February 18, 2020

Lauren Lockwood
EPD Solutions, Inc.
2 Park Plaza, Suite 1120
Irvine, CA 92614

Subject: City of Fountain Valley – Technical Noise Analysis for the Moiola Park Residences Project

Dear Ms. Lockwood:

Vista Environmental has prepared this Technical Noise Letter to analyze the potential noise and vibration impacts created from construction and operation of the proposed Moiola Park Residences Project that consists of development of 74 single-family homes on the former Fred Moiola Elementary School site (the "Project").

The following details the applicable noise regulations, existing noise environment, construction-related noise impacts and operation-related noise impacts.

APPLICABLE NOISE REGULATIONS

The City of Fountain Valley General Plan and Municipal Code establishes the following applicable policies and regulations for the proposed project. It should be noted that neither the General Plan nor the Municipal Code provide any applicable standards for vibration.

City of Fountain Valley General Plan

The applicable policies in the City's General Plan that relate to noise are shown below:

General Plan Policy 7.1.1 Incorporate noise considerations into land use planning decisions.

a. Establish acceptable limits of noise for various land uses throughout the community. The City adopts the noise standards presented in Figure 7-9 which identifies interior and exterior noise standards in relation to specific land uses; particularly residential areas, schools, hospitals, open space preserves and parks. The standards specify the maximum noise levels allowable for new development impacted by noise sources operating in public or quasi-public property.

   Figure 7-9 provides an interior noise standard of 45 dBA CNEL and an exterior noise standard of 60 dBA CNEL

General Plan Policy 7.1.3 Establish measures to control non-transportation noise impacts.

b. The City shall evaluate noise generated by construction activities, and subject them to the requirements of the Noise Ordinance

City of Fountain Valley Municipal Code

The applicable portions of the City's Municipal Code that relate to construction noise are shown below:

Section 6.28.070 – Special Provisions

The following activities shall be exempted from the provisions of this chapter:

(5) Noise sources associated with the construction, repair, remodeling or grading of any real property, provided said activity take place between the hours of seven a.m. and eight p.m. Monday through Friday, nine a.m. through eight p.m. on Saturday and at no time on Sunday or any legal holiday. For purposes of this exception the use of saws, buffers, sanders, drills, and sprayers shall be included, as shall similar activity.

EXISTING NOISE CONDITIONS

To determine the existing noise levels, noise measurements have been taken in the vicinity of the project site. The field survey noted that the project site is located at a relatively quiet location, since there is only nominal traffic on Finch Avenue, which is the only nearby road. There is a commercial retail center adjacent to the east side and the easternmost portion of the north side of the project site, however there is a 10 foot high sound wall along the shared property line with the commercial retail center, which blocks almost all of the noise from the commercial retail center.

The following describes the measurement procedures, measurement locations, measurement results, and the modeling of the existing noise environment.

Noise Measurement Equipment

The noise measurements were taken using two Larson Davis Model LXT1 Type 1 sound level meters programmed in "slow" mode to record the sound pressure level at 1-second intervals for 24 hours in "A" weighted form. In addition, the L_{eq} averaged over the entire measuring time and L_{max} were recorded with both sound level meters. The sound level meters and microphones were mounted on fences, were placed approximately six feet above the ground and were equipped with windscreens during all measurements. The noise meters were calibrated before and after the monitoring using a Larson Davis Cal200 calibrator. All noise level measurement equipment meets American National Standards Institute specifications for sound level meters (S1.4-1983 identified in Chapter 19.68.020.AA).

Noise Measurement Locations

The noise monitoring locations were selected in order to obtain noise levels on the project site from Finch Avenue and from the commercial retail center located adjacent to the north and east sides of the project site. Descriptions of the noise monitoring sites are provided below in Table A. A photo index of the study area and noise level measurement locations are attached to this memo.

Noise Measurement Timing and Climate

The noise measurements were recorded between 12:36 p.m. on Wednesday, February 12, 2020 and 12:41 p.m. on Thursday, February 13, 2020. When the noise measurements were started the sky was clear (no clouds), the temperature was 65 degrees Fahrenheit, the humidity was 53 percent, barometric pressure was 30.04 inches of mercury, and the wind was blowing around four miles per hour. Overnight, the temperature dropped to 46 degrees Fahrenheit. At the conclusion of the noise measurements, the sky was clear, the temperature was 68 degrees Fahrenheit, the humidity was 37 percent, barometric pressure was 29.97 inches of mercury, and the wind was blowing around six miles per hour.

Noise Measurement Results

The results of the noise level measurements are presented in Table A. The measured sound pressure levels in dBA have been used to calculate the minimum and maximum L_{eq} averaged over 1-hour intervals. Table

A also shows the L_{eq}, L_{max}, and CNEL, based on the entire measurement time. The noise monitoring data printouts are attached to this memo. Figure 1 shows a graph of the 24-hour noise measurements.

Table A – Existing (Ambient) Noise Level Measurements

Site No.	Site Description	Average (dBA L_{eq})	Maximum (dBA L_{max})	(dBA $L_{eq\ 1\text{-}hour}$/Time) Minimum	(dBA $L_{eq\ 1\text{-}hour}$/Time) Maximum	Average (dBA CNEL)
A	Located approximately 10 feet south of commercial center on northeast area of project site.	57.1	81.3	40.4 2:20 a.m.	66.2 5:58 p.m.	59.4
B	Located on a fence at the northwest corner of the project site.	52.7	77.3	43.7 1:53 a.m.	62.6 3:43 p.m.	56.9

Source: Noise measurements were taken with two Larson Davis Model LXT1 Type 1 sound level meters on Wednesday, February 12 and Thursday, February 15, 2020.

Table A shows that both noise measurements were within the City's exterior residential noise standard of 60 dBA CNEL that is detailed in General Plan Policy 7.1.1(a). Therefore, the project site meets the City's residential noise standards and no sound mitigation is needed for the proposed homes.

CONSTRUCTION-RELATED NOISE IMPACTS

The noise impacts from construction of the proposed project have been analyzed through use of the FHWA's Roadway Construction Noise Model (RCNM). The FHWA compiled noise measurement data regarding the noise generating characteristics of several different types of construction equipment used during the Central Artery/Tunnel project in Boston. Table B below provides a list of the construction equipment anticipated to be used for each phase of construction as detailed in *Summary of CalEEMod Model Runs and Output for the Moiola Park Residential Project*, dated, February 14, 2020.

Table B also shows the associated measured noise emissions for each piece of equipment from the RCNM model and measured percentage of typical equipment use per day. Construction noise impacts to the nearby sensitive receptors have been calculated according to the equipment noise levels and usage factors listed in Table B and through use of the RCNM. For each phase of construction, the nearest piece of equipment was placed at the shortest distance of the proposed activity to the nearest homes, located north, south and west of the project site were analyzed. 5 dB of estimated shielding was added to the RCNM model in order to account for the existing minimum 6 foot high walls located between the project site and nearby homes.

Table B – Construction Equipment Noise Emissions and Usage Factors

Equipment Description	Number of Equipment	Acoustical Use Factor[1] (percent)	Spec 721.560 Lmax at 50 feet[2] (dBA, slow[3])	Actual Measured Lmax at 50 feet[4] (dBA, slow[3])
Demolition				
Concrete Saw	1	20	90	90
Excavator	3	40	85	81
Rubber Tired Dozer	2	40	85	82
Site Preparation				
Rubber Tired Dozer	3	40	85	82
Crawler Tractor	4	40	84	N/A
Grading				
Excavator	2	40	85	81
Grader	1	40	85	83
Rubber Tired Dozer	1	40	85	82
Crawler Tractor	3	40	84	N/A
Scraper	2	40	85	84
Building Construction				
Crane	1	16	85	81
Forklift (Gradall)	3	40	85	83
Generator	1	50	82	81
Tractor, Loader or Backhoe[5]	3	40	84	N/A
Welder	1	40	73	74
Paving				
Paver	2	50	85	77
Paving Equipment	2	50	85	77
Roller	2	20	85	80
Architectural Coating				
Air Compressor	1	40	80	78

Notes:
[1] Acoustical use factor is the percentage of time each piece of equipment is operational during a typical workday.
[2] Spec 721.560 is the equipment noise level utilized by the RCNM program.
[3] The "slow" response averages sound levels over 1-second increments. A "fast" response averages sound levels over 0.125-second increments.
[4] Actual Measured is the average noise level measured of each piece of equipment during the Central Artery/Tunnel project in Boston, Massachusetts primarily during the 1990s.
[5] For the tractor/loader/backhoe, the tractor noise level was utilized, since it is the loudest of the three types of equipment.
Source: Federal Highway Administration, 2006 and CalEEMod default equipment mix.

