606 N. Maryland Avenue Residential Project, June 22, 2021. N/A = no data available.

Roadway noise model results are provided in Attachment D.









South



East



SOURCE: Google Earth - 2021

FIGURE 5a



Noise Monitoring Location (Site 1)

184-003-21



North



West



South



East



SOURCE: Google Earth - 2021

FIGURE 5b



Noise Monitoring Location (Site 2)

184-003-21



North



West



South



East



SOURCE: Google Earth - 2021

FIGURE 5c



Noise Monitoring Location (Site 3)





West



South



East



SOURCE: Google Earth - 2021

FIGURE 5d



Noise Monitoring Location (Site 4)

184-003-21

METHODOLOGY

Ambient Noise Measurements

To determine existing noise levels in the area (ambient), Meridian Consultants monitored four (4) locations on August 16, 2021, within the Project area vicinity, as shown in **Figure 5**. Noise-level monitoring was conducted for 10-minute intervals at each location using a Larson Davis Model 831 sound-level meter. This meter satisfies Section 8.36.030 of the City's Municipal Code related to decibel measurement criteria and the American National Standards Institute standard for general environmental noise measurement instrumentation. Random incidence microphones with windscreens were used, given the outdoor (i.e., free field) conditions of monitoring. The sound level averages were measured as A-weighted, slow-time-weighted (1-minute period) sound pressure level variables, commonly used for measuring environmental sounds. Sound levels presented in this report are in terms of dBA.

The Larson Davis Model 831 is a Type 1 precision sound-level meter. This meter meets all requirements of ANSI S1.4-1983 and ANSI1.43-1997 Type 1 standards, as well as International Electrotechnical Commission (IEC) IEC61672-1 Ed. 1.0, IEC60651 Ed 1.2, and IEC60804 Type 1, Group X standards. The sound-level meter was located approximately 5 feet above ground and was covered with a Larson Davis windscreen. The sound-level meter was field calibrated with an external calibrator prior to operation.

Construction Scenario

Construction activities typically generate noise from the operation of equipment required for construction of various facilities. Noise impacts from on-site construction and staging of construction trucks were evaluated by determining the noise levels generated by different types of construction activity, calculating the construction-related noise level at nearby noise-sensitive receptor locations, and comparing these construction-related noise levels to existing ambient noise levels (i.e., noise levels without project-related construction noise). The actual noise level would vary, depending upon the equipment type, model, the type of work activity being performed, and the condition of the equipment.

In order to calculate a construction noise levels, hourly activity or utilization factors (i.e., the percentage of normal construction activity that would occur, or construction equipment that would be active, during each hour of the day) are estimated based on the temporal characteristics of other previous and current construction projects. The hourly activity factors express the percentage of time that construction activities would emit average noise levels. Typical noise levels for each type of construction equipment were obtained from the FHWA Roadway Construction Noise Model. Calculated noise levels associated with construction at noise-sensitive receptor locations were then compared to estimated existing noise levels and the construction noise significance thresholds identified below.

Future dates represent approximations based on the general Project timeline and are subject to change pending unpredictable circumstances that may arise. As such, for purposes of this analysis, project construction is assumed to begin in August 2022 and is expected to last until June 2025. Construction

would occur over five phases: (1) demolition; (2) grading; (3) building construction; (4) paving; and (5) architectural coating.

Each phase of construction would result in varying levels of intensity and a number of construction personnel. The construction workforce would consist of approximately 13 worker trips per day and 150 total hauling trips during demolition; 10 worker trips per day and 9,500 total hauling trips during grading; 296 worker trips per day and 64 vendor trip per day during building construction; 13 worker trip per day during paving; and 59 worker trips per day during architectural coating.

Ground-Borne Vibration

Ground-borne vibration impacts were evaluated by identifying potential vibration sources, estimating the distance between vibration sources and surrounding structure locations and surrounding structure locations and vibration sensitive receptors, and making a significance determination based on the significance thresholds.

The majority of the Project's operational-related vibration sources, such as mechanical and electrical equipment, would incorporate vibration attenuation mounts, as required by the particular equipment specifications. Therefore, operation of the Project would not increase the existing vibration levels in the immediate vicinity of the Project and, as such, vibration impacts associated with the Project would be minimal. Therefore, the ground borne vibration analysis is limited to Project-related construction activities.

THRESHOLDS OF SIGNIFICANCE

In accordance with Appendix G of the State CEQA Guidelines, a project would have a potentially significant impact related to noise and groundborne vibration if it would result in:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
- Generation of excessive groundborne vibration or groundborne noise levels?
- For a project located within the vicinity of a private airstrip or an airport land use plan or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise?

The Project site is not located within an airport land use plan and is not located within two miles of public airport or public use airport or within the vicinity of a private airstrips. The nearest public or private airport/airstrip to the Project site is Hollywood Burbank Airport located approximately 6.0 miles northwest of the Project site. As such, the Project would result in no impacts to these screening criteria and no further analyses of these topics are necessary.

Construction Noise

The City's General Plan and Municipal Code do not establish numeric maximum acceptable source noise levels or noise level increases at potentially affected receivers. Chapter 8.36 of the Glendale Municipal Code (GMC) prohibits construction activities within 500 feet of a residential zone between the hours of 7:00 PM on one date and 7:00 AM of the next day or from 7:00 PM on Saturday to 7:00 AM on Monday or from 7:00 PM preceding a holiday.

The FTA *Transit Noise and Vibration Impact Assessment Manual*⁹ provides a general noise assessment guideline to assess potential noise impacts construction of transit projects. A general noise assessment is suitable and appropriate given the current stage of planning and evaluation for this Project. The FTA's General Assessment Construction Noise Criteria identifies daytime and nighttime thresholds for residential, commercial, and industrial land uses, which are considered reasonable criteria for use in assessing the potential for adverse community reaction to noise generated by construction activities. The construction noise criteria threshold for residential uses is 90 dBA (Leq-1hour) during the daytime and 80 dBA (Leq-1hour) during the nighttime period. Additionally, construction noise thresholds for commercial and industrial uses are 100 dBA (Leq-1hour) during both the daytime and nighttime periods. Since the construction-related noise level threshold represents the energy average of the noise source over a given time, they are expressed as Leq noise levels.

Roadway Noise

As mentioned previously, the City's General Plan Noise Element is used to establish satisfactory noise levels of significance for land uses within the City. As shown in **Table 2**, the exterior noise level criteria for normally acceptable multi-family residential uses range between 50 to 65 dBA CNEL. Additionally, exterior noise level criteria for normally acceptable office buildings, business commercial and professional uses range between 50 to 70 dBA CNEL.

There is no completely satisfactory way to measure the subjective effects of noise or of the corresponding human reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment (ambient) to which one has adapted.

In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged. As such, the Federal Interagency Committee on Noise (FICON) developed guidance to be used for the assessment of project-generated increases in noise levels that take into account the ambient noise level. Although the FICON recommendations were specifically

⁹ Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual, September 2018, accessed September 2021, https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf

developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (i.e., CNEL). FICON identifies a readily perceptible 5 dBA or greater project-related noise level increase is considered a significant impact when the noise criteria for a given land use is exceeded. According to the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA barely perceptible noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance.

Ground-Borne Vibration

Section 8.36.210 of the GMC provides that vibration created by the operation of any device would be a violation of City standards if such vibration were above the vibration perception threshold of an individual at or beyond the property boundary of a source on private property. For sources on a public space or public right-of-way, a violation would occur if the vibration perception threshold of an individual were exceeded at a distance of 150 feet from the source. However, a numerical threshold to identify the point at which a vibration impact is deemed perceptible is not identified in the GMC. Thus, the Caltrans Transportation and Construction Vibration Guidance Manual¹⁰ is used as a screening tool to assess the potential for adverse vibration effects related to structural damage. Impacts related to vibration would be considered significant if it exceeds the following standards:

- Project construction activities cause ground-borne vibration levels to exceed 0.5 PPV at the nearest off-site reinforced-concrete, steel, or timber building.
- Project construction activities cause ground-borne vibration levels to exceed 0.3 PPV at the nearest off-site engineered concrete and masonry building.
- Project construction activities cause ground-borne vibration levels to exceed 0.2 PPV at the nearest off-site nonengineered timber and masonry building.
- Project construction activities cause ground-borne vibration levels to exceed 0.12 PPV at buildings extremely susceptible to vibration damage, such as historic buildings.

NOISE ANALYSIS

Construction

Noise from Project construction activities would be affected by the amount of construction equipment, the location of this equipment, the timing and duration of construction activities, and the relative distance to noise-sensitive receptors. Construction activities that would occur during the construction phases would generate both steady-state and episodic noise that would be heard both on and off the Project site. Each phase involves the use of different types of construction equipment and, therefore,

¹⁰ Caltrans, *Transportation and Construction Vibration Guidance Manual* (September 2018), accessed August 2021, http://www.dot.ca.gov/hq/env/noise/pub/TCVGM_Sep13_FINAL.pdf.

has its own distinct noise characteristics. The Project would be constructed using typical construction techniques; no blasting or impact pile driving would be required.

On-Site Construction Noise

Individual pieces of construction equipment that would be used during construction produce maximum noise levels of 73 dBA to 90 dBA at a reference distance of 50 feet from the noise source, as shown in **Table 6: Typical Maximum Noise Levels for Project Construction Equipment**. These construction equipment reference noise levels are based on measured noise data compiled by the FHWA and would occur when equipment is operating under full power conditions. However, equipment used on construction sites typically operate at less than full power. The acoustical usage factor is the percentage of time that each type of construction equipment is anticipated to be in full power operation during a typical construction day. These values are estimates and will vary based on the actual construction process and schedule.

TABLE 6 TYPICAL MAXIMUM NOISE LEVELS FOR PROJECT CONSTRUCTION EQUIPMENT							
Equipment Description	Typical Duty Cycle (%)	Spec Lmax (dBA)	Actual Lmax (dBA)				
Air Compressor	40	80.0	77.7				
Backhoe	40	80.0	77.6				
Concrete/Industrial saw	20	90.0	89.6				
Crane	16	85.0	80.6				
Dozer	40	85.0	81.7				
Drum Mixer	50	80.0	80.0				
Forklift	40	85.0	N/A				
Front End Loader	40	80.0	79.1				
Generator	50	82.0	80.6				
Grader	40	85.0	N/A				
Paver	50	85.0	77.2				
Roller	20	85.0	80.0				
Tractor	40	84.0	N/A				
Welder	40	73.0	74.0				

Source: FHWA Roadway Construction Noise Model (RCNM) version 1.1 Note: N/A = not available.

Construction equipment operates at its noisiest levels for certain percentages of time during operation. It is important to note, equipment would operate at different percentages over the course of an hour.¹¹

¹¹ Federal Highway Administration, Traffic Noise Model (2006).

During a construction day, the highest noise levels would be generated when multiple pieces of construction equipment are operated concurrently.

To characterize construction-period noise levels, the average (hourly Leq) noise level associated with each construction stage was calculated based on the quantity, type, and usage factors for each type of equipment that would be used during each construction stage. These noise levels are typically associated with multiple pieces of equipment operating simultaneously.

The estimated construction noise levels were calculated for a scenario in which a reasonable number of construction equipment was assumed to be operating simultaneously, given the physical size of the Project Site and logistical limitations, and with the noise equipment located at the construction area nearest to the affected receptors to present a conservative impact analysis. This is considered a worst-case evaluation because construction of the Project would typically use fewer pieces of equipment simultaneously at any given time and, as such, would likely generate lower noise levels than reported herein.

Separate forecasts of construction noise levels from on-site construction at each of the noise monitoring sites within the immediate vicinity were completed. The forecast noise levels at the nearest sensitive uses (refer to Figure 6: Sensitive Receptor Map) to the Project Site from construction activity are shown in Table 7: Project Construction Noise Estimates. As shown, construction noise levels would range between 62.8 dBA (Leg-1hour) at the multi-family residential uses on the corner of Sanchez Drive and Central Avenue (Site 4) to a high of 98.9 dBA (Leq-1hour) at commercial use adjacent to the Project site (Site 1). Noise levels due to construction would not exceed the daytime 90 dBA Leq threshold for residential uses and 100 dBA Leg threshold for commercial uses. Additionally, the Project would be required to adhere to Section 8.36.290(K) of the GMC, which requires noise limitations to be implemented during construction to the extent feasible. Noise limitations include the use of mufflers, shields, sound barriers and/or any other noise reduction device or techniques during the operation of the equipment. More specifically, using optimal muffler systems on all equipment would reduce construction noise levels by 10 dBA or more.¹² Temporary abatement techniques such as the use of a noise barrier can achieve a 5-dBA noise level reduction when it is tall enough to break the line-of-sight to the receiver. Modifications such as dampening of metal surfaces or the redesign of a particular piece of equipment can achieve noise reduction of up to 5 dBA.¹³ Moving stationary equipment away from sensitive receptors will reduce noise levels at the receptor as every doubling of distance will reduce noise by 4 to 6 dBA. As such, adherence

¹² FHWA, Special Report-Measurement, Prediction, and Mitigation, updated June 2017, https://www.fhwa.dot.gov/Environment/noise/construction_noise/special_report/hcn04.cfm, Accessed January 2021.

¹³ FHWA, Special Report-Measurement, Prediction, and Mitigation, updated June 2017, accessed July 2019, https://www.fhwa.dot.gov/Environment/noise/construction_noise/special_report/hcn04.cfm.

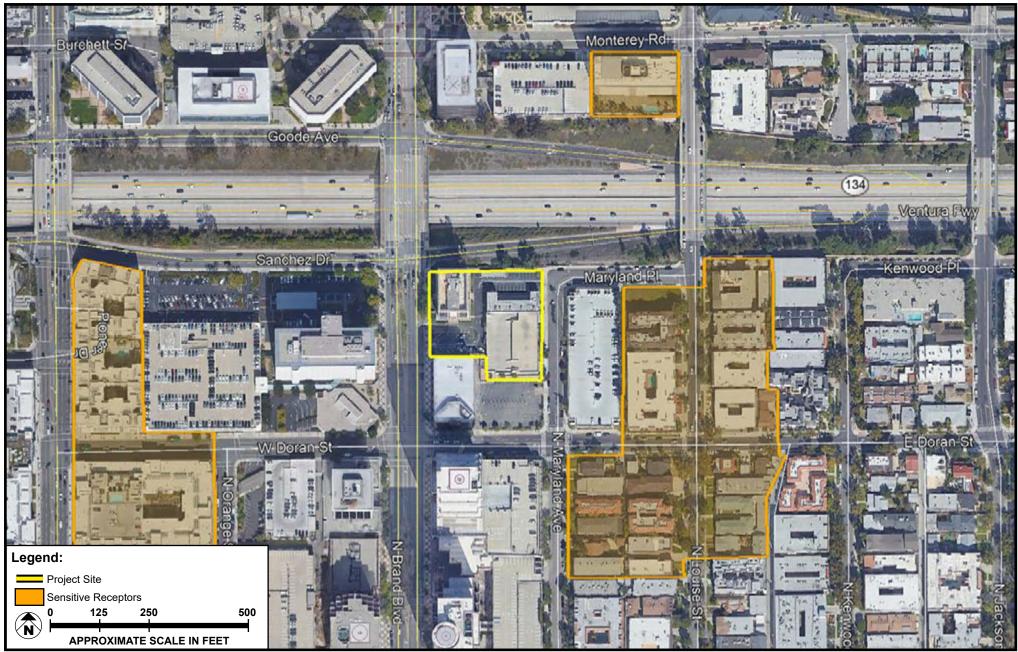
to the GMC would further reduce construction noise levels at all of the Sites to below significance thresholds.

Moreover, the Project would comply with the GMC as it relates to construction equipment by ensuring that the operation of noise generating construction equipment would not occur between the hours of 7:00 PM on one day and 7:00 AM of the next day, or from 7:00 PM on Saturday to 7:00 AM on Monday, or from 7:00 PM preceding a holiday. Compliance with the above practices would ensure construction noise levels are reduced to the maximum extent feasible; thus, construction noise levels would not be considered significant.

TABLE 7 PROJECT CONSTRUCTION NOISE ESTIMATES							
Noise Monitoring Site	Nearest Off-Site Building Structures	Distance from Project Site (feet)	Max dBA (Leq- 1hour)	Significance Threshold (dBA)	Exceeds Threshold?		
Site 1	Commercial use adjacent to the Project site	10	98.9	100.0	No		
Site 2	Multi-family residential uses along Maryland Place and Louise Street	205	73.7	90.0	No		
Site 3	Multi-family residential uses along Doran Street and Maryland Avenue	195	74.2	90.0	No		
Site 4	Multi-family residential uses on the corner of Sanchez Drive and Central Avenue	720	62.8	90.0	No		

Source: RCNM Version 1.1

Refer to Appendix B for construction noise work sheets.



SOURCE: Google Earth - 2021

FIGURE 6



Sensitive Receptor Map

184-003-21

Off-Site Construction Noise

Construction of the Project would require worker, haul, and vendor truck trips to and from the site to work on the site, export demolition debris, and deliver supplies to the site. Trucks traveling to and from the Project site would be required to travel along a haul route approved by the City. At the maximum approximately 9,500 total hauling trips would take place during the grading phase, totaling to approximately 125 haul truck trips per workday. Haul truck traffic would take the most direct route to the freeway ramp, which includes the freeway ramp.

Noise associated with construction trips were estimated using the Caltrans FHWA Traffic Noise Model based on the maximum number of worker and hauling trips in a day. Project haul truck trips which includes medium- and heavy-duty trucks would generate noise levels of approximately 49.9 dBA and 57.1 dBA, respectively, measured at the nearest sensitive receptors along the haul route. As shown in **Table 4**, existing noise levels at the Project site ranged from 69.5 dBA to 71.4 dBA. The noise level increases from truck trips would be below the significance threshold of 5 dBA. As such, off-site construction noise impacts would not be considered significant.