Section 6.28.070(5) of the City's Municipal Code exempts construction noise that occurs between 7:00 a.m. and 8:00 p.m. Monday through Friday and between 9:00 a.m. and 8:00 p.m. on Saturdays from the City's noise standards. All construction activities associated with the proposed project would occur during the allowable hours for construction activities as detailed in Section 6.28.070(5) of the Municipal Code. However, the City construction noise standards do not provide any limits to the noise levels that may be created from construction activities and even with adherence to the City standards, the resultant construction noise levels may result in a significant substantial temporary noise increase to the nearby residents.

In order to determine if the proposed construction activities would create a significant substantial temporary noise increase, the construction noise thresholds from *Transit Noise and Vibration Impact Assessment,* prepared by FTA, September 2018, has been utilized in this analysis, which shows that a significant construction noise impact would occur if construction noise exceeds 80 dBA Leq over an eight hour period during the daytime at the nearby homes.

Construction noise impacts to the nearby homes have been calculated through use of the RCNM and the parameters and assumptions detailed above. The results are shown below in Table C and the RCNM printouts are attached to this memo.

Table C – Construction Noise Levels at the Nearby Homes

Construction Phase	Construction Noise Level (dBA Leq) at:		
	Homes to North	Homes to South	Homes to West
Demolition	74	75	70
Site Preparation	73	73	76
Grading	72	72	76
Building Construction	70	70	71
Paving	69	63	64
Painting	64	64	65
FTA Construction Noise Threshold[2]	**80**	**80**	**80**
Exceed Thresholds?	**No**	**No**	**No**

[1] FTA Construction Noise Threshold obtained from (FTA, 2018).
Source: RCNM, Federal Highway Administration, 2006

Table C shows that construction noise impacts would be as high as 76 dBA Leq during the site preparation and grading phases at the homes to the west. The calculated construction noise levels would be within the FTA daytime construction noise standard of 80 dBA at all of the nearby homes. Construction-related noise impacts would be less than significant.

OPERATIONS-RELATED NOISE IMPACTS

Potential noise impacts associated with the operations of the proposed project would be from project-generated vehicular traffic on the nearby roadways. Since the proposed project would consist of development of 72 single-family homes, the proposed project would not introduce any new onsite noise sources to the project site that does not already exist in the adjacent residential developments.

Vehicle noise is a combination of the noise produced by the engine, exhaust and tires. The level of traffic noise depends on three primary factors (1) the volume of traffic, (2) the speed of traffic, and (3) the number of trucks in the flow of traffic. The proposed project does not propose any uses that would require a substantial number of truck trips and the proposed project would not alter the speed limit on any existing roadway so the proposed project's potential offsite noise impacts have been focused on the noise impacts associated with the change of volume of traffic that would occur with development of the proposed project.

Policy 7.1.2 from the City's General Plan Noise Element, requires measures to be established to reduce noise impacts from traffic noise sources. However, the General Plan does not quantify what is a significant degradation of the future acoustic environment. As such this impact analysis has utilized guidance from the Federal Transit Administration (FTA, 2018) for a moderate impact that shows that the project

contribution to the noise environment can range between 0 and 7 dB, which is dependent on the existing noise levels.

The potential offsite traffic noise impacts created by the on-going operations of the proposed project have been analyzed through utilization of the FHWA model and the parameters are shown in the printouts attached to this memo. The proposed project's potential offsite traffic noise impacts have been calculated through a comparison of the Existing scenario to the Existing With Project scenario. The results of this comparison are shown in Table D.

Table D – Project Traffic Noise Contributions

		dBA CNEL at Nearest Receptor			
Roadway	Segment	Existing No Project	Existing Plus Project	Project Contribution	Increase Threshold[1]
Bushard Street	North of Ellis Avenue	64.4	64.5	0.1	+2 dBA
Bushard Street	South of Ellis Avenue	63.9	64.1	0.2	+2 dBA
Redwood Street	North of Finch Avenue	57.6	57.9	0.3	+3 dBA
Redwood Street	South of Finch Avenue	57.6	57.6	0.0	+3 dBA
Redwood Street	South of Robin Avenue	55.2	55.3	0.1	+3 dBA
Ellis Avenue	West of Bushard Street	61.9	61.9	0.0	+2 dBA
Ellis Avenue	East of Bushard Street	61.9	62.0	0.1	+2 dBA
Starling Avenue	West of Redwood Avenue	57.4	57.4	0.0	+3 dBA
Finch Avenue	East of Redwood Avenue	55.4	56.1	0.7	+3 dBA
Robin Avenue	West of Redwood Avenue	54.8	55.3	0.5	+3 dBA

Notes:
[1] Increase Threshold obtained from the FTA's allowable noise impact exposures
Source: FHWA Traffic Noise Prediction Model FHWA-RD-77-108.

Table D shows that for the existing year conditions, the proposed project's permanent noise increases to the nearby homes from the generation of additional vehicular traffic would not exceed the noise increase thresholds detailed above. Therefore, the proposed project would not result in a substantial permanent increase in ambient noise levels. Impacts would be less than significant.

GROUNDBORNE VIBRATION IMPACTS

Construction activities associated with the proposed project would require the operation of off-road equipment and trucks that are known sources of vibration that is analyzed below. It should be noted that the on-going operation of the proposed residential project would not include the operation of any known vibration sources and therefore no operational vibration analysis has been provided.

Off-road equipment utilized during construction of the proposed project may create excessive vibration at the nearby homes that are located as near as 25 feet to the west of the project site. It should be noted that vibration is much more discernible in a siting or laying down position, which typically only occur inside a home. As such, this analysis is based on the vibration levels at the nearest homes, instead of the nearest residential property lines.

Since neither the Municipal nor the General Plan provide a quantifiable vibration threshold, guidance from the *Transportation- and Construction-Induced Vibration Guidance Manual*, prepared by Caltrans, 2004, has been utilized, which defines the threshold of perception from transient sources such as off-road

construction equipment at 0.25 inch per second peak particle velocity (PPV). Table E shows the typical PPV and average vibration levels shown in vibration velocity in decibels (VdB) that are produced from some common construction equipment that would likely be utilized during construction of the proposed project.

Table E – Vibration Source Levels for Construction Equipment

Equipment	Peak Particle Velocity at 25 feet (inches/second)	Average Vibration Level (VdB or L_v) at 25 feet
Vibratory Roller	0.210	94
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drill	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

Source: Federal Transit Administration, 2018.

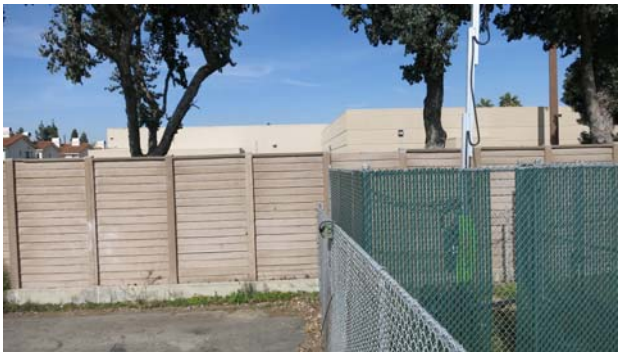
From the list of equipment shown in Table E, a vibratory roller with a vibration level of 0.210 inch-per-second PPV at 25 feet would be the source of the highest vibration levels of all equipment utilized during construction activities for the Proposed Project and would below the 0.25 inch-per-second PPV threshold detailed above. Therefore, a less than significant vibration impact is anticipated from construction of the proposed project.