Construction Vibration

As discussed previously, the existing Chase Building would remain on site as part of the Project. The Chase Building is a historical resource as defined by CEQA and appears to be eligible for listing in the National Register of Historic Places, California Register of Historical Resources, and Glendale Register of Historic Resources. As such, the Chase Building was included in the building damage analysis below using the Caltrans vibration threshold of 0.12 PPV for historic buildings.

Table 8: On-Site Construction Vibration Impacts-Building Damage and Table 9: On-Site Construction Vibration Impacts-Human Annoyance presents the construction vibration impacts associated with onsite construction in terms of building damage and human annoyance, respectively. It is important to note pile driving would not be required during construction. As shown in Table 8, the forecasted vibration levels due to on-site construction activities would not exceed the building damage significance threshold at the nearby residential receptors. However, vibration levels would exceed the building damage significance threshold at the on-site historical Chase Building for vibratory rollers, large bulldozers, caisson drilling, and loaded trucks. Implementation of Mitigation Measure MM NOI-1 and MM NOI-2 would require the Applicant to retain a vibration monitor to ensure construction-inducted vibration levels do not expose the existing Chase Building to vibration levels of 0.12 ppv in/sec or greater. Adherence to these measures would include a monitoring plan consisting of measures to reduce vibration levels, such as but not limited to utilizing quiet pile driving technology (auger displacement installation) to reduce friction thus making penetration for a large range of soils less vibration intensive. Therefore, impacts related to building damage from on-site construction vibration would not be considered significant.

As shown in **Table 9**, the forecasted vibration levels due to on-site construction activities would not exceed the human annoyance threshold for infrequent events of 80 VdB for the nearby residential receptors surrounding the Project area during construction. However, vibration levels would exceed the human annoyance threshold at the on-site historical Chase Building for vibratory rollers, large bulldozers,

caisson drilling, loaded trucks, and jackhammers. Implementation of **Mitigation Measure MM NOI-1** would also serve to reduce vibration levels which may result in human annoyance. As such, impacts related to human annoyance from on-site construction vibration would not be considered significant.

	TABLE 8 ON-SITE CONSTRUCTION VIBRATION IMPACTS—BUILDING DAMAGE							
	Estimated Vibration Velocity Levels at the Nearest Building Structures from the Project Construction Equipment						Significance	
Site	Building Structures	Vibratory Roller	Large Bulldozer	Caisson Drilling	Loaded Trucks	Jackhammer	Small bulldozer	Threshold (PPV ips)
FTA Rej	ference Vibration L	evels at 25.	feet					
		0.210	0.089	0.089	0.076	0.035	0.003	
1	Chase Building (15 Feet)	0.452	0.191	0.191	0.164	0.075	0.006	0.12
2	Residential uses along Maryland Place (205 Feet)	0.009	0.004	0.004	0.003	0.001	0.000	0.2
3	Residential uses E. Doran Street and N. Maryland Avenue (195 Feet)	0.010	0.004	0.004	0.003	0.002	0.000	0.2
4	Residential uses along Sanchez Drive (2720 Feet)	0.001	0.001	0.001	0.000	0.000	0.000	0.2

Source: US Department of Transportation, Federal Transportation Authority, Transit Noise and Vibration Impact Assessment Note: Refer to Attachment C for construction vibration worksheets.

Operation

Roadway Noise

Table 9: Off-Site Roadway Noise Levels—Existing Plus Project illustrates the change in AM and PM peak hour noise levels from existing traffic volumes and from traffic generated by the Project. The difference in traffic noise between existing conditions and existing plus Project conditions represents the increase in noise attributable to Project-related traffic. As shown in **Table 9**, the maximum noise level increases along the analyzed roadways would range from negligible changes at various roadway segments to a high of 1.1 dBA CNEL along Maryland Avenue north of Doran Street (Intersection 4). Project-related traffic would not cause noise levels along the analyzed roadways to increase by more than 3.0 dBA. Thus, the proposed Project would not result in a permanent increase in noise levels above ambient levels in the vicinity of the Project Site in excess of the City's Noise Element. As such, roadway noise under this scenario would not result in a significant noise level increase at sensitive receptors.

Fixed Mechanical Equipment Noise

The Project would introduce various stationary noise sources, including heating, ventilation, and air conditioning systems, which would be located either on the roof, the side of a structure, or on the ground. All Project mechanical equipment would be required to be designed with appropriate noise-control devices—such as sound attenuators, acoustics louvers, or sound screens/parapet walls—to comply with noise compatibility requirements provided in the GMC. The stationary equipment would be required to comply with GMC Section 30.34.070, which establishes low-sound intensities from mechanical equipment. Therefore, operation of mechanical equipment on the Project building would not exceed the City's threshold of significance.

MITIGATION MEASURES

- **MM NOI-1:** Prior to approval of grading plans and/or prior to issuance of demolition, grading and building permits, and to the satisfaction of the City of Glendale, the applicant shall retain a Professional Structural Engineer with experience in structural vibration analysis and monitoring for historic buildings and a Project Historical Architect as a team to ensure project construction-induced vibration levels do not expose the existing Chase Building to vibration levels of 0.12 ppv in/sec or greater. The Structural Engineer/Project Historical Architect team shall perform the following tasks:
 - Survey the Project Site and the existing Chase Building and prepare a report that includes but not limited to the following:
 - Description of existing conditions at the existing Chase Building;
 - Vibration level limits based on building conditions, soil conditions, and planned demolition and construction methods to ensure vibration levels would be below 0.12 ppv in/sec, the potential for damage to the existing Chase Building;
 - Specific measures to be taken during construction to ensure the specified vibration level limits are not exceeded; and
 - A monitoring plan to be implemented during demolition and construction that includes post-construction and post-demolition surveys of the existing Chase Building. The plan should include, but not limited to, monitoring instrument specifications, instrument calibration certificates, list of exact monitoring locations, data collection protocol, alarming and alerting protocol, reporting protocol, and maintenance and service outage protocol. Any of the measures can be removed when no longer necessary to achieve the 0.12 ppv in/sec threshold of structure damage at the existing Chase Building.
 - Examples of measures that may be specified for implementation during demolition or construction include, but are not limited to:
 - Prohibition of certain types of impact equipment;
 - Requirement for lighter tracked or wheeled equipment;

- Specifying demolition by non-impact methods, such as sawing concrete;
- Phasing operations to avoid simultaneous vibration sources; and
- Installation of vibration measuring devices to guide decision making for subsequent activities. Monitoring shall be conducted, at minimum, during all ground-disturbing significant impact construction activities (i.e., demolition, shoring, excavation, and foundation work). Warning thresholds, as specified in the monitoring plan, shall be below the specified vibration limits to allow the Contractor to take the necessary steps to reduce vibration, including but not limited to halting/staggering concurrent activities, utilizing quieter or lower-vibratory techniques, or reducing the speed or intensity of equipment. A monitoring record that documents all alarms and includes information regarding compliance with these vibration measures shall be provided to the City upon request.
- MM NOI-2: To the satisfaction of the City, in the unanticipated event of discovery of vibrationcaused damage, the Structural Engineer and the Project Historical Architect shall document any damage to the existing Chase Building caused by construction of the project and shall recommend necessary repairs. Until the conclusion of vibration causing activities, a report from the Structural Engineer or Project Historical Architect shall be submitted monthly to the City of Glendale, documenting the presence or absence of damage, and, if needed, the status of any required repairs. The project applicant shall be responsible for any repairs associated with vibration-caused damage as a result of construction of the project. Any such repairs shall be undertaken and completed as required to conform to the Secretary of the Interior's Standards for the Treatment of Historic Properties (36 Code of Federal Regulations 68), and shall apply the California Historical Building Code (California Code of Regulations, Title 24, Part 8) and other applicable codes

CUMULATIVE NOISE

For purposes of this analysis, development of any related projects will be considered to contribute to cumulative noise impacts. Noise, by definition, is a localized phenomenon and drastically reduces as distance from the source increases. As a result, only related projects, and growth in the general area of the Project site (within 500 feet) would contribute to cumulative noise impacts. Cumulative construction-noise impacts have the potential to occur when multiple construction projects in the local area generate noise within the same time frame and contribute to the local ambient noise environment. It is expected that, as with the Project, any related projects would adhere to Section 8.36.290(K) of the GMC and implement noise reduction techniques such as mufflers, shields, sound barriers, which would minimize any noise-related nuisances during construction. In addition, distance attenuation and intervening structures would further reduce construction noise levels and not result in noticeable increases. Therefore, the combined construction-noise impacts of related projects within a 0.5 mile radius and the Project's contribution would not cause a significant cumulative impact.

TABLE 9 OFF-SITE ROADWAY NOISE LEVELS - EXISTING PLUS PROJECT									
Intersection	Existing Existing plus Project Roadway Segment Adjacent Land Use (dBA CNEL) (dBA CNEL) Difference								
Brand Boulev	ard								
1	North of Goode Avenue (SR-134 WB Off-Ramp)	Commercial	53.1	53.1	0.0	No			
I	South of Goode Avenue (SR-134 WB Off-Ramp)	Commercial	53.2	53.2	0.0	No			
2	North of Sanchez Drive (SR-134 EB On-Ramp)	Commercial	53.1	53.1	0.0	No			
L	South of Sanchez Drive (SR-134 EB On-Ramp)	Commercial	54.2	54.2	0.0	No			
3 -	North of Doran Street	Commercial	54.3	54.3	0.0	No			
J	South of Doran Street	Commercial	53.7	53.7	0.0	No			
Goode Avenu	e (SR-134 WB Off-Ramp)								
4	East of Brand Boulevard	Commercial	57.8	57.8	0.0	No			
1	West of Brand Boulevard	Commercial	52.3	52.3	0.0	No			
Sanchez Driv	e (SR-134 EB On-Ramp)								
2	East of Brand Boulevard	Commercial/Residential (Multi-family)	63.3	63.3	0.0	No			
	West of Brand Boulevard	Commercial	60.5	60.5	0.0	No			
Doran Street									
2	East of Brand Boulevard	Commercial/Residential	53.2	53.6	+0.4	No			
3	West of Brand Boulevard	Commercial/Residential	63.0	63.1	+0.1	No			
4	East of Maryland Avenue	Residential (Multi-family)	61.3	61.3	0.0	No			
4	West of Maryland Avenue	Commercial	56.7	57.1	+0.4	No			
6	East of Louise Street	Residential (Multi-family)	61.0	61.0	0.0	No			
6	West of Louise Street	Residential (Multi-family)	61.2	61.3	+0.1	No			

TABLE 9 OFF-SITE ROADWAY NOISE LEVELS - EXISTING PLUS PROJECT									
Intersection	Roadway Segment	Adjacent Land Use	Existing (dBA CNEL)	Existing plus Project (dBA CNEL)	Difference	Significant Impact?			
Maryland Avenue	?								
	North of Doran Street	Commercial	50.0	51.1	+1.1	No			
4	South of Doran Street	Commercial/Residential (Multi-family)	60.5	60.6	+0.1	No			
Maryland Place									
-	East of Louise Street	N/A	N/A	N/A	N/A	No			
5 —	West of Louise Street	Residential/Commercial	51.7	51.9	+0.2	No			
Louise Street									
5	North of Maryland Place	Residential (Multi-Family)	54.9	54.9	0.0	No			
	South of Maryland Place	Residential (Multi-Family)	61.0	61.0	0.0	No			
6	North of Doran Street	Residential (Multi-Family)	61.2	61.2	0.0	No			
	South of Doran Street	Residential (Multi-Family)	60.3	60.3	0.0	No			

Source: Linscott, Law, and Greenspan, Transportation Impact Analysis for the 606 N. Maryland Avenue Residential Project, June 22, 2021. N/A = no data available.

Roadway noise model results are provided in Attachment D.

Roadway Noise

Table 10: Off-Site Roadway Traffic Noise Impacts—Cumulative plus Project illustrates the change in noise levels from cumulative conditions without the Project-related vehicular traffic to cumulative conditions with the Project. The cumulative scenario represents ambient traffic growth, related project traffic growth, and the Project's incremental contribution to cumulative traffic within the City. As shown in **Table 10**, the maximum noise level increases along the analyzed roadways would range from negligible changes at various roadway segments to a high of 1.0 dBA CNEL along Maryland Avenue north of Doran Street (Intersection 4). Project-related traffic would not cause noise levels along the analyzed roadways to increase by more than 3.0 dBA. Thus, the proposed Project would not result in a permanent increase in noise levels above ambient levels in the vicinity of the Project Site in excess of the City's Noise Element. As such, roadway noise under this scenario would not result in a significant noise level increase at sensitive receptors.

Stationary Noise

With regard to stationary sources, cumulative significant noise impacts may result from cumulative development. Stationary sources of noise that could be introduced in the area by cumulative projects could include mechanical equipment, loading docks, and parking lots. Noise levels within the proposed parking levels would fluctuate with the amount of automobile and human activity. It is anticipated that parking related noise would be similar to existing levels as the Project Site currently includes surface parking. As such, the parking levels within the residential building would not introduce a new source of noise in the Project vicinity. Given that these related projects would be required to adhere to the City's noise standards, all stationary sources would be required to have shielding or other noise-abatement measures so as not to cause a substantial increase in ambient noise levels. Moreover, due to distance, it is unlikely that noise from multiple cumulative projects would interact to create a significant combined noise impact. As such, it is not anticipated that a significant cumulative increase in permanent ambient noise levels would occur.

TABLE 10 OFF-SITE ROADWAY NOISE LEVELS - CUMULATIVE PLUS PROJECT									
Intersection	Roadway Segment	Adjacent Land Use	Cumulative (dBA CNEL)	Cumulative plus Project (dBA CNEL)	Difference	Significant Impact?			
Brand Boulev	vard								
1	North of Goode Avenue (SR- 134 WB Off-Ramp)	Commercial	53.8	53.8	0.0	No			
1	South of Goode Avenue (SR- 134 WB Off-Ramp)	Commercial	53.9	54.0	+0.1	No			
2	North of Sanchez Drive (SR- 134 EB On-Ramp)	Commercial	53.9	53.9	0.0	No			
Z	South of Sanchez Drive (SR- 134 EB On-Ramp)	Commercial	54.9	55.0	+0.1	No			
3	North of Doran Street	Commercial	55.0	55.1	+0.1	No			
	South of Doran Street	Commercial	54.5	54.5	0.0	No			
Goode Avenu	e (SR-134 WB Off-Ramp)								
1	East of Brand Boulevard	Commercial	58.5	58.6	+0.1	No			
I	West of Brand Boulevard	Commercial	52.9	52.9	0.0	No			
Sanchez Driv	e (SR-134 EB On-Ramp)								
2	East of Brand Boulevard	Commercial/Residential (Multi-family)	63.9	63.9	0.0	No			
	West of Brand Boulevard	Commercial	61.1	61.1	0.0	No			
Doran Street									
2	East of Brand Boulevard	Commercial/Residential	53.7	54.0	+0.3	No			
3	West of Brand Boulevard	Commercial/Residential	64.3	64.4	+0.1	No			
4	East of Maryland Avenue	Residential (Multi-family)	61.8	61.8	0.0	No			
7	West of Maryland Avenue	Commercial	57.2	57.5	+0.3	No			
6	East of Louise Street	Residential (Multi-family)	61.5	61.5	0.0	No			
0	West of Louise Street	Residential (Multi-family)	61.7	61.8	+0.1	Νο			

TABLE 10 OFF-SITE ROADWAY NOISE LEVELS - CUMULATIVE PLUS PROJECT									
Intersection	Roadway Segment	Adjacent Land Use	Cumulative (dBA CNEL)	Cumulative plus Project (dBA CNEL)	Difference	Significant Impact?			
Maryland Aven	ue								
	North of Doran Street	Commercial	50.4	51.4	+1.0	No			
4	South of Doran Street	Commercial/Residential (Multi-family)	60.9	60.9	0.0	No			
Maryland Place	2								
-	East of Louise Street	N/A	N/A	N/A	N/A	No			
5 —	West of Louise Street	Residential/Commercial	52.0	52.2	+0.2	No			
Louise Street									
5	North of Maryland Place	Residential (Multi-Family)	55.3	55.3	0.0	No			
—	South of Maryland Place	Residential (Multi-Family)	61.4	61.4	0.0	No			
6	North of Doran Street	Residential (Multi-Family)	61.6	61.6	0.0	No			
_	South of Doran Street	Residential (Multi-Family)	60.7	60.7	0.0	No			

Source: Linscott, Law, and Greenspan, Transportation Impact Analysis for the 606 N. Maryland Avenue Residential Project, June 22, 2021. N/A = no data available.

Roadway noise model results are provided in Attachment D.

CERTIFICATION

The contents of this noise study represent an accurate depiction of the noise environment and impacts associated with the proposed Lucia Park Project. The information contained in this noise study is based on the best available information at the time of preparation. If you have any questions, please contact me directly at (805) 413-4187.