Please call me at (949) 510-5355 if you have any questions related to the above analysis.

Sincerely,

Greg Tonkovich, INCE
Vista Environmental
949 510 5355

Encl.: Photo Index of Noise Measurement Locations
Figure 1 Field Noise Measurement Graph
Field Noise Measurement Printouts
RCNM Construction Noise Model Printouts
FHWA Roadway Noise Model Printouts



Noise Measurement Site A - looking north

Noise Measurement Site A - looking northeast

Noise Measurement Site A - looking east

Noise Measurement Site A - looking southeast

Noise Measurement Site A - looking south

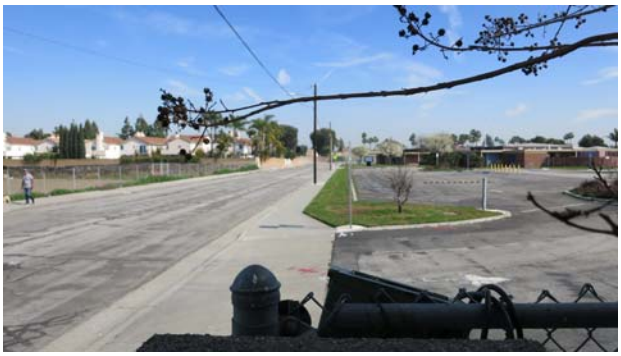
Noise Measurement Site A - looking southwest

Noise Measurement Site A - looking west

Noise Measurement Site A - looking northwest

Noise Measurement Site B - looking north

Noise Measurement Site B - looking northeast



Noise Measurement Site B - looking east

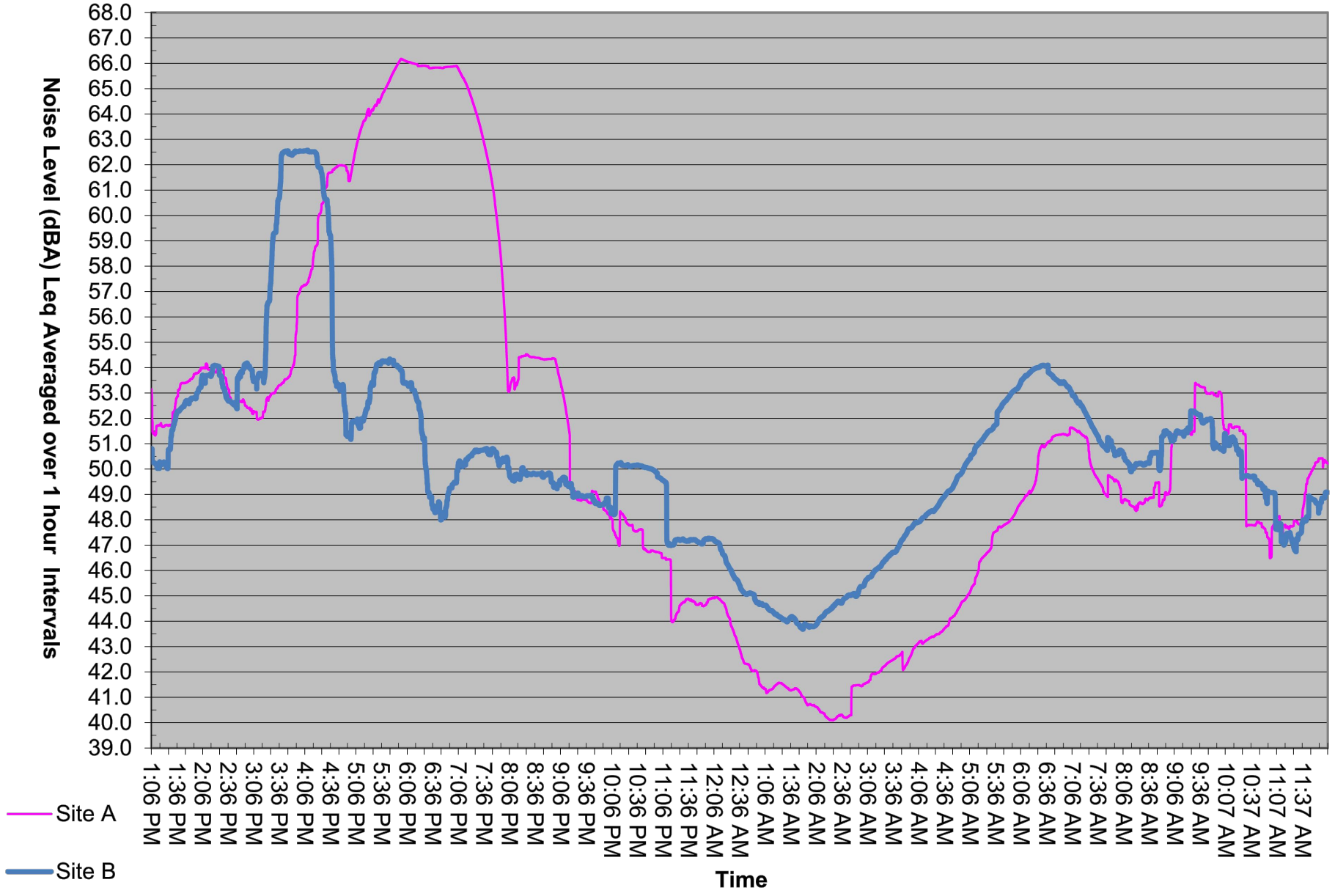
Noise Measurement Site B - looking southeast

Noise Measurement Site B - looking south

Noise Measurement Site B - looking southwest

Noise Measurement Site B - looking west

Noise Measurement Site B - looking nortwest



SOURCE: Larson Davis LXT Type 1 Sound Level Meters.

VISTA ENVIRONMENTAL

Figure 1
Field Noise Measurements Graph

Site A - On East Fence of East Parking Lot & 10 ft South of North Property Line

February 12, 2020 12:36:18 PM
Sampling Time = 1 sec Freq Weighting=A
Record Num = 86402
Leq = 57.1
Min = 36.1
Max = 81.3

Leq Daytime = 60.0
Leq Nighttime = 44.6
CNEL(24hr)= 59.4
Ldn(24hr)= 58.1
Min Leq hr at 2:20 AM 40.1
Max Leq hr at 5:58 PM 66.2