Christ Kirikian, INCE Associate Principal, Director of Air Quality & Acoustics ckirikian@meridianconsultantsllc.com



Monitoring Location: Site 1 Monitoring Date: 08/16/2021

Monitoring Period

Time	LAeq	LASmax	LASmin
13:06:33	66.4	72.5	61.6
13:07:33	72.1	81.4	60.9
13:08:33	67.8	74.7	60.4
13:09:33	68.1	73.6	60.8
13:10:33	74.5	87.4	60.7
13:11:33	64.7	68.0	60.7
13:12:33	76.6	92.8	61.1
13:13:33	65.4	71.0	63.1
13:14:33	73.2	84.9	62.8
13:15:33	68.0	76.1	61.9
13:16:33	70.3	70.9	70.6

15-minute LAeq

Monitoring Location: Site 2 Monitoring Date: 08/16/2021

Monitoring Period

Time	LAeq	LASmax	LASmin
13:18:07	69.8	71.0	68.7
13:19:07	69.6	72.4	66.0
13:20:07	68.4	69.9	66.2
13:21:07	69.6	74.2	67.6
13:22:07	69.7	71.8	67.6
13:23:07	69.9	71.1	68.1
13:24:07	69.8	71.7	68.0
13:25:07	70.1	73.9	68.0
13:26:07	69.9	72.3	68.7
13:27:07	69.0	72.6	67.1
13:28:07	68.8	68.5	68.1

15-minute LAeq

Monitoring Location: Site 3 Monitoring Date: 08/16/2021

Monitoring Period

Time	LAeq	LASmax	LASmin
13:30:20	70.6	82.3	57.8
13:31:20	62.5	70.1	54.6
13:32:20	63.1	70.1	54.9
13:33:20	62.5	70.8	53.8
13:34:20	60.2	65.7	54.3
13:35:20	61.9	67.3	56.0
13:36:20	64.3	74.7	54.2
13:37:20	61.5	67.2	55.8
13:38:20	62.7	67.0	57.2
13:39:20	61.0	67.5	54.0
13:40:20	55.8	55.6	55.5

15-minute LAeq

Monitoring Location: Site 4 Monitoring Date: 08/16/2021

Monitoring Period

Time	LAeq	LASmax	LASmin
13:48:04	72.2	76.5	68.4
13:49:04	70.5	74.9	66.7
13:50:04	71.6	74.9	68.7
13:51:04	70.4	76.9	67.5
13:52:04	71.9	74.9	68.4
13:53:04	72.3	79.1	68.7
13:54:04	72.4	77.7	68.9
13:55:04	71.8	74.8	69.6
13:56:04	71.5	77.0	67.6
13:57:04	72.4	76.8	69.0
13:58:04	69.9	70.2	69.8

15-minute LAeq



Report dat

Case Desci Demolition

---- Receptor #1 ----

				neeepter		
Baselines (dBA)						
Descriptio	Land Use	Daytime	Evening	Night		
Site 2	Residentia	69.5	69.5	69.5		

			Equipment				
			Spec		Actual	Receptor	Estimated
	Impact		Lmax		Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)		(dBA)	(feet)	(dBA)
Concrete Saw	No	20			89.6	205	0
Dozer	No	40			81.7	205	0
Tractor	No	40		84		205	0
Backhoe	No	40			77.6	205	0
Front End Loader	No	40			79.1	205	0

		Results											
	Calculated (dBA)		Noise Li	mits (dBA)					Noise L	imit Exceed	ance (dBA))	
		Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	77.3 7	0.3 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	69.4 6	5.4 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	71.7 6	7.8 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	65.3 6	1.3 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	66.9 6	2.9 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	77.3 7	3.7 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	*Calculated Lmax	is the Loude	st value.										

---- Receptor #2 ----

Baselines (dBA)

Descriptio Land UseDaytimeEveningNightSite 3Residentia63.963.963.9

			Equipment				
			Spec		Actual	Receptor	Estimated
	Impact		Lmax		Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)		(dBA)	(feet)	(dBA)
Concrete Saw	No	20			89.6	195	0
Dozer	No	40			81.7	195	0
Tractor	No	40		84		195	0
Backhoe	No	40			77.6	195	0
Front End Loader	No	40			79.1	195	0

		Results													
	Calculated (dBA)		Noise Li	Noise Limits (dBA) Noise Limit Exceedance (dBA)											
	Day			Evening		Night		Day		Evening		Night			
Equipment	*Lmax Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq		
Concrete Saw	77.8 7	0.8 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Dozer	69.8 6	5.9 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Tractor	72.2 6	8.2 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Backhoe	65.7 6	1.8 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Front End Loader	67.3 6	3.3 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Total	77.8 7	4.2 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
	*Calculated Lmax	is the Loude	st value.												

---- Receptor #3 ----

Baselines (dBA) Descriptio Land Use Daytime Evening Night

Site 4 Residentia 71.6 71.6 71.6

	Impact		Equipr Spec Lmax	nen	t Actual Lmax	Receptor Distance	Estimated Shielding
Description	Device	Usage(%)	(dBA)		(dBA)	(feet)	(dBA)
Concrete Saw	No	20			89.6	720	0
Dozer	No	40			81.7	720	0
Tractor	No	40		84		720	0
Backhoe	No	40			77.6	720	0
Front End Loader	No	40			79.1	720	0

		Results											
	Calculated (dBA)	Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
		Day	Evening			Night		Day		Evening		Night	
Equipment	*Lmax Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	66.4 59.4	1 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	58.5 54.5	5 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	60.8 56.9	€N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	54.4 50.4	1 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	55.9 52	2 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	66.4 62.8	B N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	*Calculated Lmax is	the Loudest v	value.										

Report dat

Case Desci Grading

---- Receptor #1 ----

			Recepto
	Baselines	(dBA)	
Descriptio Land Use	Daytime	Evening	Night

Site 2	Residentia	69.5	69.5	69.5

Equipment

		Sp	ec	Actual	Receptor	Estimated
	Impact	Lm	nax	Lmax	Distance	Shielding
Description	Device	Usage(%) (dl	3A)	(dBA)	(feet)	(dBA)
Grader	No	40	85		205	0
Dozer	No	40		81.7	205	0
Backhoe	No	40		77.6	205	0
Tractor	No	40	84		205	0

Results

	Calculated (dBA)		Noise Limits (dBA)					Noise Limit Exceedance (dBA)					
		Day		Evening		Night Day			Evening		Night		
Equipment	*Lmax Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	72.7 68	8.8 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	69.4 65	5.4 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	65.3 63	1.3 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	71.7 6	7.8 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	72.7 72	2.6 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	*Coloulated I may	ic the Loude	st value										

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Baselines (dBA) Descriptio Land Use Daytime Evening Night

Site 3 Residentia 63.9 63.9 63.9

			Equipment						
			Spec		Actual	Receptor	Estimated		
	Impact		Lmax		Lmax	Distance	Shielding		
Description	Device	Usage(%)	(dBA)		(dBA)	(feet)	(dBA)		
Grader	No	40		85		195	0		
Dozer	No	40			81.7	195	0		
Backhoe	No	40			77.6	195	0		
Tractor	No	40		84		195	0		

		Results											
	Calculated (dB	A)	Noise L	imits (dBA)					Noise L	imit Exceed	ance (dBA))	
		Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax Leo	l Twax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	73.2	69.2 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	69.8	65.9 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	65.7	61.8 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	72.2	68.2 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	73.2	73.1 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Baselines (dBA)Descriptio Land UseDaytimeEveningNightSite 4Residentia71.671.671.6

			Equipr	ment			
			Spec	Act	ual	Receptor	Estimated
	Impact		Lmax	Lm	ах	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dE	A)	(feet)	(dBA)
Grader	No	40		85		720	0
Dozer	No	40			81.7	720	0
Backhoe	No	40			77.6	720	0
Tractor	No	40		84		720	0

	Results													
	Calculate	ed (dBA)		Noise Limits (dBA)					Noise Limit Exceedance (dBA)					
	Day		Evening			Night		Day		Evening		Night		
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq

Grader	61.8	57.9 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	58.5	54.5 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	54.4	50.4 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	60.8	56.9 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	61.8	61.7 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	*Calculated L	max is the Loud	est value.										

Report dat

Case Desci Building Construction

			Rece	eptor #1		
	Baselines	(dBA)				
Descriptio Land U	se Daytime	Evening	Night			
Site 2 Resider	ntia 69.	5 69.5	69	9.5		
			F au dia aa	4		
			Equipm			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Crane	No	16		80.6	205	0
Forklift	No	40		85	205	0
Generator	No	50		80.6	205	0
Backhoe	No	40		77.6	205	0
Welder / Torch	No	40		74	205	0
Welder / Torch	No	40		74	205	0
Welder / Torch	No	40		74	205	0
			Results			
	Calculate	d (dBA)		Noise Lim	its (dBA)	

		Results												
	Calculated (dB	A)	Noise L	imits (dBA)					Noise L	imit Exceed	ance (dBA))		
		Day		Evening		Night		Day		Evening		Night		
Equipment	*Lmax Leo	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	
Crane	68.3	60.3 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Forklift	72.7	68.8 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Generator	68.4	65.4 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Backhoe	65.3	61.3 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Welder / Torch	61.7	57.8 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Welder / Torch	61.7	57.8 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Welder / Torch	61.7	57.8 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Total	72.7	71.8 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	*Calculated Lr	nax is the Loude	est value.											

				Recepte	or #2
		Baselines (dBA)		
Descriptio	Land Use	Daytime	Evening	Night	
Site 3	Residentia	63.9	63.9	63.9	

		Equ	ipment		
		Spe	c Actual	Receptor	Estimated
	Impact	Lma	ax Lmax	Distance	Shielding
Description	Device	Usage(%) (dB	A) (dBA)	(feet)	(dBA)
Crane	No	16	80.6	195	0
Forklift	No	40	85	195	0
Generator	No	50	80.6	195	0
Backhoe	No	40	77.6	195	0
Welder / Torch	No	40	74	195	0
Welder / Torch	No	40	74	195	0
Welder / Torch	No	40	74	195	0

		Results											
	Calculated (dBA)		Noise Li	mits (dBA)					Noise L	imit Exceed	ance (dBA))	
		Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	68.7 60	.8 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	73.2 69	.2 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	68.8 65	.8 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	65.7 61	.8 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	62.2 58	.2 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	62.2 58	.2 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	62.2 58	.2 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	73.2 72	.3 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	*Calculated Lmax is	s the Loudes	st value.										

---- Receptor #3 ----

. Baselines (dBA) Descriptio Land Use Daytime Evening Night

Site 4 Residentia 71.6 71.6 71.6

Equipment

_	Impact	L	ipec max	Actual Lmax	Receptor Distance	Estimated Shielding
Description	Device	Usage(%) (dBA)	(dBA)	(feet)	(dBA)
Crane	No	16		80.6	720	0
Forklift	No	40		85	720	0
Generator	No	50		80.6	720	0
Backhoe	No	40		77.6	720	0
Welder / Torch	No	40		74	720	0
Welder / Torch	No	40		74	720	0
Welder / Torch	No	40		74	720	0

		Results											
	Calculated (dBA))	Noise Li	imits (dBA)					Noise L	imit Exceed	ance (dBA))	
		Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	57.4	49.4 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forklift	61.8	57.9 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	57.5	54.5 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	54.4	50.4 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	50.8	46.9 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	50.8	46.9 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	50.8	46.9 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	61.8	60.9 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	*Calculated Lma	ix is the Loude	st value.										

Report dat

Case Desci Paving

				R	eceptor #1	
		Baselines (dBA)			
Descriptio	Land Use	Daytime	Evening	Night	:	
Site 2	Residentia	69.5	69.5		69.5	
				Equip	oment	
				Spec	Actual	Receptor
		Impact		Lmax	Lmax	Distance

			Edubureu			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Drum Mixer	No	50		80	205	0
Paver	No	50		77.2	205	0
Paver	No	50		77.2	205	0
Roller	No	20		80	205	0
Backhoe	No	40		77.6	205	0

		Results											
	Calculated (dBA	()	Noise L	imits (dBA)					Noise L	imit Exceed	ance (dBA))	
		Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Drum Mixer	67.7	64.7 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	65	62 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	65	62 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	67.7	60.8 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	65.3	61.3 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	67.7	69.4 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	*Calculated Lma	ax is the Loude	st value.										

---- Receptor #2 ----

Baselines (dBA) Descriptio Land Use Daytime Evening Night

Site 3 Residentia 63.9 63.9 63.9

			Equipme	ent		
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Drum Mixer	No	50		80	195	0
Paver	No	50		77.2	195	0
Paver	No	50		77.2	195	0
Roller	No	20		80	195	0
Backhoe	No	40		77.6	195	0

		Results											
	Calculated (dBA)		Noise Li	imits (dBA)					Noise L	imit Exceed	ance (dBA)		
		Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Drum Mixer	68.2 6	55.2 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	65.4 6	52.4 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	65.4 6	52.4 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	68.2 6	51.2 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	65.7 6	51.8 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	68.2 6	59.8 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	*Calculated Lmax	is the Loude	st value.										

---- Receptor #3 ----

Baselines (dBA) Descriptio Land Use Daytime Evening Night

Site 4 Residentia 71.6 71.6 71.6

			Equipme	ent		
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Drum Mixer	No	50		80	720	0
Paver	No	50		77.2	720	0
Paver	No	50		77.2	720	0
Roller	No	20		80	720	0
Backhoe	No	40		77.6	720	0

		Results											
	Calculated (dBA))	Noise Li	mits (dBA)					Noise L	imit Exceed	ance (dBA))	
		Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Drum Mixer	56.8	53.8 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	54.1	51 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	54.1	51 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	56.8	49.8 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	54.4	50.4 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	56.8	58.5 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	*Calculated Lma	ix is the Loude	st value.										

Report dat ######## Case Desci Architectu														
			Recer	otor #1										
	Baselines (dE	BA)												
Descriptio Land Use			Night											
Site 2 Residentia		69.5	-	5										
			Equipme	nt										
			Spec	Actual	Receptor	Estima	ated							
	Impact		Lmax	Lmax	Distance	Shield	ing							
Description	Device U	sage(%)	(dBA)	(dBA)	(feet)	(dBA)								
Compressor (air)	No	40		77.7	20!	5	0							
			Results											
	Calculated (d	BA)		Noise Lim						Noise L	imit Exceed			
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax Le	•	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	65.4		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	65.4		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	*Calculated I	.max is t	he Loudes	t value.										
			Recep	otor #2										
	Baselines (dE													
Descriptio Land Use			Night	_										
Site 3 Residentia	63.9	63.9	63.	9										
			Equipme											
			Spec	Actual	Receptor									
	Impact		Lmax	Lmax	Distance		ing							
Description		sage(%)		(dBA)	(feet)	(dBA)								
Compressor (air)	No	40		77.7	19	5	0							
			Results									<i>(</i>)= -)		
	Calculated (d	IBA)	_	Noise Lim					_	Noise L	imit Exceed			
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax Le	•	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	65.8		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	65.8		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	*Calculated I	.max is t	he Loudes	t value.										
			Recep	otor #3										
Description Longiture	Baselines (dE		NULLA											
Descriptio Land Use			Night	~										
Site 4 Residentia	a 71.6	71.6	71.	D										
			Equipme		Deet	E.								
			Spec	Actual	Receptor	Estima								

			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Compressor (air)	No	40		77.7	720	0

		Results											
	Calculated (dB	A)	Noise L	imits (dBA)					Noise L	imit Exceed	ance (dBA)	
		Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	54.5	50.5 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	54.5	50.5 N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	*Calculated Ln	hax is the Loude	st value.										



Lucia Park Project Construction Vibration Model (205 feet)

Equipment	Pieces of Equipment	PPV at 25 feet (in/sec)	Distance from Equipment	PPV at adjusted distance	RMS velocity amplitude in in/sec at adjusted distance ^a	RMS Vibration Ievel in VdB at adjusted distance
Caisson drilling	1	0.089	205	0.004	0.001	60
Jackhammer	1	0.035	205	0.001	0.000	51
Large bulldozer	1	0.089	205	0.004	0.001	60
Loaded trucks	1	0.076	205	0.003	0.001	58
Pile Drive (impact)	1	0.644	205	0.027	0.007	77
Vibratory Roller	1	0.210	205	0.009	0.002	67
Small bulldozer	1	0.003	205	0.000	0.000	30

* Suggested Vibration Thresholds per the Federal Transit Administration, United

States Department of Transportation, Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06), May 2006, pg. 12-12.

-Fragile Buildings- 0.20 in/sec

Lucia Park Project Construction Vibration Model (195 feet)

Equipment	Pieces of Equipment	PPV at 25 feet (in/sec)	Distance from Equipment	PPV at adjusted distance	RMS velocity amplitude in in/sec at adjusted distance ^a	RMS Vibration level in VdB at adjusted distance
Caisson drilling	1	0.089	195	0.004	0.001	60
Jackhammer	1	0.035	195	0.002	0.000	52
Large bulldozer	1	0.089	195	0.004	0.001	60
Loaded trucks	1	0.076	195	0.003	0.001	59
Pile Drive (impact)	1	0.644	195	0.030	0.007	77
Vibratory Roller	1	0.210	195	0.010	0.002	68
Small bulldozer	1	0.003	195	0.000	0.000	31

* Suggested Vibration Thresholds per the Federal Transit Administration, United

States Department of Transportation, Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06), May 2006, pg. 12-12.

-Fragile Buildings- 0.20 in/sec

Lucia Park Project Construction Vibration Model (720 feet)

Equipment	Pieces of Equipment	PPV at 25 feet (in/sec)	Distance from Equipment	PPV at adjusted distance	RMS velocity amplitude in in/sec at adjusted distance ^a	RMS Vibration level in VdB at adjusted distance
Caisson drilling	1	0.089	720	0.001	0.000	43
Jackhammer	1	0.035	720	0.000	0.000	35
Large bulldozer	1	0.089	720	0.001	0.000	43
Loaded trucks	1	0.076	720	0.000	0.000	42
Pile Drive (impact)	1	0.644	720	0.004	0.001	60
Vibratory Roller	1	0.210	720	0.001	0.000	51
Small bulldozer	1	0.003	720	0.000	0.000	14

* Suggested Vibration Thresholds per the Federal Transit Administration, United

States Department of Transportation, Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06), May 2006, pg. 12-12.