Site A - On East Fence of East Parking Lot & 10 ft South of North Property Line

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
59.3	12:36:18		59.3	59.3
56.9	12:36:19		56.9	56.9
57.7	12:36:20		57.7	57.7
55.7	12:36:21		55.7	55.7
57.2	12:36:22		57.2	57.2
64.0	12:36:23		64.0	64.0
59.9	12:36:24		59.9	59.9
55.8	12:36:25		55.8	55.8
63.6	12:36:26		63.6	63.6
60.8	12:36:27		60.8	60.8
59.0	12:36:28		59.0	59.0
56.2	12:36:29		56.2	56.2
54.2	12:36:30		54.2	54.2
57.4	12:36:31		57.4	57.4
63.6	12:36:32		63.6	63.6
63.0	12:36:33		63.0	63.0
65.1	12:36:34		65.1	65.1
63.8	12:36:35		63.8	63.8
62.9	12:36:36		62.9	62.9
61.1	12:36:37		61.1	61.1
60.0	12:36:38		60.0	60.0
58.6	12:36:39		58.6	58.6
57.2	12:36:40		57.2	57.2
58.0	12:36:41		58.0	58.0
57.3	12:36:42		57.3	57.3
58.4	12:36:43		58.4	58.4
56.9	12:36:44		56.9	56.9
56.5	12:36:45		56.5	56.5
58.0	12:36:46		58.0	58.0
58.8	12:36:47		58.8	58.8
59.1	12:36:48		59.1	59.1
59.0	12:36:49		59.0	59.0
60.9	12:36:50		60.9	60.9
67.3	12:36:51		67.3	67.3
61.5	12:36:52		61.5	61.5
61.9	12:36:53		61.9	61.9
60.5	12:36:54		60.5	60.5
57.3	12:36:55		57.3	57.3
57.0	12:36:56		57.0	57.0
58.5	12:36:57		58.5	58.5
65.4	12:36:58		65.4	65.4
62.5	12:36:59		62.5	62.5
64.4	12:37:00		64.4	64.4
64.0	12:37:01		64.0	64.0
61.2	12:37:02		61.2	61.2
59.8	12:37:03		59.8	59.8
66.4	12:37:04		66.4	66.4
67.1	12:37:05		67.1	67.1
66.5	12:37:06		66.5	66.5
63.3	12:37:07		63.3	63.3
64.5	12:37:08		64.5	64.5
65.4	12:37:09		65.4	65.4
62.3	12:37:10		62.3	62.3
69.2	12:37:11		69.2	69.2
71.6	12:37:12		71.6	71.6
73.0	12:37:13		73.0	73.0
75.9	12:37:14		75.9	75.9
71.7	12:37:15		71.7	71.7
67.8	12:37:16		67.8	67.8
64.6	12:37:17		64.6	64.6
62.2	12:37:18		62.2	62.2
59.5	12:37:19		59.5	59.5
58.0	12:37:20		58.0	58.0
58.0	12:37:21		58.0	58.0
58.1	12:37:22		58.1	58.1
60.3	12:37:23		60.3	60.3
58.5	12:37:24		58.5	58.5
60.1	12:37:25		60.1	60.1
59.3	12:37:26		59.3	59.3
58.0	12:37:27		58.0	58.0
58.5	12:37:28		58.5	58.5
60.8	12:37:29		60.8	60.8
59.4	12:37:30		59.4	59.4
59.6	12:37:31		59.6	59.6
58.9	12:37:32		58.9	58.9
58.4	12:37:33		58.4	58.4
58.3	12:37:34		58.3	58.3
59.3	12:37:35		59.3	59.3
59.1	12:37:36		59.1	59.1
57.8	12:37:37		57.8	57.8
57.5	12:37:38		57.5	57.5
60.5	12:37:39		60.5	60.5
63.9	12:37:40		63.9	63.9
73.1	12:37:41		73.1	73.1
69.9	12:37:42		69.9	69.9
66.5	12:37:43		66.5	66.5
64.2	12:37:44		64.2	64.2
61.9	12:37:45		61.9	61.9
59.2	12:37:46		59.2	59.2
58.0	12:37:47		58.0	58.0
57.0	12:37:48		57.0	57.0
60.5	12:37:49		60.5	60.5
63.3	12:37:50		63.3	63.3
63.4	12:37:51		63.4	63.4
60.5	12:37:52		60.5	60.5
57.6	12:37:53		57.6	57.6
55.5	12:37:54		55.5	55.5
55.2	12:37:55		55.2	55.2
54.0	12:37:56		54.0	54.0
53.0	12:37:57		53.0	53.0
52.7	12:37:58		52.7	52.7
52.8	12:37:59		52.8	52.8
52.6	12:38:00		52.6	52.6
52.5	12:38:01		52.5	52.5
52.6	12:38:02		52.6	52.6
52.8	12:38:03		52.8	52.8
55.4	12:38:04		55.4	55.4
53.5	12:38:05		53.5	53.5
53.5	12:38:06		53.5	53.5
53.6	12:38:07		53.6	53.6
53.9	12:38:08		53.9	53.9
52.9	12:38:09		52.9	52.9
52.8	12:38:10		52.8	52.8
52.5	12:38:11		52.5	52.5
52.5	12:38:12		52.5	52.5
52.6	12:38:13		52.6	52.6
53.3	12:38:14		53.3	53.3
53.9	12:38:15		53.9	53.9
54.0	12:38:16		54.0	54.0
53.9	12:38:17		53.9	53.9
54.3	12:38:18		54.3	54.3
53.4	12:38:19		53.4	53.4
52.8	12:38:20		52.8	52.8
52.4	12:38:21		52.4	52.4
52.1	12:38:22		52.1	52.1
52.1	12:38:23		52.1	52.1
51.7	12:38:24		51.7	51.7
51.1	12:38:25		51.1	51.1
54.2	12:38:26		54.2	54.2
55.6	12:38:27		55.6	55.6
53.1	12:38:28		53.1	53.1
51.6	12:38:29		51.6	51.6
50.8	12:38:30		50.8	50.8
50.4	12:38:31		50.4	50.4
50.4	12:38:32		50.4	50.4
50.3	12:38:33		50.3	50.3
50.7	12:38:34		50.7	50.7
56.2	12:38:35		56.2	56.2
58.1	12:38:36		58.1	58.1
55.7	12:38:37		55.7	55.7
55.6	12:38:38		55.6	55.6
53.4	12:38:39		53.4	53.4
51.7	12:38:40		51.7	51.7
50.8	12:38:41		50.8	50.8
50.3	12:38:42		50.3	50.3
50.5	12:38:43		50.5	50.5
50.3	12:38:44		50.3	50.3
49.8	12:38:45		49.8	49.8
50.1	12:38:46		50.1	50.1
50.2	12:38:47		50.2	50.2
51.6	12:38:48		51.6	51.6
52.8	12:38:49		52.8	52.8
52.9	12:38:50		52.9	52.9
53.2	12:38:51		53.2	53.2
53.0	12:38:52		53.0	53.0
52.4	12:38:53		52.4	52.4
51.7	12:38:54		51.7	51.7
50.8	12:38:55		50.8	50.8
50.5	12:38:56		50.5	50.5
50.5	12:38:57		50.5	50.5
50.7	12:38:58		50.7	50.7
50.7	12:38:59		50.7	50.7
50.5	12:39:00		50.5	50.5
50.4	12:39:01		50.4	50.4
50.2	12:39:02		50.2	50.2
49.8	12:39:03		49.8	49.8
49.6	12:39:04		49.6	49.6
49.6	12:39:05		49.6	49.6
49.4	12:39:06		49.4	49.4
49.6	12:39:07		49.6	49.6
49.6	12:39:08		49.6	49.6
49.3	12:39:09		49.3	49.3
49.2	12:39:10		49.2	49.2
49.2	12:39:11		49.2	49.2
49.0	12:39:12		49.0	49.0

Site B - On Fence at Northwest Corner of Project Site

February 12, 2020 12:41:27 PM
Sampling Time = 1 sec Freq Weighting=A
Record Num = 86402
Leq = 52.7
Min = 37.8
Max = 77.3

Leq Daytime = 54.9
Leq Nighttime = 47.9
CNEL(24hr)= 56.9
Ldn(24hr)= 56.7
Min Leq hr at 1:53 AM 43.7
Max Leq hr at 3:43 PM 62.6