-Fragile Buildings- 0.20 in/sec



Pro	ject Name: Long Beach Riverpark						rev. (D	ate)					If Peak Hour = 6% of ADT, Scaling Factor	= 16.667		1		
AM	Peak Hour and PM Peak Hour							T.					If Peak Hour = 7% of ADT, Scaling Factor	= 14.286				
													If Peak Hour = 8% of ADT, Scaling Factor					
	Intersection:	1											If Peak Hour = 9% of ADT, Scaling Factor					
	Brand Boulevard / Goode Avenue - SR-	134 WB	Off-Ramp										If Peak Hour = 10% of ADT, Scaling Facto					
															ADT			
					Brand Bouleva	ard							Road	Brand I	Boulevard	ode Avenue - SF	-134 WB Off-Ran	
					Southbound								Leg	North of	South of	East of	West of	
						right	throug	h <u>left</u>					Cross Street	ode Avenue - S	R-134 WB Off-Ra	r Brand B	oulevard	
					Existing Traffic AM	255	827	0					Existing Traffic AM	17,112.0	19,120.0	13,448.0	6,768.0	
					Existing Traffic PM		848						Existing Traffic PM	16,768.0	18,848.0	10,984.0	7,992.0	
					Existing Traffic + Project AM	255							Existing Traffic + Project AM	17,160.0	19,272.0	13,472.0	6,848.0	
					Existing Traffic + Project PM		854						Existing Traffic + Project PM	16,808.0	19,008.0	11,064.0	8,032.0	
					Future Cumulative Baseline AM	285							Future Cumulative Baseline AM	19,880.0	22,280.0	15,208.0	7,576.0	
					Future Cumulative Baseline PM		1,013						Future Cumulative Baseline PM	19,744.0	22,456.0	12,968.0	9,120.0	
	Eastbound				Future Cumulative + Project AM	285			Westbound				Future Cumulative + Project AM	19,928.0	22,432.0	15,232.0	7,656.0	
ŝ		left	through		Future Cumulative + Project PM		1,019				through		Future Cumulative + Project PM	19,784.0	22,616.0	13,048.0	9,160.0	
	Existing Traffic AM	0	0	0	Net New Project Trips AM	0	1	0	Existing Traffic AM		328							
	Existing Traffic PM	0	0	0	Net New Project Trips PM	0	6	0	Existing Traffic PM		334							
	Existing Traffic + Project AM	0	0	0		N			Existing Traffic + Project AM		328							
	Existing Traffic + Project PM	0	0	0	N N	V	E		Existing Traffic + Project PM	508		541						
ğ	Future Cumulative Baseline AM	0	0	0		S			Future Cumulative Baseline AM	614								
ă,	Future Cumulative Baseline PM	0	0	0					Future Cumulative Baseline PM	561								
	Future Cumulative + Project AM	0	0	0					Future Cumulative + Project AM	614		915						
	Future Cumulative + Project PM	0	0	0	Northbound				Future Cumulative + Project PM	561	406	664						
	Net New Project Trips AM	0	0	0			throug		Net New Project Trips AM	0	0	3						
	Net New Project Trips PM	0	0	0	Existing Traffic AM	263			Net New Project Trips PM	0	0	10						
					Existing Traffic PM	451												
					Existing Traffic + Project AM		507											
					Existing Traffic + Project PM		525											
		1			Future Cumulative Baseline AM	287												
		1	_		Future Cumulative Baseline PM		650											
L		1	_		Future Cumulative + Project AM		632											
					Future Cumulative + Project PM		649								1	1		
			_		Net New Project Trips AM	10		0										
		1	_		Net New Project Trips PM	5	-1	0										
L							_			_				+				
		1						1			1							

												Traffic	Volumes						Re	f. Ener	ay Leve	al Dist	Ld				Le			Ln	a		
						Dist. from			Vehicl																								
ROADWAY NAME			Median	ADT									Eve Nigh	t MTd	HTd	MTe	HTe M	ITn HT	「n A	M	HT	Adj	А	MT	ΗT	Total	А	MT H	нт т	otal A	MT	н	Total
	Land Use	Lanes	Width	Volume	(mph)	Receptor	actor (1	dB(A)	Trucks	I rucks	CNEL	-																					
Brand Boulevard n/o Goode Avenue - SR-134							-	-									-																
Existing Traffic AM		4	12 12	17,112 16 768	25 25	470 470	0	0	1.8%	0.7%	53.2 53.1		##### ##### ##### #####		107 105	16 15																	9.9 42.2
Existing Traffic PM		4					0	0	1.8%	0.7%			***** *****					23 9															9.8 42.1
Existing Traffic + Project AM		4	12 12	17,160 16.808	25 25	470 470	0	0	1.8%	0.7%			****** *******************************		107	16																	9.9 42.2
Existing Traffic + Project PM		4	12	19,808	25 25	470	0	0	1.8% 1.8%	0.7%	53.1 53.8		****** ****** *****		105	15																	9.8 42.1
Future Cumulative Baseline AM Future Cumulative Baseline PM		4	12	19,880 19,744	25 25	470 470	0	0	1.8%	0.7%	53.8 53.8		***** *****		124 123	18 18).6 42.9).5 42.8
Future Cumulative Baseline PM Future Cumulative + Project AM		4	12	19,744	25 25	470	0	0	1.8%	0.7%	53.8		****** ******		123	18																	0.6 42.8
Future Cumulative + Project AM		*	12	19,920	25	470	0	0	1.8%	0.7%	53.8		****** *******************************	0.4	124	18																	0.5 42.9
Future Cumulative + Project PM		4	12	19,704	25	470	0	U	1.070	0.7 %	33.0	******		511	123	10	4	2/ 1	1 3	9.4 / 1	.1 /0.	-9.0	5 31.3	9 40.1	49.0	0 04.0	40.3	30.0	39.0 4	19.3 30	3.1 30	./ 40	.3 42.0
Brand Boulevard s/o Goode Avenue - SR-134																																	
Existing Traffic AM		5	0	19.120	25	520	0	0	1.8%	0.7%	53.2	#####	****	301	119	17	4	26 1	1 5	9.4 71	1 78.	7 -10.3	2 50.7	45.6	6 49.2	2 53.7	47.7	38.0	39.0	48.7 3/	4.5 36	.1 40	0.0 42.3
Existing Traffic PM	1	5	ō	18,848	25	520	ō	ō	1.8%	0.7%	53.2		****		118	17																	9.9 42.2
Existing Traffic + Project AM	1	5	0	19.272	25	520	0	0	1.8%	0.7%	53.3	#####		\$ 303	120	18	4	26 1	1 5	9.4 71	1 78.	7 -10.3	2 50.8	3 45.6	6 49.2	53.8	47.8	38.0	39.1	48.7 3/	4.6 36	1 40	0.0 42.3
Existing Traffic + Project PM		5	Ó	19.008	25	520	Ó	Ó	1.8%	0.7%	53.2	#####	***	299	119	17	4	26 1	1 5	9.4 71	1 78.	7 -10.3	2 50.7	45.5	5 49.2	53.7	47.7	37.9	39.0 4	48.6 34	4.5 36	.1 39	9.9 42.2
Future Cumulative Baseline AM		5	Ó	22.280	25	520	Ó	0	1.8%	0.7%	53.9	#####	****	351	139	20	4	30 1	3 5	9.4 71	1 78.	7 -10.3	2 51.4	46.2	49.9	54.4	48.4	38.6	39.7	49.3 3	5.2 36	8 40	0.6 42.9
Future Cumulative Baseline PM		5	0	22,456	25	520	0	0	1.8%	0.7%	53.9	#####	****	353	140	20	4	30 1	3 5	9.4 71	1 78.	7 -10.3	2 51.4	46.3	49.9	54.4	48.4	38.7	39.7	49.4 3	5.2 36	8 40	0.6 43.0
Future Cumulative + Project AM		5	0	22,432	25	520	0	0	1.8%	0.7%	53.9	#####	***	353	140	20	4	30 1	3 5	9.4 71	.1 78.3	7 -10.3	2 51.4	46.2	49.9	54.4	48.4	38.7	39.7	49.4 3	5.2 36	.8 40	0.6 42.9
Future Cumulative + Project PM		5	0	22,616	25	520	0	0	1.8%	0.7%	54.0	#####	***	\$ 356	141	21	4	31 1	3 5	9.4 71	1 78.	7 -10.3	2 51.4	46.3	49.9	54.5	48.5	38.7	39.8	49.4 3	5.3 36	.8 40	0.7 43.0
Goode Avenue – SR-134 WB Off-Ramp e/o Existing Traffic AM		-	0				-			-																							
		2	0	13,448	60	104	0	0	1.8%	0.7%			##### #####		84	12																	7.4 53.7
Existing Traffic PM Existing Traffic + Project AM		2	0	10,984	60 60	104	0	0	1.8%	0.7%	66.1 67.0		***** *****		69 84	10 12																	3.5 52.8
Existing Traffic + Project AM Existing Traffic + Project PM		2	0	13,472 11.064	60	104 104	0	0	1.8% 1.8%	0.7%	66.2		****** ******		84 69	12		18 8 15 6															7.4 53.7 3.6 52.9
Existing Traffic + Project PM Future Cumulative Baseline AM		2	0	11,064	60	104	0	0	1.8%	0.7%			****** ****** *****		69 95	10		15 t 21 9															7.9 54.3
Future Cumulative Baseline PM		2	0	12,968	60	104	0	0	1.8%	0.7%	66.9		****** ******		90 81	12																	7.3 53.6
Future Cumulative Project AM		2	0	15.232	60	104	0	0	1.8%	0.7%	67.6				95	14		21 9															3.0 54.3
Future Cumulative + Project AM		2	0	13.048	60	104	0	0	1.8%	0.7%	66.9		*****			12																	7.3 53.6
Tatale Camalance + Hojeet Hw		-	-				-	-									-																
Goode Avenue - SR-134 WB Off-Ramp w/o																																	
Existing Traffic AM		2	0	6,768	40	270	0	0	1.8%	0.7%		#####			42	6																	3.7 43.1
Existing Traffic PM		2	0	7,992	40	270	0	0	1.8%	0.7%	56.2			126	50	7		11 1															9.4 43.9
Existing Traffic + Project AM		2	0	6,848	40	270	0	0	1.8%	0.7%	55.6				43	6																	3.7 43.2
Existing Traffic + Project PM		2	0	8,032	40	270	0	0	1.8%	0.7%				126	50	7		11 5															9.4 43.9
Future Cumulative Baseline AM		2	0	7,576	40	270	0	0	1.8%	0.7%	56.0				47	7		10 4															9.2 43.6
Future Cumulative Baseline PM		2	0	9,120	40	270	0	0	1.8%	0.7%	56.8				57	8																	0.0 44.4
Future Cumulative + Project AM		2	0	7,656	40	270	0	0	1.8%	0.7%	56.1		972 735		48	7																	9.2 43.7
Future Cumulative + Project PM		2	0	9,160	40	270	0	0	1.8%	0.7%	56.8	#####	#### 879	144	57	8	2	12 5	5 6	7.4 76	.3 81.3	2 -7.4	56.2	2 48.4	49.2	2 57.6	53.3	40.8	39.0 5	53.7 40	0.1 38	.9 40	0.0 44.5
 Alpha Factor: Coefficient of absorption relating site such as aspalt. An alpha factor of 0.5 indicate 							eisan a	coustical	lly "hard"																								
Assumed 24-Hour Traffic Distribution:		Dav	Evening	Night																													
Assumed 24-Hour Traffic Distribution: Total ADT Volumes			Evening 5 12.70%	9.60%																													
Iotal ADT Volumes Medium-Duty Trucks			5.05%	9.60%																													
			5.05% 2.84%	7.52%																													
Heavy-Duty Trucks		89.10%	o ∠.84%	8.06%																													

Iotal ADT Volumes	//./0% 12./0%	9.
Medium-Duty Trucks	87.43% 5.05%	7.
Heavy-Duty Trucks	89.10% 2.84%	8.0

Pr	ject Name: Long Beach Riverpark		1				rev. (Da	ate)		1	1		If Peak Hour = 6% of ADT, Scaling Factor	= 16.667				
	Peak Hour and PM Peak Hour							T I					If Peak Hour = 7% of ADT, Scaling Factor	· = 14.286				
													If Peak Hour = 8% of ADT, Scaling Facto					
	Intersection:	2											If Peak Hour = 9% of ADT, Scaling Factor					
	Brand Boulevard / Sanchez Drive - SR-	134 EB C	n-Ramp										If Peak Hour = 10% of ADT, Scaling Factor					-
															ADT			
					Brand Boulevar	ď							Road	Brand I	Boulevard	anchez Drive - SF	-134 EB On-Ran	
					Southbound								Leg	North of	South of	East of	West of	
						right	through	n <u>left</u>					Cross Street	anchez Drive - S	R-134 EB On-Ra	n Brand B	oulevard	
					Existing Traffic AM	0	1,188	445					Existing Traffic AM	18,944.0	19,008.0	8,504.0	8,248.0	
					Existing Traffic PM	0	940						Existing Traffic PM	18,576.0	21,400.0	12,184.0	6,784.0	
					Existing Traffic + Project AM	0	1,192						Existing Traffic + Project AM	19,096.0	19,248.0	8,584.0	8,256.0	
					Existing Traffic + Project PM	0	956	425					Existing Traffic + Project PM	18,736.0	21,632.0	12,224.0	6,816.0	-
					Future Cumulative Baseline AM		1,388						Future Cumulative Baseline AM	22,080.0	22,472.0	10,088.0	9,376.0	
					Future Cumulative Baseline PM		1,180						Future Cumulative Baseline PM	22,160.0	25,552.0	14,024.0	7,704.0	
	Eastbound				Future Cumulative + Project AM		1,392		Westbound				Future Cumulative + Project AM	22,232.0	22,712.0	10,168.0	9,384.0	
١ <u></u>		left	through		Future Cumulative + Project PM	-	1,196	=			through		Future Cumulative + Project PM	22,320.0	25,784.0	14,064.0	7,736.0	
17	Existing Traffic AM	265	333		Net New Project Trips AM	0	4	0	Existing Traffic AM	0	0	0						
18	Existing Traffic PM	98	486	264	Net New Project Trips PM	0	16	0	Existing Traffic PM	0	0	0						
15	Existing Traffic + Project AM	265	333			N			Existing Traffic + Project AM	0	0	0						
N	Existing Traffic + Project PM	98	486	268	W		E		Existing Traffic + Project PM	0	0	0						
ĪŠ	Future Cumulative Baseline AM	300	401	471		S			Future Cumulative Baseline AM	0	0	0						
5	Future Cumulative Baseline PM	117	557						Future Cumulative Baseline PM	0	0	0						
S	Future Cumulative + Project AM	300	401	472					Future Cumulative + Project AM	0	0	0						
	Future Cumulative + Project PM	117	557	293	Northbound				Future Cumulative + Project PM	0	0	0						
	Net New Project Trips AM	0	0	1			through		Net New Project Trips AM	0	0	0						
	Net New Project Trips PM	0	0	4	Existing Traffic AM	0	470	285	Net New Project Trips PM	0	0	0						
					Existing Traffic PM	0	859	612		_								
					Existing Traffic + Project AM	0	485	295		_								
-			1		Existing Traffic + Project PM	0	863 581	617		_	I							
-					Future Cumulative Baseline AM Future Cumulative Baseline PM	0	1.001	369 724			l			-				-
⊢		+			Future Cumulative Baseline PM Future Cumulative + Project AM	0		379		+				-				
⊢		+	-		Future Cumulative + Project AM Future Cumulative + Project PM		1.005				+			-				-
⊢		+	-		Net New Project Trips AM	0	1,005	10	-	+								
⊢					Net New Project Trips AM Net New Project Trips PM	0	15	10		-				-	-			
⊢			1		INELINEW PIOJECLITIPS PM	0	4	3		-				-	-			
-			1				+				+			-	+			
L		1	1		1	1	1	1			1	1	1 1		1	1		

												Traffic	Volumes						R	Ref. En	ergy L	evel [Dist Lo				Le				Ln			
						Dist. from			Vehicl																									
ROADWAY NAME	LandUse		Median Width	ADT Volume									ve Night	MTd	HTd	MTe	HTe N	ITn H	Tn A	· •	AT ⊦	IT /	∖dj A	M	т нт	То	tal A	MT	HT	Tota	AL	MT	ΗT	Total
	Land Use	Lanes	Width	Volume	(mph)	Receptor	-actor (1	dB(A)	Trucks	I rucks	CNEL	-																						
Brand Boulevard n/o Sanchez Drive - SR-134		5	0	18 944						-																								
Existing Traffic AM		5	0	18,944 18,576	25 25	520 520	0	0	1.8% 1.8%	0.7%	53.2 53.1			298	118 116	17 17							10.2 50											
Existing Traffic PM			0		25 25		0	0							110	17																		
Existing Traffic + Project AM		5	0	19,096 18.736	25 25	520 520	0	0	1.8% 1.8%	0.7%	53.2 53.1			301 295	119	17							10.2 50											
Existing Traffic + Project PM Future Cumulative Baseline AM		5	0	22 080	25	520	0	0	1.8%	0.7%	53.9			295 347	138	20							10.2 5											
Future Cumulative Baseline AM Future Cumulative Baseline PM		5	0	22,080	25 25	520	0	0	1.8%	0.7%	53.9			347	138	20							10.2 5											
Future Cumulative Baseline PM Future Cumulative + Project AM		5	0	22,100	25	520	0	0	1.8%	0.7%	53.9			350	130	20							10.2 5											
Future Cumulative + Project AM		5	0	22,232	25	520	0	0	1.8%	0.7%	53.9			351	139	20							10.2 5											
Tatale campiance - Floject Flo		5	0	22,020	25	520	0	0	1.070	0.770	55.5			551	135	20	-	50	10 0	55.4		0.7	10.2 5		J.Z 40		C4 40.	M 30.	0 35.	1 40.	, 33.2	50.0	40.0	42.0
Brand Boulevard s/o Sanchez Drive - SR-134																																		
Existing Traffic AM		5	17	19,008	25	470	0	0	1.8%	0.7%	53.7	##### #	++++++ +++++++	299	119	17	4	26 1	11 5	59.4 7	71.1 7	78.7	-9.8 5 ⁻	1.1 4	5.0 49	.6 54	1.2 48	2 38.	.4 39.	4 49.1	i 35.0	36.5	40.4	42.7
Existing Traffic PM		5	17	21,400	25	470	0	0	1.8%	0.7%	54.2	##### #	****	337	133	19	4	29 '	12 5	59.4	71.1	78.7	-9.8 5 ⁻	1.6 4	6.5 50	.1 54	1.7 48	7 38.	.9 40.	.0 49.6	35.5	37.0	40.9	43.2
Existing Traffic + Project AM		5	17	19,248	25	470	0	0	1.8%	0.7%	53.7	##### #	****	303	120	17	4	26	11 8	59.4	71.1	78.7	-9.8 5	1.2 4	5.0 49	.7 54	1.2 48	2 38.	.4 39.	5 49.1	i 35.0	36.6	40.4	42.7
Existing Traffic + Project PM		5	17	21,632	25	470	0	0	1.8%	0.7%	54.2	##### #	****	340	135	20	4	29 '	12 5	59.4	71.1	78.7	-9.8 5	1.7 4	6.5 50	.2 54	1.7 48	7 39.	.0 40.	0 49.7	/ 35.5	37.1	40.9	43.2
Future Cumulative Baseline AM		5	17	22,472	25	470	0	0	1.8%	0.7%	54.4	##### #	++++++ +++++++	354	140	20	4	30 1	13 5	59.4	71.1	78.7	-9.8 5 ⁻	1.9 44	6.7 50	.3 54	1.9 48	9 39.	.1 40.1	2 49.8	3 35.7	37.2	41.1	43.4
Future Cumulative Baseline PM		5	17	25,552	25	470	0	0	1.8%	0.7%	54.9			402	159	23			14 5	59.4	71.1	78.7	-9.8 52	2.4 4	7.3 50	.9 55	5.4 49	4 39.	.7 40.	7 50.4	↓ 36.2	37.8	41.7	44.0
Future Cumulative + Project AM		5	17	22,712	25	470	0	0	1.8%	0.7%	54.4			357	142	21							-9.8 5											
Future Cumulative + Project PM		5	17	25,784	25	470	0	0	1.8%	0.7%	55.0	##### #	****	406	161	23	5	35 1	15 5	59.4 7	71.1 7	78.7	-9.8 5	2.5 4	7.3 50	.9 55	5 49.	5 39.	.7 40.	8 50.4	36.3	37.8	41.7	44.0
Sanchez Drive - SR-134 EB On-Ramp e/o																																		
Existing Traffic AM		3	0	8.504	60	195	0	0	1.8%	0.7%	62.3	##### #	#### 816	134	53	8	2	12	5 7	74.2 8	80.8	34.5	-6.0 62	2.4 5	2.2 51	.9 63	3.1 59	4 44.	.6 41.	8 59.6	3 46.2	42.8	42.7	49.0
Existing Traffic PM		3	ō	12,184	60	195	ō	ō	1.8%	0.7%	63.9	##### #		192	76	11							-6.0 64											
Existing Traffic + Project AM		3	0	8,584	60	195	0	0	1.8%	0.7%	62.3	##### #	#### 824	135	54	8	2	12	5 7	74.2 8	80.8	34.5	-6.0 62	2.5 5	2.3 52	.0 63	3.2 59	5 44.	7 41	8 59.7	46.3	42.8	42.7	49.0
Existing Traffic + Project PM		3	0	12,224	60	195	0	0	1.8%	0.7%	63.9	##### #	****	192	76	11	2	17	7 7	74.2 8	80.8	34.5	-6.0 64	1.0 5	3.8 53	.5 64	1.7 61	0 46.	.2 43.	3 61.2	2 47.8	44.4	44.3	50.6
Future Cumulative Baseline AM		3	0	10,088	60	195	0	0	1.8%	0.7%	63.0	##### #	#### 968	159	63	9	2	14	6 7	74.2 8	80.8	34.5	-6.0 63	3.2 5	3.0 52	.7 63	3.9 60	2 45.	.4 42.	5 60.4	47.0	43.5	43.4	49.7
Future Cumulative Baseline PM		3	0	14,024	60	195	0	0	1.8%	0.7%	64.5	##### #	****	221	87	13	3	19	8 7	74.2 8	80.8	34.5	-6.0 64	1.6 5	4.4 54	.1 65	i.3 61	6 46.	.8 43.	9 61.8	3 48.4	44.9	44.9	51.2
Future Cumulative + Project AM		3	0	10,168	60	195	0	0	1.8%	0.7%	63.1			160	63	9			6 7	74.2 8	80.8	34.5	-6.0 63	3.2 5	3.0 52	.7 63	3.9 60	2 45.	.4 42.	.5 60.4	47.0	43.6	43.5	i 49.8
Future Cumulative + Project PM		3	0	14,064	60	195	0	0	1.8%	0.7%	64.5	##### #	****	221	88	13	3	19	8 7	74.2 8	80.8 8	34.5	-6.0 64	1.6 5	4.4 54	.1 65	i.3 61.	6 46.	.8 43.	9 61.8	3 48.4	45.0	44.9	51.2
Sanchez Drive – SR-134 EB On-Ramp w/o																																		
Existing Traffic AM		2	0	8,248	60	35	0	0	1.8%	0.7%	69.7	##### #	#### 792	130	51	7	2	11	5 7	74.2 8	80.8	34.5	1.5 69	9.8 5	9.6 59	.3 70).5 66	8 52.	.0 49.	1 67.0	J 53.6	50.2	50.1	56.4
Existing Traffic PM		2	0	6,784	60	35	0	0	1.8%	0.7%	68.8	#####	862 651	107	42	6	1	9	4 7	74.2 8	80.8	34.5	1.5 68	3.9 5	8.8 58	.5 69	.7 66	0 51.	2 48	3 66.2	2 52.8	49.3	49.2	55.5
Existing Traffic + Project AM		2	0	8,256	60	35	0	0	1.8%	0.7%	69.7	##### #	#### 793	130	51	8	2	11	5 7	74.2 8	80.8	34.5	1.5 69	9.8 5	9.6 59	.3 70).5 66	8 52.	.0 49	2 67.0	J 53.6	50.2	50.1	56.4
Existing Traffic + Project PM		2	0	6,816	60	35	0	0	1.8%	0.7%	68.8	#####	866 654	107	43	6	1	9	4 7	74.2 8	80.8	34.5	1.5 69	9.0 5	8.8 58	.5 69).7 66	0 51.	.2 48.	3 66.2	2 52.8	49.3	49.2	55.6
Future Cumulative Baseline AM		2	0	9,376	60	35	0	0	1.8%	0.7%	70.2	##### #	#### 900	148	58	9	2	13	5 7	74.2 8	80.8	34.5	1.5 70	0.4 6	0.2 59	.9 71	.1 67	4 52.	.6 49.	7 67.6	3 54.2	50.7	50.6	56.9
Future Cumulative Baseline PM		2	0	7,704	60	35	0	0	1.8%	0.7%	69.4	##### 9	978 740	121	48	7	2	10	4 7	74.2 8	80.8	34.5	1.5 69	9.5 5	9.3 59	.0 70).2 66	5 51.	.7 48.	9 66.7	/ 53.3	49.9	49.8	3 56.1
Future Cumulative + Project AM		2	0	9,384	60	35	0	0	1.8%	0.7%	70.2	##### #	#### 901	148	59	9	2	13	5 7	74.2 8	80.8	34.5	1.5 70	0.4 6	0.2 59	.9 71	.1 67	4 52.	.6 49.	7 67.6	3 54.2	50.7	50.6	57.0
Future Cumulative + Project PM		2	0	7,736	60	35	0	0	1.8%	0.7%	69.4	#####	982 743	122	48	7	2	10	4 7	74.2 8	80.8	34.5	1.5 69	9.5 5	9.3 59	.0 70).3 66.	5 51.	.8 48.	9 66.7	/ 53.3	49.9	49.8	56.1
 Alpha Factor: Coefficient of absorption relating site such as aspalt. An alpha factor of 0.5 indicate 							teisan a	coustical	ily "hard"																									
Assumed 24-Hour Traffic Distribution:		Dav	Evening	Niaht																														
Total ADT Volumes			12.70%	9.60%																														
Medium-Duty Trucks			5.05%	7.52%																														
Heavy-Duty Trucks				8.06%																														
neavy-buty mucks		09.10%	2.04%	0.00%																														

Total AD E Volumes	77.70%	12.70%	9.60
Medium-Duty Trucks	87.43%	5.05%	7.52
Heavy-Duty Trucks	89.10%	2.84%	8.06

Project Name: Long Beach Riverpark					ſ	rev. (D	ate)					If Peak Hour = 6% of ADT, Scaling Factor	= 16.667				
AM Peak Hour and PM Peak Hour												If Peak Hour = 7% of ADT, Scaling Factor	= 14.286				
												If Peak Hour = 8% of ADT, Scaling Factor	= 12.5				
Intersection:	3											If Peak Hour = 9% of ADT, Scaling Factor	= 11.111				
Brand Boulevard / Doran Street												If Peak Hour = 10% of ADT, Scaling Factor	r = 10				
														ADT			
				Brand Bouleva	ď							Road	Brand E	Boulevard	Doran	Street	
				Southbound								Leg	North of	South of	East of	West of	
						through						Cross Street	Dorar	n Street	Brand B	oulevard	
				Existing Traffic AM		941						Existing Traffic AM	19,288.0	13,120.0	7,416.0	6,480.0	
				Existing Traffic PM		898						Existing Traffic PM	21,016.0	16,272.0	8,000.0	8,424.0	
				Existing Traffic + Project AM		941						Existing Traffic + Project AM	19,448.0	13,224.0	8,072.0	6,648.0	
				Existing Traffic + Project PM		898	189					Existing Traffic + Project PM	21,400.0	16,392.0	8,768.0	8,656.0	
				Future Cumulative Baseline AM		1,062						Future Cumulative Baseline AM	22,784.0	15,920.0	8,240.0	8,672.0	
				Future Cumulative Baseline PM		1,065						Future Cumulative Baseline PM	25,128.0	19,752.0	8,936.0	11,304.0	
Eastbound				Future Cumulative + Project AM		1,062		Westbound				Future Cumulative + Project AM	22,944.0	16,024.0	8,896.0	8,840.0	
	left	through		Future Cumulative + Project PM		1,065				through		Future Cumulative + Project PM	25,512.0	19,872.0	9,704.0	11,536.0	
Existing Traffic AM	77	116		Net New Project Trips AM	0	0	5	Existing Traffic AM	203		46						
Existing Traffic PM	279	270		Net New Project Trips PM	0	0	18	Existing Traffic PM	263		47						
S Existing Traffic + Project AM	70	127			N			Existing Traffic + Project AM	232		56						
Existing Traffic + Project PM	278	287		W		E		Existing Traffic + Project PM	295		52						
Future Cumulative Baseline AM	125	134			S			Future Cumulative Baseline AM	222		51						
Future Cumulative Baseline PM	369	307						Future Cumulative Baseline PM	286								
Future Cumulative + Project AM	118	145						Future Cumulative + Project AM	251	226	61						
Future Cumulative + Project PM	368	324	174	Northbound			right	Future Cumulative + Project PM	318		57						
Net New Project Trips AM	-7	11	0	Existing Traffic AM	42	through 512		Net New Project Trips AM Net New Project Trips PM	29	17	10						
Net New Project Trips PM	-1	17	0	Existing Traffic AM Existing Traffic PM	42 52		39 38	Net New Project Trips PM	32	13	5						
				Existing Traffic PM Existing Traffic + Project AM	42				-								
				Existing Traffic + Project AM	42 52		49		-								
	-			Future Cumulative Baseline AM		643			-								
	+			Future Cumulative Baseline AM Future Cumulative Baseline PM		1.025			+						+		
	+			Future Cumulative Baseline PM Future Cumulative + Project AM		636			+						+		
	+	+		Future Cumulative + Project AM		1.024		1	+					1	1		1
	1			Net New Project Trips AM	0	-7	10		1								
	-			Net New Project Trips PM	0	-7	11			1							
				Not new Floject hips Flw	0												
	1			1	1	+			1								
	1	1	1		1	1	1		1	1			1		1		1

ROADWAY NAME			Median	ADT		Dist. from Center tr		Barrier Attn	Medium		dB(A)							T 117								Total				Total A				
ROADWAY NAME Segment	Land Use	Lanes	Width	Volume		Center tc . ReceptorFa				Trucks		Day Ev	ve Night M	DIN	HIG	MIe F	lle M	IIn HI	ΠA	MI	ні	Adj	A	MI	ні	lotal	A	MI	аг	I otal /	A I	A I	ні	
Brand Boulevard n/o Doran Street	Laid Use	Laites	widen	Volume	(mpn)	Receptorra		UB(A)	TTUCKS	TTUCKS	UNEL	-																						
Existing Traffic AM		5	17	19.288	25	452	0	0	1.8%	0.7%	53.9			304	120	18	4	26 1			4 70 7		~	10.0		54.4			00.7		05.0			
Existing Traffic PM		5	17	19,288	25 25	452	0	0	1.8%	0.7%	53.9 54.3	*****		304 331	120			20 1 28 1								5 54.4 2 54.8								
Existing Traffic + Project AM		5	17	19.448	25	452	0	0	1.8%	0.7%	53.9				121			20 I 26 I								54.4								
Existing Traffic + Project AM Existing Traffic + Project PM		5	17	21 400	25	452	0	0	1.8%	0.7%	54.3			337	133	19		20 I 29 1								54.8								
Existing Trainc + Project PM Future Cumulative Baseline AM		5	17	21,400	25	452	0	0	1.8%	0.7%	54.5															5 55.1								
Future Cumulative Baseline PM		5	17	25,128	25	452	0	0	1.8%	0.7%	55.0				192	23		34 1								55.5								
Future Cumulative Baseline PM Future Cumulative + Project AM		5	17	25,128	25 25	452	0	0	1.8%	0.7%	55.0 54.6		****													55.2								
Future Cumulative + Project AM		5	17	25,512	25	452	0	0	1.8%	0.7%	55.1		*****													55.6								
Future Cumulative + Project PM		5	17	25,512	25	452	U	U	1.8%	0.7%	55.1	******	****	401	159	23	5	35 1	\$ 59	4 71	.1 /8./	-9.6	52.0	47.4	51.1	0.00	49.6	39.8	40.9	50.5	30.4	38.0	41.6	8
Brand Boulevard s/o Doran Street																																		
Existing Traffic AM	_	6	9	13,120	25	403	0	0	1.8%	0.7%	52.7		****		82			18 7								53.2								
Existing Traffic PM		6	9	16,272	25	403	0	0	1.8%	0.7%	53.7	##### ##	****					22 9								54.2								
Existing Traffic + Project AM		6	9	13,224	25	403	0	0	1.8%	0.7%	52.7	##### ##		208	82	12		18 7								53.3								
Existing Traffic + Project PM		6	9	16,392	25	403	0	0	1.8%	0.7%	53.7		****					22 9								54.2								
Future Cumulative Baseline AM		6	9	15,920	25	403	0	0	1.8%	0.7%	53.6		****		99			22 9								5 54.1								
Future Cumulative Baseline PM		6	9	19,752	25	403	0	0	1.8%	0.7%	54.5		****		123			27 1								55.0								
Future Cumulative + Project AM		6	9	16,024	25	403	0	0	1.8%	0.7%	53.6		****													5 54.1								
Future Cumulative + Project PM		6	9	19,872	25	403	0	0	1.8%	0.7%	54.5	*****	****	313	124	18	4	27 1	1 59	4 71	.1 78.7	7 -9.1	52.0	46.8	50.5	5 55.0	49.0	39.3	40.3	50.0	35.8	37.4	41.2	2
Doran Street e/o Brand Boulevard																																		
Existing Traffic AM		4	0	7,416	35	220	0	0	1.8%	0.7%	55.5	#### 9	42 712	117	46	7	1	10 4	65	1 74	.8 80.0	-6.5	54.6	47.5	48.7	56.2	51.6	39.9	38.5	52.1	38.4	38.0	39.4	.4
Existing Traffic PM		4	0	8,000	35	220	0	0	1.8%	0.7%	55.8	##### ##	### 768	126	50	7	2	11 3	65	1 74	.8 80.0	-6.5	54.9	47.8	49.0	56.5	51.9	40.2	38.8	52.4	38.7	38.3	39.8	.8
Existing Traffic + Project AM		4	0	8,072	35	220	0	0	1.8%	0.7%	55.8	##### ##	### 775	127	50	7	2	11 3	65	1 74	.8 80.0	-6.5	54.9	47.8	49.0	56.5	51.9	40.2	38.9	52.4	38.8	38.4	39.8	.8
Existing Traffic + Project PM		4	0	8,768	35	220	0	0	1.8%	0.7%	56.2	##### ##	### 842	138	55	8	2	12 5	65	1 74	.8 80.0	-6.5	55.3	48.2	49.4	56.9	52.3	40.6	39.2	52.8	39.1	38.7	40.2	.2
Future Cumulative Baseline AM		4	0	8,240	35	220	0	0	1.8%	0.7%	55.9	##### ##	### 791	130	51	7	2	11 3	65	1 74	8 80.0	-6.5	55.0	47.9	49.1	56.6	52.0	40.3	39.0	52.5	38.8	38.5	39.9	.9
Future Cumulative Baseline PM		4	0	8,936	35	220	0	0	1.8%	0.7%	56.3	##### ##	### 858	141	56	8	2	12 4	65	1 74	8 80.0	-6.5	55.4	48.3	49.5	5 57.0	52.4	40.7	39.3	52.9	39.2	38.8	40.2	.2
Future Cumulative + Project AM		4	0	8,896	35	220	0	0	1.8%	0.7%	56.3	##### ##	### 854	140	55	8	2	12 5	65	1 74	.8 80.0	-6.5	55.3	48.3	49.5	5 57.0	52.4	40.7	39.3	52.8	39.2	38.8	40.2	.2
Future Cumulative + Project PM		4	0	9,704	35	220	0	0	1.8%	0.7%	56.6	****** **	### 932	153	61	9	2	13 5	65	1 74	.8 80.0	-6.5	55.7	48.6	49.8	3 57.3	52.7	41.0	39.7	53.2	39.6	39.2	40.6	.6
Doran Street w/o Brand Boulevard																																		
xisting Traffic AM		4	0	6.480	35	30	0	0	1.8%	0.7%	64.5	#### 8	23 622	102	40	6	1	9 4	65	1 74	.8 80.0	3.1	63.6	56.5	57.7	65.2	60.6	48.9	47.5	61.1	47.4	47.0	48.5	.5
Existing Traffic PM		4	ō	8,424	35	30	ō	ō	1.8%	0.7%	65.6	##### ##		133	53	8	2	11 8								3 66.3								
Existing Traffic + Project AM		4	ò	6.648	35	30	0	0	1.8%	0.7%	64.6	#### 8	44 638	105	41	6	1	9 4	65	1 74	8 80.0	3.1	63.7	56.6	57.8	65.3	60.7	49.0	47.6	61.2	47.5	47.1	48.6	.6
Existing Traffic + Project PM		4	ō	8.656	35	30	ō	ō	1.8%	0.7%	65.8	##### ##		136	54	8	2	12 5								66.5								
Future Cumulative Baseline AM		4	ō	8.672	35	30	ō	ō	1.8%	0.7%	65.8	##### ##	### 833	136	54	8		12								66.5								
Future Cumulative Baseline PM		4	ő	11.304	35	30	ő	ő	1.8%	0.7%	66.9			178	71	10		15 6			.8 80.0					67.6								
Future Cumulative + Project AM		4	ő	8.840	35	30	ŏ	ő	1.8%	0.7%	65.9			139	55	8		12 1								66.6								
Future Cumulative + Project PM	-	4	ő	11.536	35	30	ő	ő	1.8%	0.7%			****					16 7								2 67.7								
							-				07.0			102	.2		-		00			, ,,,,	50.1	00.0	50.2	07.7	00.1	01.4	00.0	00.0	-0.0	-0.0	01.0	Ŭ
 Alpha Factor: Coefficient of absorption rel 						at the site is	an acous	stically "	hard" site																									
such as aspalt. An alpha factor of 0.5 indicate	s that the site is an accustica	lly "soft" site sud	n as vegeta	tive ground	cover.																													