Site B - On Fence at Northwest Corner of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
48.3	12:41:27		48.3	48.3
56.6	12:41:28		56.6	56.6
56.4	12:41:29		56.4	56.4
58.5	12:41:30		58.5	58.5
59.4	12:41:31		59.4	59.4
60.8	12:41:32		60.8	60.8
57.8	12:41:33		57.8	57.8
57.0	12:41:34		57.0	57.0
64.8	12:41:35		64.8	64.8
61.7	12:41:36		61.7	61.7
58.5	12:41:37		58.5	58.5
56.1	12:41:38		56.1	56.1
63.1	12:41:39		63.1	63.1
63.4	12:41:40		63.4	63.4
64.6	12:41:41		64.6	64.6
61.6	12:41:42		61.6	61.6
57.6	12:41:43		57.6	57.6
57.4	12:41:44		57.4	57.4
58.9	12:41:45		58.9	58.9
58.3	12:41:46		58.3	58.3
59.1	12:41:47		59.1	59.1
58.2	12:41:48		58.2	58.2
58.0	12:41:49		58.0	58.0
58.5	12:41:50		58.5	58.5
58.5	12:41:51		58.5	58.5
61.8	12:41:52		61.8	61.8
62.1	12:41:53		62.1	62.1
58.0	12:41:54		58.0	58.0
54.1	12:41:55		54.1	54.1
58.1	12:41:56		58.1	58.1
57.2	12:41:57		57.2	57.2
54.5	12:41:58		54.5	54.5
59.4	12:41:59		59.4	59.4
58.1	12:42:00		58.1	58.1
60.9	12:42:01		60.9	60.9
61.1	12:42:02		61.1	61.1
63.7	12:42:03		63.7	63.7
61.9	12:42:04		61.9	61.9
66.4	12:42:05		66.4	66.4
64.9	12:42:06		64.9	64.9
59.5	12:42:07		59.5	59.5
59.4	12:42:08		59.4	59.4
60.4	12:42:09		60.4	60.4
60.4	12:42:10		60.4	60.4
57.1	12:42:11		57.1	57.1
62.9	12:42:12		62.9	62.9
58.9	12:42:13		58.9	58.9
56.8	12:42:14		56.8	56.8
54.3	12:42:15		54.3	54.3
68.7	12:42:16		68.7	68.7
66.2	12:42:17		66.2	66.2
67.3	12:42:18		67.3	67.3
64.0	12:42:19		64.0	64.0
61.9	12:42:20		61.9	61.9
58.0	12:42:21		58.0	58.0
64.1	12:42:22		64.1	64.1
60.3	12:42:23		60.3	60.3
67.3	12:42:24		67.3	67.3
65.6	12:42:25		65.6	65.6
61.7	12:42:26		61.7	61.7
68.0	12:42:27		68.0	68.0
65.3	12:42:28		65.3	65.3
63.7	12:42:29		63.7	63.7
61.3	12:42:30		61.3	61.3
60.4	12:42:31		60.4	60.4
62.5	12:42:32		62.5	62.5
65.2	12:42:33		65.2	65.2
62.9	12:42:34		62.9	62.9
59.3	12:42:35		59.3	59.3
59.2	12:42:36		59.2	59.2
57.7	12:42:37		57.7	57.7
53.9	12:42:38		53.9	53.9
50.5	12:42:39		50.5	50.5
47.3	12:42:40		47.3	47.3
46.4	12:42:41		46.4	46.4
46.3	12:42:42		46.3	46.3
45.8	12:42:43		45.8	45.8
45.0	12:42:44		45.0	45.0
44.3	12:42:45		44.3	44.3
42.9	12:42:46		42.9	42.9
42.3	12:42:47		42.3	42.3
47.5	12:42:48		47.5	47.5
46.0	12:42:49		46.0	46.0
43.7	12:42:50		43.7	43.7
42.5	12:42:51		42.5	42.5
41.9	12:42:52		41.9	41.9
42.9	12:42:53		42.9	42.9
42.9	12:42:54		42.9	42.9
42.1	12:42:55		42.1	42.1
41.8	12:42:56		41.8	41.8
42.0	12:42:57		42.0	42.0
42.0	12:42:58		42.0	42.0
41.8	12:42:59		41.8	41.8
42.1	12:43:00		42.1	42.1
42.4	12:43:01		42.4	42.4
42.0	12:43:02		42.0	42.0
41.7	12:43:03		41.7	41.7
41.8	12:43:04		41.8	41.8
42.1	12:43:05		42.1	42.1
42.0	12:43:06		42.0	42.0
42.7	12:43:07		42.7	42.7
42.7	12:43:08		42.7	42.7
46.4	12:43:09		46.4	46.4
48.8	12:43:10		48.8	48.8
45.8	12:43:11		45.8	45.8
43.7	12:43:12		43.7	43.7
42.8	12:43:13		42.8	42.8
42.9	12:43:14		42.9	42.9
44.0	12:43:15		44.0	44.0
44.9	12:43:16		44.9	44.9
46.3	12:43:17		46.3	46.3
46.6	12:43:18		46.6	46.6
48.0	12:43:19		48.0	48.0
46.3	12:43:20		46.3	46.3
45.8	12:43:21		45.8	45.8
45.8	12:43:22		45.8	45.8
44.7	12:43:23		44.7	44.7
43.8	12:43:24		43.8	43.8
43.2	12:43:25		43.2	43.2
42.9	12:43:26		42.9	42.9
44.0	12:43:27		44.0	44.0
44.5	12:43:28		44.5	44.5
45.7	12:43:29		45.7	45.7
47.8	12:43:30		47.8	47.8
47.0	12:43:31		47.0	47.0
47.2	12:43:32		47.2	47.2
46.9	12:43:33		46.9	46.9
48.8	12:43:34		48.8	48.8
50.1	12:43:35		50.1	50.1
47.7	12:43:36		47.7	47.7
46.3	12:43:37		46.3	46.3
45.5	12:43:38		45.5	45.5
46.1	12:43:39		46.1	46.1
48.6	12:43:40		48.6	48.6
48.8	12:43:41		48.8	48.8
49.3	12:43:42		49.3	49.3
50.5	12:43:43		50.5	50.5
50.3	12:43:44		50.3	50.3
51.4	12:43:45		51.4	51.4
49.1	12:43:46		49.1	49.1
48.6	12:43:47		48.6	48.6
48.1	12:43:48		48.1	48.1
47.3	12:43:49		47.3	47.3
49.6	12:43:50		49.6	49.6
51.2	12:43:51		51.2	51.2
50.4	12:43:52		50.4	50.4
47.8	12:43:53		47.8	47.8
46.0	12:43:54		46.0	46.0
45.1	12:43:55		45.1	45.1
46.6	12:43:56		46.6	46.6
48.4	12:43:57		48.4	48.4
50.1	12:43:58		50.1	50.1
47.9	12:43:59		47.9	47.9
46.5	12:44:00		46.5	46.5
45.7	12:44:01		45.7	45.7
46.8	12:44:02		46.8	46.8
46.3	12:44:03		46.3	46.3
45.6	12:44:04		45.6	45.6
45.2	12:44:05		45.2	45.2
46.3	12:44:06		46.3	46.3
46.8	12:44:07		46.8	46.8
48.3	12:44:08		48.3	48.3
49.3	12:44:09		49.3	49.3
48.6	12:44:10		48.6	48.6
47.9	12:44:11		47.9	47.9
48.6	12:44:12		48.6	48.6
49.3	12:44:13		49.3	49.3
49.0	12:44:14		49.0	49.0
48.0	12:44:15		48.0	48.0
46.7	12:44:16		46.7	46.7
47.1	12:44:17		47.1	47.1
47.0	12:44:18		47.0	47.0
47.9	12:44:19		47.9	47.9
49.3	12:44:20		49.3	49.3
50.8	12:44:21		50.8	50.8

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/17/2020
Case Description: Moiola Park Residences - Demolition

				---- Receptor #1 ----
		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Nearest Home to North	Residential	57.1	57.1	57.1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	90	5
Excavator	No	40		80.7	140	5
Excavator	No	40		80.7	190	5
Excavator	No	40		80.7	240	5
Dozer	No	40		81.7	290	5
Dozer	No	40		81.7	340	5

			Results			
	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	79.5	72.5	N/A	N/A	N/A	N/A
Excavator	66.8	62.8	N/A	N/A	N/A	N/A
Excavator	64.1	60.1	N/A	N/A	N/A	N/A
Excavator	62.1	58.1	N/A	N/A	N/A	N/A
Dozer	61.4	57.4	N/A	N/A	N/A	N/A
Dozer	60.0	56.0	N/A	N/A	N/A	N/A
Total	**80**	**74**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/17/2020
Case Description: Moiola Park Residences - Demolition

				---- Receptor #2 ----
		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Nearest Homes to South	Residential	53	53	52.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	70	5
Excavator	No	40		80.7	120	5
Excavator	No	40		80.7	170	5
Excavator	No	40		80.7	220	5
Dozer	No	40		81.7	270	5
Dozer	No	40.0		81.7	320	5

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw		81.7	74.7	N/A	N/A	N/A	N/A
Excavator		68.1	64.1	N/A	N/A	N/A	N/A
Excavator		65.1	61.1	N/A	N/A	N/A	N/A
Excavator		62.8	58.9	N/A	N/A	N/A	N/A
Dozer		62.0	58.0	N/A	N/A	N/A	N/A
Dozer		60.5	56.6	N/A	N/A	N/A	N/A
	Total	**82**	**75**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/17/2020
Case Description: Moiola Park Residences - Demolition

				---- Receptor #3 ----
		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Nearest Homes to West	Residential	53	53	52.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	150	5
Excavator	No	40		80.7	200	5
Excavator	No	40		80.7	250	5
Excavator	No	40		80.7	300	5
Dozer	No	40		81.7	350	5
Dozer	No	40		81.7	400	5

			Results			
	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	75.0	68.0	N/A	N/A	N/A	N/A
Excavator	63.7	59.7	N/A	N/A	N/A	N/A
Excavator	61.7	57.8	N/A	N/A	N/A	N/A
Excavator	60.1	56.2	N/A	N/A	N/A	N/A
Dozer	59.8	55.8	N/A	N/A	N/A	N/A
Dozer	58.6	54.6	N/A	N/A	N/A	N/A
Total	**75**	**70**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/17/2020
Case Description: Moiola Park Residences - Site Preparation

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Home to North	Residential	57.1	57.1	57.1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	70	5
Dozer	No	40		81.7	120	5
Dozer	No	40		81.7	170	5
Tractor	No	40	84		220	5
Tractor	No	40	84		270	5
Tractor	No	40	84		320	5
Tractor	No	40	84		370	5

Equipment		Calculated (dBA) *Lmax	Leq	Results Day Lmax	Noise Limits (dBA) Leq	Evening Lmax	Leq
Dozer		73.7	69.8	N/A	N/A	N/A	N/A
Dozer		69.1	65.1	N/A	N/A	N/A	N/A
Dozer		66.0	62.1	N/A	N/A	N/A	N/A
Tractor		66.1	62.2	N/A	N/A	N/A	N/A
Tractor		64.4	60.4	N/A	N/A	N/A	N/A
Tractor		62.9	58.9	N/A	N/A	N/A	N/A
Tractor		61.6	57.6	N/A	N/A	N/A	N/A
	Total	**74**	**73**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/17/2020
Case Description: Moiola Park Residences - Site Preparation

				---- Receptor #2 ----
		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Nearest Homes to South	Residential	52.7	52.7	52.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	70	5
Dozer	No	40		81.7	120	5
Dozer	No	40		81.7	170	5
Tractor	No	40.0	84		220	5
Tractor	No	40.0	84		270	5
Tractor	No	40.0	84		320	5
Tractor	No	40.0	84		370	5

		Calculated (dBA)		Results			
				Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer		73.7	69.8	N/A	N/A	N/A	N/A
Dozer		69.1	65.1	N/A	N/A	N/A	N/A
Dozer		66.0	62.1	N/A	N/A	N/A	N/A
Tractor		66.1	62.2	N/A	N/A	N/A	N/A
Tractor		64.4	60.4	N/A	N/A	N/A	N/A
Tractor		62.9	58.9	N/A	N/A	N/A	N/A
Tractor		61.6	57.6	N/A	N/A	N/A	N/A
	Total	**74**	**73**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/17/2020
Case Description: Moiola Park Residences - Site Preparation

				---- Receptor #3 ----
		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Nearest Homes to West	Residential	53	53	52.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	40	5
Dozer	No	40		81.7	90	5
Dozer	No	40		81.7	140	5
Tractor	No	40	84		190	5
Tractor	No	40	84		240	5
Tractor	No	40	84		290	5
Tractor	No	40	84		340	5

		Calculated (dBA)		Results	Noise Limits (dBA)		
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer		78.6	74.6	N/A	N/A	N/A	N/A
Dozer		71.6	67.6	N/A	N/A	N/A	N/A
Dozer		67.7	63.7	N/A	N/A	N/A	N/A
Tractor		67.4	63.4	N/A	N/A	N/A	N/A
Tractor		65.4	61.4	N/A	N/A	N/A	N/A
Tractor		63.7	59.8	N/A	N/A	N/A	N/A
Tractor		62.3	58.4	N/A	N/A	N/A	N/A
	Total	**79**	**76**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/17/2020
Case Description: Moiola Park Residences - Grading

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Home to North	Residential	57.1	57.1	57.1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	70	5
Excavator	No	40		80.7	120	5
Grader	No	40	85		170	5
Dozer	No	40		81.7	220	5
Tractor	No	40	84		270	5
Scraper	No	40		83.6	320	5
Scraper	No	40		83.6	370	5
Tractor	No	40	84		420	5
Welder / Torch	No	40		74	470	5

		Calculated (dBA)		Results Noise Limits (dBA) Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		72.8	68.8	N/A	N/A	N/A	N/A
Excavator		68.1	64.1	N/A	N/A	N/A	N/A
Grader		69.4	65.4	N/A	N/A	N/A	N/A
Dozer		64	60	N/A	N/A	N/A	N/A
Tractor		64.4	60.4	N/A	N/A	N/A	N/A
Scraper		62.5	58.5	N/A	N/A	N/A	N/A
Scraper		61.2	57.2	N/A	N/A	N/A	N/A
Tractor		60.5	56.5	N/A	N/A	N/A	N/A
Welder / Torch		49.5	45.6	N/A	N/A	N/A	N/A
	Total	**73**	**72**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/17/2020
Case Description: Moiola Park Residences - Grading

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Homes to South	Residential	53	53	52.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	70	5
Excavator	No	40		80.7	120	5
Grader	No	40	85		170	5
Dozer	No	40		81.7	220	5
Tractor	No	40	84		270	5
Scraper	No	40		83.6	320	5
Scraper	No	40		83.6	370	5
Tractor	No	40.0	84		420	5
Welder / Torch	No	40.0		74	470	5

Equipment		Calculated (dBA) *Lmax	Leq	Results Day Lmax	Noise Limits (dBA) Day Leq	Evening Lmax	Evening Leq
Excavator		72.8	68.8	N/A	N/A	N/A	N/A
Excavator		68.1	64.1	N/A	N/A	N/A	N/A
Grader		69.4	65.4	N/A	N/A	N/A	N/A
Dozer		63.8	59.8	N/A	N/A	N/A	N/A
Tractor		64.4	60.4	N/A	N/A	N/A	N/A
Scraper		62.5	58.5	N/A	N/A	N/A	N/A
Scraper		61.2	57.2	N/A	N/A	N/A	N/A
Tractor		60.5	56.5	N/A	N/A	N/A	N/A
Welder / Torch		49.5	45.6	N/A	N/A	N/A	N/A
	Total	**73**	**72**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/17/2020
Case Description: Moiola Park Residences - Grading

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Homes to West	Residential	53	53	52.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	40	5
Excavator	No	40		80.7	90	5
Grader	No	40	85		140	5
Dozer	No	40		81.7	190	5
Tractor	No	40	84		240	5
Scraper	No	40		83.6	290	5
Scraper	No	40		83.6	340	5
Tractor	No	40	84		390	5
Welder / Torch	No	40		74	440	5