 Assumed 24-Hour Treffic Distribution:
 Day
 Evening
 Night

 Totel ADT Volumes
 77.70%
 12.70%
 9.0%

 weitum-Duty Trutos
 87.4%
 50.5%
 7.52%

 Heavy-Duty Trutos
 89.10%
 2.84%
 8.05%

Project Name: Long Beach Riverpark						rev. (Da	ate)					If Peak Hour = 6% of ADT, Scaling Factor	= 16.667				
AM Peak Hour and PM Peak Hour							T I					If Peak Hour = 7% of ADT, Scaling Factor	= 14.286				
												If Peak Hour = 8% of ADT. Scaling Factor					
Intersection:	4											If Peak Hour = 9% of ADT, Scaling Factor	= 11.111				
Maryland Avenue / Doran Street												If Peak Hour = 10% of ADT, Scaling Factor	er = 10				
														ADT			
				Maryland Avenu	e							Road	Marylan	d Avenue	Doran	Street	
				Southbound								Leg	North of	South of	East of	West of	
					right	through	n <u>left</u>					Cross Street	Dorar	Street	Marylan	d Avenue	
				Existing Traffic AM	55	107	4					Existing Traffic AM	1,808.0	4,488.0	4,512.0	6,824.0	
				Existing Traffic PM	90		20					Existing Traffic PM	3,032.0	5,800.0	6,872.0	8,056.0	
				Existing Traffic + Project AM	111		8					Existing Traffic + Project AM	2,544.0	4,528.0	4,552.0	7,480.0	
				Existing Traffic + Project PM	141		22					Existing Traffic + Project PM	3,896.0	5,848.0	6,920.0	8,824.0	
				Future Cumulative Baseline AM	60		4					Future Cumulative Baseline AM	1,960.0	4,864.0	5,104.0	7,608.0	
				Future Cumulative Baseline PM	97		22					Future Cumulative Baseline PM	3,280.0	6,280.0	7,728.0	9,000.0	
Eastbound				Future Cumulative + Project AM	116		8	Westbound				Future Cumulative + Project AM	2,696.0	4,904.0	5,144.0	8,264.0	
	left	through		Future Cumulative + Project PM	148		24		right	through		Future Cumulative + Project PM	4,144.0	6,328.0	7,776.0	9,768.0	
Existing Traffic AM	39	104		Net New Project Trips AM	56		4	Existing Traffic AM	7	332							
Existing Traffic PM	51	361	77	Net New Project Trips PM	51	2	2	Existing Traffic PM	14	224	35						
8 Existing Traffic + Project AM	65	104			N			Existing Traffic + Project AM	8	332	81						
Existing Traffic + Project PM	96	361	77	W		E		Existing Traffic + Project PM	18	224	35						
Future Cumulative Baseline AM	42	122	315		S			Future Cumulative Baseline AM	8	377	88						
Future Cumulative Baseline PM	55	409	83					Future Cumulative Baseline PM	15		38						
Future Cumulative + Project AM	68	122	315					Future Cumulative + Project AM	9	377	88						
Future Cumulative + Project PM	100	409	83	Northbound				Future Cumulative + Project PM	19	260	38						
Net New Project Trips AM	26	0	0			through		Net New Project Trips AM	1	0	0						
Net New Project Trips PM	45	0	0	Existing Traffic AM	32		36	Net New Project Trips PM	4	0	0						
				Existing Traffic PM	204		205										
				Existing Traffic + Project AM	32		36										
				Existing Traffic + Project PM	204												
	_			Future Cumulative Baseline AM	35		39		_		I						
_	-			Future Cumulative Baseline PM	221				-	-			-				
	-			Future Cumulative + Project AM	35		39										
	_			Future Cumulative + Project PM		131			_		I						
	-			Net New Project Trips AM	0		0		-	-			-				
	-			Net New Project Trips PM	0	4	0										
	_								_								
						1	1										

												- Traffic	Volum	165						Ref.	Energ	iv Leve	Dist	Ld				Le			Li	n			
					Design	Dist. from	1	Barrier	Vehicl	e Mix																									
ROADWAY NAME			Median	ADT		Center to			Medium			Day B	Eve N	light M1	TH b	d M	Te H	Te MT	n HTr	۱A	MT	HT	Adj	А	MT	HT	Total	А	MT I	HT 1	Total A	ι Μ	τн	нт т	Total
Segment	Land Use	Lanes	Width	Volume	(mph)	ReceptorF	Factor (1	dB(A)	Trucks	Trucks	CNEL																								
M aryland Avenue n/o Doran Street																																			
Existing Traffic AM		2	0	1,808	25	172	0	0	1.8%	0.7%	47.8			174 2				0 2													43.2 2				
Existing Traffic PM		2	0	3,032	25	172	0	0	1.8%	0.7%	50.0	#####	385 3	291 4	8 1	9 3	3	1 4	2	59.4	4 71.	1 78.7	-5.4	47.5	5 42.	4 46.0	50.5	44.5	34.8	35.8	45.5 3	31.3 3	2.9 3	36.8	39.1
Existing Traffic + Project AM		2	0	2,544	25	172	0	0	1.8%	0.7%	49.3			244 4			2	1 3													44.7 3				
Existing Traffic + Project PM		2	0	3,896	25	172	0	0	1.8%	0.7%	51.1	#####	495 3	374 6	1 2	4 4	4	1 5	2	59.4	4 71.	1 78.7	-5.4	48.6	5 43.	4 47.1	51.6	45.6	35.9	36.9	46.6 3	12.4 3/	4.0 3	37.8	40.1
Future Cumulative Baseline AM		2	0	1,960	25	172	0	0	1.8%	0.7%	48.1	#####	249	188 3	1 1	2 3	2	0 3	1	59.4	4 71.	1 78.7	-5.4	45.6	6 40.	5 44.1	48.7	42.6	32.9	33.9	43.6 2	29.5 3	1.0 3	34.9 3	37.2
Future Cumulative Baseline PM		2	0	3,280	25	172	0	0	1.8%	0.7%	50.4	#####	417 3	315 5	2 2	0	3	1 4	2	59.4	4 71.	1 78.7	-5.4	47.9	42.	7 46.3	50.9	44.9	35.1	36.2	45.8 3	31.7 3	3.2 3	37.1	39.4
Future Cumulative + Project AM		2	0	2,696	25	172	0	0	1.8%	0.7%	49.5	#####	342 3	259 4	2 1	7	2	1 4	2	59.4	4 71.	1 78.7	-5.4	47.0	0 41.3	B 45.5	50.0	44.0	34.3	35.3	45.0 3	30.8 3	2.4 3	36.2	38.5
Future Cumulative + Project PM		2	0	4,144	25	172	0	0	1.8%	0.7%	51.4	#####	526	398 6	5 2	6	4	1 6	2	59.4	4 71.	1 78.7	-5.4	48.9	43.	7 47.3	51.9	45.9	36.1	37.2	46.8 3	12.7 3	4.3 3	38.1 4	40.4
Maryland Avenue s/o Doran Street																																			
Existing Traffic AM		2	0	4,488	25	30	0	0	1.8%	0.7%								1 6													54.8 4				
Existing Traffic PM		2	0	5,800	25	30	0	0	1.8%	0.7%	60.5			557 9		6	5	1 8	-												56.0 4				
Existing Traffic + Project AM		2	0	4,528	25	30	0	0	1.8%	0.7%	59.4			435 7			-	1 6													54.9 4				
Existing Traffic + Project PM		2	0	5,848	25	30	0	0	1.8%	0.7%	60.6			561 9			5	1 8													56.0 4				
Future Cumulative Baseline AM		2	0	4,864	25	30	0	0	1.8%	0.7%	59.8			467 7		0 4	4	1 7													55.2 4				
Future Cumulative Baseline PM		2	0	6,280	25	30	0	0	1.8%	0.7%	60.9			603 9		9 (6	1 9													56.3 4				
Future Cumulative + Project AM		2	0	4,904	25	30	0	0	1.8%	0.7%	59.8			471 7				1 7	3												55.2 4				
Future Cumulative + Project PM		2	0	6,328	25	30	0	0	1.8%	0.7%	60.9	#####	804 (607 10	00 3	19 (6	1 9	4	59.4	4 71.	1 78.7	2.2	58.4	53.:	2 56.9	61.4	55.4	45.6	46.7	56.3 4	12.2 43	3.8 4	47.6	49.9
Doran Street e/o Maryland Avenue																																			
Existing Traffic AM		2	0	4,512	25	30	0	0	1.8%	0.7%	59.4	#####	573	433 7	1 2	8 4	4	1 6	3	59.4	4 71.	1 78.7	2.2	56.9	51.	B 55.4	59.9	53.9	44.2	45.2	54.9 4	0.7 4	2.3 4	46.2	48.5
Existing Traffic PM		2	0	6,872	25	30	0	0	1.8%	0.7%	61.3		873 (660 10	08 4	3 (6	1 9	4	59.4	4 71.	1 78.7	2.2	58.7	53.	6 57.2	61.8	55.8	46.0	47.0	56.7 4	2.6 4	4.1 4	48.0	50.3
Existing Traffic + Project AM		2	0	4,552	25	30	0	0	1.8%	0.7%	59.5	#####	578	437 7	2 2	8 4	4	1 6	3	59.4	4 71.	1 78.7	2.2	57.0	51.	B 55.4	60.0	54.0	44.2	45.3	54.9 4	10.8 4	2.3 4	46.2	48.5
Existing Traffic + Project PM		2	0	6,920	25	30	0	0	1.8%	0.7%	61.3	#####	879 (664 10	9 4	3 (6	1 9	4	59.4	4 71.	1 78.7	2.2	58.8	3 53.	6 57.2	61.8	55.8	46.0	47.1	56.7 4	2.6 4	4.2 4	48.0	50.3
Future Cumulative Baseline AM		2	0	5,104	25	30	0	0	1.8%	0.7%	60.0			490 8				1 7	3												55.4 4				
Future Cumulative Baseline PM		2	0	7,728	25	30	0	0	1.8%	0.7%		#####		742 12				2 10													57.2 4				
Future Cumulative + Project AM		2	0	5,144	25	30	0	0	1.8%	0.7%	60.0			494 8			5	1 7													55.4 4				
Future Cumulative + Project PM		2	0	7,776	25	30	0	0	1.8%	0.7%	61.8	#####	988	746 12	22 4	8	7	2 11	4	59.4	4 71.	1 78.7	2.2	59.3	3 54.	1 57.8	62.3	56.3	46.5	47.6	57.2 4	3.1 4	4.7 4	48.5	50.8
Doran Street w/o M aryland Avenue																																			
Existing Traffic AM		4	0	6,824	25	100	0	0	1.8%	0.7%				655 10				1 9													51.4 3				
Existing Traffic PM		4	0	8,056	25	100	0	0	1.8%	0.7%	56.7			773 12		i0 :	7	2 11													52.1 3				
Existing Traffic + Project AM		4	0	7,480	25	100	0	0	1.8%	0.7%	56.4			718 11		7	7	1 10													51.8 3				
Existing Traffic + Project PM		4	0	8,824	25	100	0	0	1.8%	0.7%	07.1			847 13		i5 I		2 12													52.5 3				
Future Cumulative Baseline AM		4	0	7,608	25	100	0	0	1.8%	0.7%	56.5			730 12		7		2 10													51.9 3				
Future Cumulative Baseline PM		4	0	9,000	25	100	0	0	1.8%	0.7%		#####		864 14				2 12													52.6 3				
Future Cumulative + Project AM		4	0	8,264	25	100	0	0	1.8%	0.7%								2 11													52.3 3				
Future Cumulative + Project PM		4	0	9,768	25	100	0	0	1.8%	0.7%	57.5	#####	#####	938 15	54 6	11	9	2 13	8 6	59.4	4 71.	1 78.7	-3.0	55.0) 49.	9 53.5	5 58.1	52.0	42.3	43.3	53.0 3	18.9 40	0.4 4	44.3	46.6
 Alpha Factor: Coefficient of absorption re site such as aspalt. An alpha factor of 0.5 ind 							te is an a	coustical	ily "hard"																										
Assumed 24-Hour Traffic Distribution:		Dav	Evening	Night																															
Total ADT Volumes			12.70%																																
Medium-Duty Trucks																																			

 Total AUT Volumes
 17.10% 12.10% 15.00%

 Medium-Duty Trucks
 87.43% 5.05%
 7.52%

 Heavy-Duty Trucks
 89.10% 2.84%
 8.06%

Project Name: Long Beach Riverpark						rev. (D	ate)						If Peak Hour = 6% of ADT, Scaling Factor	r = 16.667				
AM Peak Hour and PM Peak Hour													If Peak Hour = 7% of ADT, Scaling Factor	r = 14.286				
													If Peak Hour = 8% of ADT, Scaling Facto	r = 12.5				
Intersection:	5												If Peak Hour = 9% of ADT, Scaling Factor	r = 11.111				
Louise Street / Maryland Place													If Peak Hour = 10% of ADT, Scaling Factor	or = 10				
															ADT			
				Louise Street	t								Road	Louise	e Street	Maryla	nd Place	
				Southbound									Leg	North of	South of	East of	West of	
					right	throug	h <u>left</u>						Cross Street	Maryla	nd Place	Louis	e Street	
				Existing Traffic AM	183	305	0						Existing Traffic AM	5,568.0	4,224.0	0.0	1,824.0	
				Existing Traffic PM	92								Existing Traffic PM	8,400.0	6,960.0	0.0	2,240.0	
				Existing Traffic + Project AM	186		0						Existing Traffic + Project AM	5,640.0	4,224.0	0.0	1,896.0	
				Existing Traffic + Project PM	104		0						Existing Traffic + Project PM	8,520.0	6,960.0	0.0	2,360.0	
				Future Cumulative Baseline AM	198								Future Cumulative Baseline AM	6,088.0	4,632.0	0.0	1,968.0	
				Future Cumulative Baseline PM	100								Future Cumulative Baseline PM	9,176.0	7,616.0	0.0	2,424.0	
Eastbound				Future Cumulative + Project AM	201		0	Westbound					Future Cumulative + Project AM	6,160.0	4,632.0	0.0	2,040.0	
	left	throug	h right	Future Cumulative + Project PM	112	438	0		righ	t throug			Future Cumulative + Project PM	9,296.0	7,616.0	0.0	2,544.0	
8 Existing Traffic AM	15	0	16	Net New Project Trips AM	3	0	0	Existing Traffic AM	0	0	0							
Existing Traffic PM	138	0	32	Net New Project Trips PM	12	0	0	Existing Traffic PM	0	0	0							
Existing Traffic + Project AM	21	0	16		N			Existing Traffic + Project AM	0	0	0							
Existing Traffic + Project PM	141	0	32	V	•	E		Existing Traffic + Project PM	0	0	0							
Future Cumulative Baseline AM	16	0	17		S			Future Cumulative Baseline AM	0	0	0							
Future Cumulative Baseline PM	149							Future Cumulative Baseline PM	0		0							
Future Cumulative + Project AM	22	0	17					Future Cumulative + Project AM	0	0	0							
Future Cumulative + Project PM	152	0	35	Northbound				Future Cumulative + Project PM	0		0							
Net New Project Trips AM	6	0	0			throug		Net New Project Trips AM	0		0							
Net New Project Trips PM	3	0	0	Existing Traffic AM	14			Net New Project Trips PM	0	0	0							
				Existing Traffic PM	18		0											
				Existing Traffic + Project AM	14													
		1		Existing Traffic + Project PM	18		0											
		1		Future Cumulative Baseline AM	15				-									
		1		Future Cumulative Baseline PM	19				-									
	_			Future Cumulative + Project AM		213				+		_						
	_	+		Future Cumulative + Project PM	19				-	_		_		_				
		1		Net New Project Trips AM	0	-	0		-									
	-	1		Net New Project Trips PM	0	0	0		-									
	_	+							+	_		_		_				
		1										1						

												Traffic	Volume	6						Ref. I	Energy	y Level	Dist	Ld			L	Le			Ln				
					Design	Dist. from			Vehicl																										
ROADWAY NAME			Median	ADT		Center to			Medium			Day E	Eve Ni	aht MT	d HT	d MT	e HT	e MTn	HTn	Α	MT	HT	Adj	А	MT	HT	Total A	4	MT H	IT T	otal A	MT	E H	Total	l.
Segment	Land Use	Lanes	Width	Volume	(mph)	ReceptorF	actor (1	dB(A)	Trucks	Trucks	CNEL																								
Louise Street n/o M aryland Place												T																							
Existing Traffic AM		2	0	5,568	25	156	0	0	1.8%	0.7%	53.1			35 88			1	8	3															9.8 42.1	
Existing Traffic PM		2	0	8,400	25	156	0	0	1.8%	0.7%	54.9	##### #	¥#### 8I	06 13			2	11	5	59.4	71.1	1 78.7	-5.0	52.4	47.2	50.8	55.4	49.4	39.6 4	40.7 5	50.3 36	i.2 37	.8 4	1.6 43.9	3
Existing Traffic + Project AM		2	0	5,640	25	156	0	0	1.8%	0.7%		#####					1	8	3															9.9 42.2	
Existing Traffic + Project PM		2	0	8,520	25	156	0	0	1.8%	0.7%	54.9	##### #	¥#### 8	18 13	4 53	38	2	12	5	59.4	71.1	1 78.7	-5.0	52.4	47.3	50.9	55.5	49.5	39.7 4	40.7 5	50.4 36	i.3 37	.8 4	1.7 44.0	J
Future Cumulative Baseline AM		2	0	6,088	25	156	0	0	1.8%	0.7%	53.5	#####	773 5	84 96	5 38	36	1	8	3	59.4	71.1	1 78.7	-5.0	51.0	45.8	49.4	54.0	48.0	38.2 3	39.3 4	18.9 34	.8 36	4 4).2 42.5	5
Future Cumulative Baseline PM		2	0	9,176	25	156	0	0	1.8%	0.7%	55.3	##### #	#### 81	B1 14	4 57	78	2	12	5	59.4	71.1	1 78.7	-5.0	52.8	3 47.6	51.2	2 55.8	49.8	40.0 4	41.1 5	50.7 36	6 38، 6،	1 4	2.0 44.3	3
Future Cumulative + Project AM		2	0	6,160	25	156	0	0	1.8%	0.7%	53.5	#####	782 5	91 97	7 38	36	1	8	3	59.4	71.1	1 78.7	-5.0	51.0	45.9	49.5	54.1	48.0	38.3	39.3 4	19.0 34	.8 36	4 4	0.3 42.6	3
Future Cumulative + Project PM		2	0	9,296	25	156	0	0	1.8%	0.7%	55.3	##### #	#### 8!	92 14	6 58	8 8	2	13	5	59.4	71.1	1 78.7	-5.0	52.8	3 47.6	51.3	55.8	49.8	40.1 4	11.1 5	50.8 36	i.6 38.	.2 4	2.0 44.3	5
Louise Street s/o M aryland Place																																			
Existing Traffic AM		2	0	4,224	25	32	0	0	1.8%	0.7%	58.9	#####	536 4	06 66	6 26	54	1	6	2	59.4	71.1	1 78.7	1.9	56.3	3 51.2	54.8	59.4	53.4	43.6 4	44.6 5	54.3 40	1.2 41	.7 4	5.6 47.9	3
Existing Traffic PM		2	0	6,960	25	32	0	0	1.8%	0.7%	61.0	#####	884 6	58 11	0 43	36	1	9	4	59.4	71.1	1 78.7	1.9	58.5	5 53.3	57.0	61.5	55.5	45.8 4	46.8 5	56.5 42	43 43	.9 4	7.7 50.0	J
Existing Traffic + Project AM		2	0	4,224	25	32	0	0	1.8%	0.7%	58.9	#####	536 4	06 66	5 26	54	1	6	2	59.4	71.1	1 78.7	1.9	56.3	3 51.2	54.8	59.4	53.4	43.6 4	44.6 5	54.3 40	J.2 41	.7 4	5.6 47.9	3
Existing Traffic + Project PM		2	0	6,960	25	32	0	0	1.8%	0.7%	61.0	#####	884 6	68 11	0 43	36	1	9	4	59.4	71.1	1 78.7	1.9	58.5	5 53.3	57.0	61.5	55.5	45.8 4	46.8 5	56.5 42	43 43	.9 4	7.7 50.0)
Future Cumulative Baseline AM		2	0	4,632	25	32	0	0	1.8%	0.7%	59.3	#####	588 4	45 73	3 29	94	1	6	3	59.4	71.1	1 78.7	1.9	56.7	51.6	55.2	2 59.8	53.8	44.0 4	45.0 5	54.7 40	J.6 42	1 4	3.0 48.3	3
Future Cumulative Baseline PM		2	0	7,616	25	32	0	0	1.8%	0.7%	61.4	#####	967 73	31 12	0 48	37	2	10	4	59.4	71.1	1 78.7	1.9	58.9	53.7	57.4	61.9	55.9	46.2 4	47.2 5	56.9 42	27 44	.3 4	3.1 50.4	1
Future Cumulative + Project AM		2	0	4,632	25	32	0	0	1.8%	0.7%	59.3	#####	588 4	45 73	3 29	94	1	6	3	59.4	71.1	1 78.7	1.9	56.7	7 51.6	55.2	2 59.8	53.8	44.0 4	45.0 5	54.7 40	J.6 42	1 4	5.0 48.3	3
Future Cumulative + Project PM		2	0	7,616	25	32	0	0	1.8%	0.7%	61.4	#####	967 7	31 12	0 48	87	2	10	4	59.4	71.1	1 78.7	1.9	58.9	53.7	57.4	61.9	55.9	46.2 4	17.2 5	56.9 42	17 44.	.3 4	3.1 50.4	ŧ.
M aryland Place e/o Louise Street																																			
Existing Traffic AM		0	0	0	0	0	0	0	1.8%	0.7%	#NUM	! 0	0 () O	0	0	0	0	0	#####	; ;;;;;;	# ####	ŧ ####	ŧ ####	# ####	+ ####	¥ ##### :	#####	##### #	##### #		## ###	## ##		#
Existing Traffic PM		0	0	0	0	0	0	0	1.8%	0.7%	#NUM	! 0	0 () O	0	0	0	0	0	#####	; ;;;;;;	# ####	* ####	ŧ ####	# ####	+ ####	¥ ##### :	#####	##### #	##### #		## ###	## ##		#
Existing Traffic + Project AM		0	0	0	0	0	0	0	1.8%	0.7%	#NUM	! 0	0 (D 0	0	0	0	0	0	#####	ŧ #####	# ####	# ####	ŧ ####	# ####	ŧ ####	¥ ##### :	#####	##### #	##### #	***	## ###	## ##	****	,#
Existing Traffic + Project PM		0	0	0	0	0	0	0	1.8%	0.7%	#NUM	! 0	0 0	D O	0	0	0	0	0	####	ŧ #####	# ####	ŧ ####	ŧ ####	# ###	ŧ #####	¥ ##### :	#####	##### #	#### #	****	## ###	## ##	·/// /////k	,#
Future Cumulative Baseline AM		0	0	0	0	0	0	0	1.8%	0.7%	#NUM	! 0	0 (D 0	0	0	0	0	0	#####	ŧ #####	# ####	ŧ ####	ŧ ####	# ####	ŧ #####	¥ ##### ;	#####	##### #	##### #	****	## ###	## ##	****	,#
Future Cumulative Baseline PM		0	0	0	0	0	0	0	1.8%	0.7%	#NUM	! 0	0 (D 0	0	0	0	0	0	#####	ŧ #####	# ####	ŧ ####	ŧ ####	# ####	ŧ ####	¥ ##### ;	#####	##### #	##### #	***	## ###	## ##	****	#
Future Cumulative + Project AM		0	0	0	0	0	0	0	1.8%	0.7%	#NUM	! 0	0 0	D O	0	0	0	0	0	#####	ŧ #####	# ####	ŧ ####	ŧ ####	# ###h	ŧ ####	¥ ##### :	#####	##### #	##### #	***	## ###	## ##	<i>###</i>	,#
Future Cumulative + Project PM		0	0	0	0	0	0	0	1.8%	0.7%	#NUM	! 0	0	0 0	0	0	0	0	0	#####	#####	# ####	####	####	# ####	# ####	* ##### :	. ####	##### #	.#### #	****	## ###	## ##	****	ŧ
Maryland Place w/o Louise Street																																			
Existing Traffic AM		2	0	1,824	25	87	0	0	1.8%	0.7%		#####							1															7.5 39.8	
Existing Traffic PM		2	0	2,240	25	87	0	0	1.8%	0.7%	51.7			15 35			0		1															3.4 40.7	
Existing Traffic + Project AM		2	0	1,896	25	87	0	0	1.8%	0.7%		#####		32 30					1															7.7 40.0	
Existing Traffic + Project PM		2	0	2,360	25	87	0	0	1.8%	0.7%	51.9	#####					0		1															3.6 40.9	
Future Cumulative Baseline AM		2	0	1,968	25	87	0	0	1.8%	0.7%	51.1	#####	250 1	39 31	1 12	22	0	3	1	59.4	71.1	1 78.7	-2.5	48.6	6 43.4	47.1	51.6	45.6	35.9	36.9 4	16.6 32	24 34	.0 3	7.8 40.2	2
Future Cumulative Baseline PM		2	0	2,424	25	87	0	0	1.8%	0.7%	52.0	#####	308 2			52	0	3	1	59.4	71.1	1 78.7	-2.5	49.5	5 44.4	48.0	52.5	46.5	36.8 3	37.8 4	17.5 33	3.3 34	.9 3	3.8 41.1	1
Future Cumulative + Project AM		2	0	2,040	25	87	0	0	1.8%	0.7%	51.3	#####	259 1	96 32	2 13	32	0	3	1	59.4	71.1	1 78.7	-2.5	48.8	3 43.6	47.2	51.8	45.8	36.0 3	37.1 4	16.7 32	2.6 34	.2 3	3.0 40.3	3
Future Cumulative + Project PM		2	0	2,544	25	87	0	0	1.8%	0.7%	52.2	#####	323 2	44 40	0 16	62	1	3	1	59.4	71.1	1 78.7	-2.5	49.7	44.6	48.2	2 52.8	46.7	37.0 3	38.0 4	17.7 33	1.6 35	.1 3	9.0 41.3	3
(1) Alpha Factor: Coefficient of absorption r site such as aspalt. An alpha factor of 0.5 inc							eisan ao	coustical	ily "hard"																										
Assumed 24-Hour Traffic Distribution:		Day	Evening	Night																															
Total ADT Volumes		77.70%	12.70%	9.60%																															
Medium-Duty Trucks		87.43%	5.05%	7.52%																															

 Medium-Duty Trucks
 87.43%
 5.05%
 7.52%

 Heavy-Duty Trucks
 89.10%
 2.84%
 8.06%

Project Name: Long Beach	Riverpark						rev. (D	ate)					If Peak Hour = 6% of ADT, Scaling Factor	= 16.667	1			1
AM Peak Hour and PM Peal													If Peak Hour = 7% of ADT, Scaling Factor	= 14.286				
													If Peak Hour = 8% of ADT, Scaling Factor					
Intersection:		6											If Peak Hour = 9% of ADT, Scaling Factor					
Louise Street / Doran St	reet												If Peak Hour = 10% of ADT, Scaling Facto					
															ADT			
					Louise Stree	t							Road	Louise	e Street	Doran	Street	1
					Southbound								Leg	North of	South of	East of	West of	
						right	throug	h <u>left</u>					Cross Street	Dorar	n Street	Louise	Street	1
					Existing Traffic AM	48	251	36					Existing Traffic AM	4,392.0	4,448.0	4,240.0	4,584.0	
					Existing Traffic PM	38	313						Existing Traffic PM	6,824.0	5,520.0	6,416.0	6,824.0	
					Existing Traffic + Project AM	48							Existing Traffic + Project AM	4,392.0	4,440.0	4,280.0	4,616.0	
					Existing Traffic + Project PM	38							Existing Traffic + Project PM	6,824.0	5,520.0	6,464.0	6,872.0	
					Future Cumulative Baseline AM	52							Future Cumulative Baseline AM	4,816.0	4,872.0	4,808.0	5,168.0	
					Future Cumulative Baseline PM	41							Future Cumulative Baseline PM	7,472.0	6,048.0	7,232.0	7,664.0	
Eastbound					Future Cumulative + Project AM	52			Westbound				Future Cumulative + Project AM	4,816.0	4,872.0	4,848.0	5,208.0	
			through		Future Cumulative + Project PM		344				through		Future Cumulative + Project PM	7,472.0	6,048.0	7,280.0	7,712.0	
Existing Traffic AM		18	84	47	Net New Project Trips AM	0	0	0	Existing Traffic AM	50								
Existing Traffic PM		115	425	41	Net New Project Trips PM	0	0	0	Existing Traffic PM	77	192	19						
6 Existing Traffic + Project		18	88	46		N			Existing Traffic + Project AM	50								
Existing Traffic + Project		115	427	41	V	V	E		Existing Traffic + Project PM	77	196	19						
Future Cumulative Base		19	100	51		S			Future Cumulative Baseline AM	55	355	27						
Future Cumulative Base		125	478	44					Future Cumulative Baseline PM	83		21						
Future Cumulative + Pro		19	104	51					Future Cumulative + Project AM	55	356	27						_
Future Cumulative + Pro		125	480	44	Northbound				Future Cumulative + Project PM	83	229	21						_
Net New Project Trips A		0	4	0			throug		Net New Project Trips AM	0	1	0						_
Net New Project Trips P	M	0	2	0	Existing Traffic AM	64			Net New Project Trips PM	0	4	0						
					Existing Traffic PM	42												
					Existing Traffic + Project AM	64												
					Existing Traffic + Project PM	42				_								+
					Future Cumulative Baseline AM Future Cumulative Baseline PM	69	273											+
		-			Future Cumulative Baseline PM Future Cumulative + Project AM		161			+	-	-		-				+
					Future Cumulative + Project AM Future Cumulative + Project PM		273											+
		+			Net New Project Trips AM	45	2/3	29	-	+	1			-				+
					Net New Project Trips AM Net New Project Trips PM	0	0	0		-								+
					INELINEW Project HIPS PM	0	0	0		-								+
							+									+		+
		1			1	_		1		1	1		I I	1		1		1