Equipment		Calculated (dBA) *Lmax	Leq	Results Day Lmax	Noise Limits (dBA) Day Leq	Evening Lmax	Evening Leq
Excavator		77.6	73.7	N/A	N/A	N/A	N/A
Excavator		70.6	66.6	N/A	N/A	N/A	N/A
Grader		71.1	67.1	N/A	N/A	N/A	N/A
Dozer		65.1	61.1	N/A	N/A	N/A	N/A
Tractor		65.4	61.4	N/A	N/A	N/A	N/A
Scraper		63.3	59.3	N/A	N/A	N/A	N/A
Scraper		61.9	58.0	N/A	N/A	N/A	N/A
Tractor		61.2	57.2	N/A	N/A	N/A	N/A
Welder / Torch		50.1	46.1	N/A	N/A	N/A	N/A
	Total	**78**	**76**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/17/2020
Case Description: Moiola Park Residences - Building Construction

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Home to North	Residential	57.1	57.1	57.1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	90	5
Gradall	No	40		83.4	140	5
Gradall	No	40		83.4	190	5
Gradall	No	40		83.4	240	5
Generator	No	50		80.6	290	5
Tractor	No	40	84		340	5
Tractor	No	40	84		390	5
Tractor	No	40	84		440	5
Welder / Torch	No	40		74	490	5

Equipment		Calculated (dBA) *Lmax	Leq	Results Day Lmax	Noise Limits (dBA) Leq	Evening Lmax	Leq
Crane		70.4	62.5	N/A	N/A	N/A	N/A
Gradall		69.5	65.5	N/A	N/A	N/A	N/A
Gradall		66.8	62.8	N/A	N/A	N/A	N/A
Gradall		64.8	60.8	N/A	N/A	N/A	N/A
Generator		60.4	57.4	N/A	N/A	N/A	N/A
Tractor		62.3	58.4	N/A	N/A	N/A	N/A
Tractor		61.2	57.2	N/A	N/A	N/A	N/A
Tractor		60.1	56.1	N/A	N/A	N/A	N/A
Welder / Torch		49.2	45.2	N/A	N/A	N/A	N/A
	Total	**70**	**70**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/17/2020
Case Description: Moiola Park Residences - Building Construction

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Homes to South	Residential	52.7	52.7	52.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	90	5
Gradall	No	40		83.4	140	5
Gradall	No	40		83.4	190	5
Gradall	No	40		83.4	240	5
Generator	No	50		80.6	290	5
Tractor	No	40	84		340	5
Tractor	No	40	84		390	5
Tractor	No	40	84		440	5
Welder / Torch	No	40		74	490	5

Equipment		Calculated (dBA) *Lmax	Leq	Results Day Lmax	Noise Limits (dBA) Day Leq	Evening Lmax	Evening Leq
Crane		70.4	62.5	N/A	N/A	N/A	N/A
Gradall		69.5	65.5	N/A	N/A	N/A	N/A
Gradall		66.8	62.8	N/A	N/A	N/A	N/A
Gradall		64.8	60.8	N/A	N/A	N/A	N/A
Generator		60.4	57.4	N/A	N/A	N/A	N/A
Tractor		62.3	58.4	N/A	N/A	N/A	N/A
Tractor		61.2	57.2	N/A	N/A	N/A	N/A
Tractor		60.1	56.1	N/A	N/A	N/A	N/A
Welder / Torch		49.2	45.2	N/A	N/A	N/A	N/A
	Total	**70**	**70**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/17/2020
Case Description: Moiola Park Residences - Building Construction

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Homes to West	Residential	53	53	52.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	75	5
Gradall	No	40		83.4	125	5
Gradall	No	40		83.4	175	5
Gradall	No	40		83.4	225	5
Generator	No	50		80.6	275	5
Tractor	No	40	84		325	5
Tractor	No	40	84		375	5
Tractor	No	40	84		425	5
Welder / Torch	No	40		74	475	5

Equipment		Calculated (dBA) *Lmax	Leq	Results Day Lmax	Noise Limits (dBA) Day Leq	Evening Lmax	Evening Leq
Crane		72.0	64.1	N/A	N/A	N/A	N/A
Gradall		70.4	66.5	N/A	N/A	N/A	N/A
Gradall		67.5	63.5	N/A	N/A	N/A	N/A
Gradall		65.3	61.4	N/A	N/A	N/A	N/A
Generator		60.8	57.8	N/A	N/A	N/A	N/A
Tractor		62.7	58.8	N/A	N/A	N/A	N/A
Tractor		61.5	57.5	N/A	N/A	N/A	N/A
Tractor		60.4	56.4	N/A	N/A	N/A	N/A
Welder / Torch		49.4	45.5	N/A	N/A	N/A	N/A
	Total	**72**	**71**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/17/2020
Case Description: Moiola Park Residences - Paving

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Home to North	Residential	57.1	57.1	57.1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	70	5
Paver	No	50		77.2	120	5
Paver	No	50		77.2	170	5
Paver	No	50		77.2	220	5
Roller	No	20		80	270	5
Roller	No	20		80	320	5

		Results Calculated (dBA)		Noise Limits (dBA) Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver		69.3	66.3	N/A	N/A	N/A	N/A
Paver		64.6	61.6	N/A	N/A	N/A	N/A
Paver		61.6	58.6	N/A	N/A	N/A	N/A
Paver		59.4	56.3	N/A	N/A	N/A	N/A
Roller		60.4	53.4	N/A	N/A	N/A	N/A
Roller		58.9	51.9	N/A	N/A	N/A	N/A
	Total	**69**	**69**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/17/2020
Case Description: Moiola Park Residences - Paving

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Homes to South	Residential	52.7	52.7	52.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	170	5
Paver	No	50		77.2	220	5
Paver	No	50		77.2	270	5
Paver	No	50		77.2	320	5
Roller	No	20		80	370	5
Roller	No	20		80	420	5

		Calculated (dBA)		Results Noise Limits (dBA) Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver		61.6	58.6	N/A	N/A	N/A	N/A
Paver		59.4	56.3	N/A	N/A	N/A	N/A
Paver		57.6	54.6	N/A	N/A	N/A	N/A
Paver		56.1	53.1	N/A	N/A	N/A	N/A
Roller		57.6	50.6	N/A	N/A	N/A	N/A
Roller		56.5	49.5	N/A	N/A	N/A	N/A
	Total	**62**	**63**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/17/2020
Case Description: Moiola Park Residences - Paving

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Homes to West	Residential	53	53	52.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	140	5
Paver	No	50		77.2	190	5
Paver	No	50		77.2	240	5
Paver	No	50		77.2	290	5
Roller	No	20		80	340	5
Roller	No	20		80	390	5

Equipment		Calculated (dBA) *Lmax	Leq	Results Day Lmax	Noise Limits (dBA) Day Leq	Evening Lmax	Evening Leq
Paver		63.3	60.3	N/A	N/A	N/A	N/A
Paver		60.6	57.6	N/A	N/A	N/A	N/A
Paver		58.6	55.6	N/A	N/A	N/A	N/A
Paver		57.0	53.9	N/A	N/A	N/A	N/A
Roller		58.3	51.4	N/A	N/A	N/A	N/A
Roller		57.2	50.2	N/A	N/A	N/A	N/A
	Total	**63**	**64**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/17/2020
Case Description: Moiola Park Residences - Architectural Coatings

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Home to North	Residential	57.1	57.1	57.1

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	90	5

Equipment		Results Calculated (dBA) *Lmax	Leq	Day Lmax	Noise Limits (dBA) Leq	Evening Lmax	Leq
Compressor (air)		67.6	63.6	N/A	N/A	N/A	N/A
	Total	**68**	**64**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Homes to South	Residential	52.7	52.7	52.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	90	5

Equipment		Results Calculated (dBA) *Lmax	Leq	Day Lmax	Noise Limits (dBA) Leq	Evening Lmax	Leq
Compressor (air)		67.6	63.6	N/A	N/A	N/A	N/A
	Total	**68**	**64**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 2/17/2020
Case Description: Moiola Park Residences - Architectural Coatings

				---- Receptor #3 ----
		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Nearest Homes to West	Residential	53	53	52.7

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	75	5

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)		69	65	N/A	N/A	N/A	N/A
	Total	**69**	**65**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING CONDITIONS