Signer Lud Use Lud Use Lud Use Lud Use Unit Provide Provide Critical Critica													Traffic	Volume	35						Ref. E	Energy	Level	Dist	Ld			L	e			L	n			
Signer Lud Use Lud Use Lud Use Lud Use Unit Provide Provide Critical Critica																																				
Links Products Links	ROADWAY NAME												Day E	ve Ni	ight MT	d HTo	d MTe	HTe	MTn	HTn	Α	MT	HT	Adj	А	MT	ΗT	Total A	A	MT F	IT T	Total A	. M'	тн	т т	otal
Desimp Turk AM Desim Turk AM Desimp Turk AM Desimp T		Land Use	Lanes	Width	Volume	(mph)	ReceptorF	actor (1	dB(A)	Trucks	Trucks	CNEL																								
Dame Dame <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>																																				
Desire Tride + Proceed M 2 0 4.382 5 3 0 1 0 1 0 2 0 4.382 2 0 4.382 2 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 <th1< th=""> <th1< th=""> <th1< th=""> <</th1<></th1<></th1<>																		1																		
Deside 1																		1																		
During Curunity Marked Selection AMI Product Curval AMII																		1		2																
Line Curundave Baseline PM Line Curundave Pagel AM Line Curund								-	-									1	-																	
Line Curulity + Project AM C 2 0 6.86 2 30 0 1 150 C 100 100 100																		1																		
Lange Cumulative + Project PM 2 0 7.472 2 0 7.472 2 0 7.472 2 0 7.472 2 0 7.472 2 0 0.1 8.4 0.71 10 4 64.7 17.1 7.2 0 0.1 7.4 0.1 8.4 7.1 7.2 0 0.1 7.4 0.1 8.4 7.1 7.2 0 0.1 7.4 0.1 8.4 7.1 7.2 0 0.1 7.4 0.1 8.4 7.1 7.2 0.2 0.1 7.4 0.1 8.4 7.1 7.1 7.2 0.2 0.1 7.4 0.1 8.4 7.1 7.2 0.2 0.1 7.4 0.1 8.4 7.1 7.2 0.2 0.1 0.1 0.2 0.1 0.1 0.2 0.1 0.1 0.2 0.1 0.1 0.1 0.2 0.1 0.1 0.1 0.2 0.1 0.1 0.1																		1																		
Lais Strate Lob Lais Strat																		1																		
Desint Traffe M C 0 1 1 0 1	Future Cumulative + Project PM		2	0	7,472	25	30	0	0	1.8%	0.7%	61.6	#####	949 7	17 11	8 47	7 7	1	10	4	59.4	71.1	78.7	2.2	59.1	53.9	57.6	62.1	56.1	46.4	47.4	57.1 4	2.9 44	1.5 4	18.3	50.6
Desing Truthe PM Desing Truthe PM<	Louise Street s'o Doran Street																																			
Deside Lindie - Project MA 2 0 4.440 25 30 0 1.8% 0.7% 60.4 will effect 6 3 64.1 1.7 2 2.56.1 51.7 53.3 99.5 34.4 44.2 44.44 44.44 Exture Cundance Baseline PM Exture Cundance Baseline PM 2 0 5.56.2 53.0 0.0 1.8% 0.7% 60.3 www effect 68.1 73.0 64.1 73.5 59.4 71.1 73.2 25.7 85.2 13.6 85.4 14.8 2.56.3 65.2 14.42 44.44 45.4 44.44 45.4 44.44 45.4 44.44 45.4 45.6 55.1 50.3 50.4 71.1 73.5 59.4 71.1 73.5 59.4 71.1 73.5 59.4 71.1 73.5 59.4 71.1 73.5 59.4 71.1 73.5 59.4 71.1 73.5 59.4 71.1 73.5 59.4 71.1 73.5 73.	Existing Traffic AM																	1																		
Calibal Project PM				-				-	-								1 5	1		-																
Lunc Cunuality: Baseline AM Lunc Cunuality: Seating AM Lunc Cunu																	34	1	6																	
Luns Cumulative Baseline PM Luns Cumulative Project M 2 0 0.84 25 3 0 1 1 8 3 50 1 1 8 3 50 1 1 8 3 50 1 1 7 3 50 1 7 3 50 1 7 3 50 1 7 3 50 1 7 3 50 7 1 7 3 50 7 1 7 3 50 7 1 7 3 50 7 1 7 3 50 7 1 7 3 50 7 1 7 2 50 50 50 50 40 40 40 47 1 70 2 60 7 1 70 70 70 70 70 70 70 70 70 70 70 70 70 70 70 <																	1 5	1	7																	
Lune Cumulative + Project AM 2 0 6,77 2 3 0 1 7 3 50 1 7 3 50 7 1 7 2 7 5 1 7 3 50 7 1 7 2 5) 4	1																		
Laure Cumulative + Project PM 2 0 0,048 25 30 0 0 1,8% 0,7% 607 #### 788 581 65 1 8 3 50.4 71.1 78.7 2 582 50.5 76.7 67																	3 5	1																		
Construct Construct <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>																		1																		
Carsing Turific M Carsin M Carsing Turific M Ca	Future Cumulative + Project PM		2	0	6,048	25	30	0	0	1.8%	0.7%	60.7	#####	768 5	681 95	5 38	3 5	1	8	3	59.4	71.1	78.7	2.2	58.2	53.0	56.7	61.2	55.2	45.4	46.5	56.1 4	2.0 43	3.6 4	17.4	49.7
Desing Turlie PM C 0 6.416 25 30 0 1 No 0.7%	Doran Street e/o Louise Street																																			
Desimp Tuffe - Project AM 2 0 4.20 2 3 0 0 1.8% 0.7% 61.2 52 54.7 71.7 22 65.7 53.7 34.0 55.6 55.7 57.3 45.0 56.6 55.7	Existing Traffic AM		2	0	4,240	25	30	0	0	1.8%	0.7%	59.2	##### 3	538 4	07 67	26	5 4	1	6	2	59.4	71.1	78.7	2.2	56.6	51.5	55.1	59.7	53.7	43.9	45.0	54.6 4	0.5 42	2.0 4	15.9	48.2
Casing Traffs - Project PM C 0 6.64 25 30 0 1 8% 0.7% 610 #### 611 0 4 50.4 71.1 72 2 55.5 50.9 61.5 55.5 74.0 55.5 61.0 45.0 47.1 77.2 22 50.5 73.5 50.4 71.1 77.2 22 50.5 53.5 55.1 40.4 45.4 44.5 45.5 41.1 76.7 76.7 76.7 76.7 76.7 76.7 76.7 76.7 76.7 76.7 76.7 76.7 76.7 76.7 76.7 76.7 76.7	Existing Traffic PM		2	0	6,416	25	30	0	0	1.8%	0.7%	61.0	##### 3	815 6	16 10	1 40) 6	1	9	4	59.4	71.1	78.7	2.2	58.4	53.3	56.9	61.5	55.5	45.7	46.8	56.4 4	2.3 4:	3.8 4	17.7	50.0
Lung Cumulative Baseline AM. Lung Cumulative Stretch Streth Stretch Stret	Existing Traffic + Project AM		2	0	4,280	25	30	0	0	1.8%	0.7%	59.2	##### 3	544 4	11 67	27	7 4	1	6	2	59.4	71.1	78.7	2.2	56.7	51.5	55.2	59.7	53.7	43.9	45.0	54.6 4	10.5 4:	2.1 4	15.9	48.2
Luns Consultive Stateline PM Fund Curve Stateline PM Project AM 2 0 7.23 2.5 3.0 0 1.8% 0.7% 615 #### 01 66 7.3 56.4 7.1 7.2 2.50 58.8 57.4 62.0 56.0 62.4 47.5 56.9 42.8 43.4 42.5 53.0 0 0 1.8% 0.7% 69.7 59.7 61.5 #### 61.6 7.3 56.9 47.1 77.7 27.5 55.5 60.0 62.4 47.5 65.5 52.1 57.6 60.0 62.4 47.5 68.4 48.4 48.2 55.5 60.0 54.0 45.0 47.1 78.7 27.5 55.5 60.0 54.2 47.1 78.7 7 1 0 4 56.7 71.7 78.7 55.5 60.0 54.0 42.4 44.4 42.8 48.7 48.7 47.1 78.7 25.7 58.5 55.0 60.0 68.0 47.1<	Existing Traffic + Project PM							0	0	1.8%	0.7%		#####	821 6	21 10	2 40) 6	1	9	4	59.4	71.1	78.7	2.2	58.5	53.3	56.9	61.5	55.5	45.7	46.8	56.4 4	2.3 43	3.9 4	17.7	50.0
Ligure Cumulative + Project AM 2 0 4,88 25 30 0 1,8% 0,7% 61.7 64.7 7 3 50.4 1,1 7,7 2 7,2 2,1 55.7 63.3 54.4 54.5 65.7 63.3 64.4 64.7 7 8 64.7 1 7,7 2 7,2 2,1 55.7 63.3 54.4 54.5 63.2 4 1 7 3 50.4 7,1 78.7 22 75.8 23.1 55.7 63.0 56.4 64.2 64.3 64.8 48.8 48.7 64.7 7 1 7 2 57.0 58.3 55.7 60.0 56.4 64.2 45.3 64.7 7 1 7 2 57.0 58.3 56.4 47.4 48.4 48.7 48.0 48.7 48.7 48.7 48.7 48.7 48.7 48.7 48.7 48.7 48.7 48.7 48.7 48.7									0	1.8%	0.7%	59.7	##### (611 4	62 76	5 30) 4	1	7	3	59.4	71.1	78.7	2.2	57.2	52.0	55.7	60.2	54.2	44.4	45.5	55.1 4	1.0 43	2.6 4	16.4	48.7
Lature Combinities + Project PM 2 0 7.28 25 30 0 1.8% 0.7% 615 #### 625 690 11 6.7 7 1 0 6.84 7.1 7.8 2.5 500 6.8.8 7.5 6.0 4.2 4.3 6.8 4.4 4.82 505 Decase Street Scienting Traffic PM	Future Cumulative Baseline PM								0	1.8%	0.7%	61.5	##### 9	918 6	94 11	4 45	57	1	10	4	59.4	71.1	78.7	2.2	59.0	53.8	57.4	62.0	56.0	46.2	47.3	56.9 4	2.8 44	4.3 4	18.2	50.5
Construct Construct <t< td=""><td>Future Cumulative + Project AM</td><td></td><td></td><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td><td>0.7%</td><td>59.7</td><td>#####</td><td>616 4</td><td>65 76</td><td>5 30</td><td>) 4</td><td>1</td><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Future Cumulative + Project AM			0							0.7%	59.7	#####	616 4	65 76	5 30) 4	1	7																	
Creating Traffic AM Creating Traffic AM Creating Traffic AM Sole A	Future Cumulative + Project PM	_	2	0	7,280	25	30	0	0	1.8%	0.7%	61.5	#####	925 6	99 11	5 45	5 7	1	10	4	59.4	71.1	78.7	2.2	59.0	53.8	57.5	62.0	56.0	46.2	47.3	56.9 4	2.8 44	4.4 4	18.2	50.5
Desing Traffic PM Diameter Project M C2 0 6.84 2.5 30 0 1.8% 0.7% 612 #### 867 655 1.07 4.5 6.1 9 4 50.4 7.1 7.87 2.87 53.6 7.2 7.55	Doran Street w/o Louise Street																																			
Design: print Project AM 2 0 4,66 2 3 0 1 0 1 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 <td>Existing Traffic AM</td> <td></td> <td></td> <td>0</td> <td>4,584</td> <td></td> <td></td> <td>0</td> <td>0</td> <td>1.8%</td> <td>0.7%</td> <td>59.5</td> <td>#####</td> <td>582 4</td> <td>40 72</td> <td>29</td> <td>9 4</td> <td>1</td> <td>6</td> <td>3</td> <td>59.4</td> <td>71.1</td> <td>78.7</td> <td>2.2</td> <td>57.0</td> <td>51.8</td> <td>55.5</td> <td>60.0</td> <td>54.0</td> <td>44.2</td> <td>45.3</td> <td>54.9 4</td> <td>0.8 42</td> <td>2.4 4</td> <td>16.2</td> <td>48.5</td>	Existing Traffic AM			0	4,584			0	0	1.8%	0.7%	59.5	#####	582 4	40 72	29	9 4	1	6	3	59.4	71.1	78.7	2.2	57.0	51.8	55.5	60.0	54.0	44.2	45.3	54.9 4	0.8 42	2.4 4	16.2	48.5
Existing Traffic + Project PM 2 0 6.872 2.5 30 0 1.8% 0.7% 60.1 8444 66 1 9 4 50.4 71.1 72 2.87 53.6 72.6 1.8% 0.7% 60.1 8444 66 1 9 4 50.4 71.1 72 2.87 53.6 72.6 1.8% 67.4 40.4 40.0 47.0 48.0 47.0 48.0 47.0	Existing Traffic PM								•									1		-																
Lum Conclusive Baseline AM 2 0 5.168 2.5 3.0 0 1.8% 0.7% 61.7 61.8 1.3 5.1 7 3 50.4 71.1 77.2 57.5 52.3 50.0 65.5 57.4 80.0 1.8% 0.7% 61.7 1.8% 7.5 7.5 7.5 50.3 50.5 57.5 72.3 60.0 55.5 7.4 70.4 50.4 71.1 77.2 25.7 52.3 50.0 60.5 54.5 44.5 55.7 74.0 74.5 75.5 <th< td=""><td>Existing Traffic + Project AM</td><td></td><td></td><td>0</td><td>4,616</td><td></td><td></td><td>0</td><td>0</td><td>1.8%</td><td>0.7%</td><td>59.5</td><td>##### 3</td><td>586 4</td><td>43 73</td><td>3 29</td><td>9 4</td><td>1</td><td>6</td><td>3</td><td>59.4</td><td>71.1</td><td>78.7</td><td>2.2</td><td>57.0</td><td>51.9</td><td>55.5</td><td>60.0</td><td>54.0</td><td>44.3</td><td>45.3</td><td>55.0 4</td><td>0.8 43</td><td>2.4 4</td><td>16.3</td><td>48.6</td></th<>	Existing Traffic + Project AM			0	4,616			0	0	1.8%	0.7%	59.5	##### 3	586 4	43 73	3 29	9 4	1	6	3	59.4	71.1	78.7	2.2	57.0	51.9	55.5	60.0	54.0	44.3	45.3	55.0 4	0.8 43	2.4 4	16.3	48.6
Enume Commutative Project AM 2 0 7,64 25 30 0 0 1.8% 0.7% 61.7 #### \$73 736 121 48 50.4 51.6 57.7 52.2 52.4 56.0 66.6 54.6 44.8 45.8 47.1 78.7 22 57.4 52.4 56.0 66.6 54.6 44.8 45.8 44.4 45.8 44.8 45.8 47.1 78.7 22 57.4 52.6 56.5 51.4 42.9 48.8 40.1 Churd Curraditive - Project PM 2 0 7,712 25 30 0 0 1.8% 0.7% 61.8 #### 679 70 12 48 7 2 10 4 50.4 71.1 77.7 22 50.2 51.4 42.9 48.8 40.1 1(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground suffices. An alpha factor of 0.5 indicates that the site is an accustically "bard" 81.8 #### 679 70 12 48	Existing Traffic + Project PM							0	0	1.8%	0.7%	61.3	#####	873 6	60 10	8 43	36	1	9	4	59.4	71.1	78.7	2.2	58.7	53.6	57.2	61.8	55.8	46.0	47.0	56.7 4	2.6 44	4.1 4	18.0	50.3
Lipure Consumptive + Project DML 2 0 5.208 25 30 0 1.8% 0.7% 61.8 ##### 671 502 51.5 52.4 56.0 66.6 54.6 44.8 45.5 55.4 56.0 66.6 54.6 44.8 45.5 55.4 56.0 66.6 54.6 44.8 45.5 55.4 56.0 66.6 54.6 44.8 45.5 55.4 56.0 66.6 54.6 44.8 45.5 55.4 56.0 66.6 54.6 44.8 45.5 55.1 76.0 </td <td>Future Cumulative Baseline AM</td> <td></td> <td></td> <td>0</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1.8%</td> <td></td> <td>60.0</td> <td>##### (</td> <td>656 4</td> <td>96 81</td> <td>32</td> <td>2 5</td> <td>1</td> <td>7</td> <td>3</td> <td>59.4</td> <td>71.1</td> <td>78.7</td> <td>2.2</td> <td>57.5</td> <td>52.3</td> <td>56.0</td> <td>60.5</td> <td>54.5</td> <td>44.8</td> <td>45.8</td> <td>55.5 4</td> <td>1.3 43</td> <td>2.9 4</td> <td>16.7</td> <td>49.0</td>	Future Cumulative Baseline AM			0						1.8%		60.0	##### (656 4	96 81	32	2 5	1	7	3	59.4	71.1	78.7	2.2	57.5	52.3	56.0	60.5	54.5	44.8	45.8	55.5 4	1.3 43	2.9 4	16.7	49.0
Enture Cumulative + Project PM 2 0 7,712 25 30 0 1.8% 0.7% 61.8 #### 979 740 121 48 7 2 10 4 59.4 71.1 78.7 2.2 59.2 54.1 57.7 62.3 56.3 46.5 47.6 57.2 43.1 44.6 48.5 50.8 11 17.7 17.7 2.2 59.2 54.1 57.7 62.3 56.3 46.5 47.6 57.2 43.1 44.6 48.5 50.8 1(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0.5 indicates that the site is an acoustically "hard" 81.8 #### 979 740 121 48 7 2 10 4 59.4 71.1 78.7 2.2 59.2 54.1 57.7 62.3 56.3 46.5 57.2 43.1 44.6 48.5 50.8 318 stands 4.6 absorption relating to the store is an acoustically "bard" absorption relating to the st	Future Cumulative Baseline PM		2	0	7,664			0	0	1.8%	0.7%	61.7	##### 9	973 7	36 12	1 48	37	2	10	4	59.4	71.1	78.7	2.2	59.2	54.1	57.7	62.2	56.2	46.5	47.5	57.2 4	3.0 4/	4.6 4	18.5	50.8
(1) Alphe Fador: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an accusically "hard" site such aspatil. An alpha factor of 0.5 indicates that the site is an accusically "hard" Assumed 24-Hour Traffic Distribution: Day Evening Night - Total ADT Volumes 77.70% 12.70% 9.80%	Future Cumulative + Project AM		2	0	5,208		30	0	0	1.8%	0.7%	60.1	#####	661 5	00 82	2 32	2 5	1	7	3	59.4	71.1	78.7	2.2	57.5	52.4	56.0	60.6	54.6	44.8	45.8	55.5 4	1.4 43	2.9 4	16.8	49.1
alte such as apail. An alpha factor of 0.5 Indicates that the site is an accoustically "soft" alte such as vegetative ground cover. Assumed 24-Hour Traffic Distribution: Day Evening Night Total ADT Volumes 77.70% 12.70% 9.60%	Future Cumulative + Project PM		2	0	7,712	25	30	0	0	1.8%	0.7%	61.8	#####	979 7	40 12	1 48	37	2	10	4	59.4	71.1	78.7	2.2	59.2	54.1	57.7	62.3	56.3	46.5	47.6	57.2 4	3.1 4/	4.6 4	18.5	50.8
Total ADT Volumes 77.70% 12.70% 9.60%								eisan ao	coustical	lly "hard"																										
	Assumed 24-Hour Traffic Distribution:		Day	Evening	Night																															
Medium-Duty Trucks 87.43% 5.05% 7.52%	Total ADT Volumes		77.70%	5 12.70%	9.60%																															
	Medium-Duty Trucks		87.43%	5.05%	7.52%																															

 Medium-Duty Trucks
 87.43%
 5.05%
 7.52%

 Heavy-Duty Trucks
 89.10%
 2.84%
 8.06%