Project: Moiola Park Residences
Site Conditions: Soft

	Vehicle Mix 1 (Local)				Vehicle Mix 2 (Secondary)				Vehicle Mix 3 (I-10)			
Vehicle Type	Day	Evening	Night	Daily	Day	Evening	Night	Daily	Day	Evenin	Night	Daily
Automobiles	73.60%	13.60%	10.22%	97.42%	69.50%	12.90%	9.60%	92.00%	59.18%	12.13%	14.19%	85.50%
Medium Trucks	0.90%	0.90%	0.04%	1.84%	1.44%	0.06%	1.50%	3.00%	2.77%	0.55%	1.79%	5.10%
Heavy Trucks	0.35%	0.04%	0.35%	0.74%	2.40%	0.10%	2.50%	5.00%	4.68%	0.49%	4.23%	9.40%

Road Name: **Bushard Street** **Segment:** **North of Ellis Avenue**
Average Daily Traffic: 6300 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 Roadway Classification: Secondary

	NOISE PARAMETERS AT 50 FEET FROM CENTERLINE (Equiv. Lane Dist: 45.38 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	69.34	-4.21	0.53	-1.20	64.47	62.10	60.80	54.75	63.18	63.81	70 dBA:	**20**	**21**
Medium Trucks	77.62	-19.07	0.53	-1.20	57.88	38.67	30.89	40.10	46.25	46.28	65 dBA:	**42**	**46**
Heavy Trucks	82.14	-16.85	0.53	-1.20	64.62	47.63	39.84	49.05	55.21	55.24	60 dBA:	**91**	**99**
				Total:	**68.00**	**62.27**	**60.84**	**55.90**	**63.90**	**64.44**	55 dBA:	**196**	**213**

Road Name: **Bushard Street** **Segment:** **South of Ellis Avenue**
Average Daily Traffic: 6620 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 Roadway Classification: Secondary

	NOISE PARAMETERS AT 55 FEET FROM CENTERLINE (Equiv. Lane Dist: 50.83 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	69.34	-3.99	-0.21	-1.20	63.94	61.57	60.28	54.22	62.65	63.29	70 dBA:	**20**	**22**
Medium Trucks	77.62	-18.86	-0.21	-1.20	57.35	38.15	30.36	39.57	45.73	45.76	65 dBA:	**43**	**47**
Heavy Trucks	82.14	-16.64	-0.21	-1.20	64.09	47.10	39.32	48.53	54.68	54.72	60 dBA:	**92**	**100**
				Total:	**67.47**	**61.74**	**60.32**	**55.37**	**63.37**	**63.92**	55 dBA:	**199**	**216**

Road Name: **Redwood Street** **Segment:** **North of Finch Avenue**
Average Daily Traffic: 4010 Vehicles Vehicle Speed: 25 MPH Vehicle Mix: 2 Roadway Classification: Secondary

	NOISE PARAMETERS AT 45 FEET FROM CENTERLINE (Equiv. Lane Dist: 39.8 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-3.62	1.38	-1.20	56.01	53.64	52.34	46.29	54.72	55.35	70 dBA:	**6**	**7**
Medium Trucks	71.09	-18.48	1.38	-1.20	52.79	33.58	25.80	35.01	41.16	41.19	65 dBA:	**14**	**14**
Heavy Trucks	78.74	-16.26	1.38	-1.20	62.66	45.67	37.89	47.10	53.25	53.29	60 dBA:	**29**	**31**
				Total:	**63.86**	**54.32**	**52.50**	**49.87**	**57.17**	**57.55**	55 dBA:	**63**	**67**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING CONDITIONS

Project: Moiola Park Residences
Site Conditions: Soft

Road Name: Redwood Street **Segment: South of Finch Avenue**

Average Daily Traffic: 4010 Vehicles | Vehicle Speed: 25 MPH | Vehicle Mix: 2 | Roadway Classification: Secondary

	NOISE PARAMETERS AT 45 FEET FROM CENTERLINE (Equiv. Lane Dist: 39.8 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-3.62	1.38	-1.20	56.01	53.64	52.34	46.29	54.72	55.35	70 dBA:	**6**	**7**
Medium Trucks	71.09	-18.48	1.38	-1.20	52.79	33.58	25.80	35.01	41.16	41.19	65 dBA:	**14**	**14**
Heavy Trucks	78.74	-16.26	1.38	-1.20	62.66	45.67	37.89	47.10	53.25	53.29	60 dBA:	**29**	**31**
				Total:	**63.86**	**54.32**	**52.50**	**49.87**	**57.17**	**57.55**	55 dBA:	**63**	**67**

Road Name: Redwood Street **Segment: South of Robin Avenue**

Average Daily Traffic: 4030 Vehicles | Vehicle Speed: 25 MPH | Vehicle Mix: 1 | Roadway Classification: Local

	NOISE PARAMETERS AT 45 FEET FROM CENTERLINE (Equiv. Lane Dist: 44.45 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-3.35	0.66	-1.20	55.56	53.43	52.12	46.11	54.53	55.16	70 dBA:	**4**	**5**
Medium Trucks	71.09	-20.58	0.66	-1.20	49.97	28.72	34.74	16.44	29.59	32.34	65 dBA:	**9**	**10**
Heavy Trucks	78.74	-24.54	0.66	-1.20	53.66	28.31	24.91	29.56	35.76	35.86	60 dBA:	**20**	**22**
				Total:	**58.40**	**53.46**	**52.21**	**46.21**	**54.60**	**55.23**	55 dBA:	**42**	**47**

Road Name: Ellis Avenue **Segment: West of Bushard Street**

Average Daily Traffic: 4070 Vehicles | Vehicle Speed: 45 MPH | Vehicle Mix: 1 | Roadway Classification: Local

	NOISE PARAMETERS AT 50 FEET FROM CENTERLINE (Equiv. Lane Dist: 49.51 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	69.34	-5.86	-0.04	-1.20	62.25	60.13	58.81	52.80	61.22	61.85	70 dBA:	**13**	**14**
Medium Trucks	77.62	-23.09	-0.04	-1.20	53.29	32.04	38.06	19.77	32.91	35.66	65 dBA:	**28**	**31**
Heavy Trucks	82.14	-27.05	-0.04	-1.20	53.85	28.50	25.10	29.75	35.95	36.05	60 dBA:	**60**	**67**
				Total:	**63.29**	**60.14**	**58.85**	**52.83**	**61.24**	**61.87**	55 dBA:	**130**	**144**

Road Name: Ellis Avenue **Segment: East of Bushard Street**

Average Daily Traffic: 4130 Vehicles | Vehicle Speed: 45 MPH | Vehicle Mix: 1 | Roadway Classification: Local

	NOISE PARAMETERS AT 50 FEET FROM CENTERLINE (Equiv. Lane Dist: 49.51 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	69.34	-5.79	-0.04	-1.20	62.31	60.19	58.88	52.87	61.29	61.91	70 dBA:	**13**	**14**
Medium Trucks	77.62	-23.03	-0.04	-1.20	53.35	32.10	38.12	19.83	32.98	35.73	65 dBA:	**28**	**31**
Heavy Trucks	82.14	-26.99	-0.04	-1.20	53.92	28.57	25.17	29.82	36.01	36.11	60 dBA:	**61**	**67**
				Total:	**63.36**	**60.20**	**58.92**	**52.89**	**61.31**	**61.93**	55 dBA:	**132**	**145**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING CONDITIONS

Project: Moiola Park Residences
Site Conditions: Soft

Road Name: Starling Avenue **Segment: West of Redwood Avenue**
Average Daily Traffic: 6600 Vehicles Vehicle Speed: 25 MPH Vehicle Mix: 1 Roadway Classification: Local

	NOISE PARAMETERS AT 45 FEET FROM CENTERLINE (Equiv. Lane Dist: 44.45 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-1.20	0.66	-1.20	57.70	55.58	54.26	48.25	56.67	57.30	70 dBA:	**6**	**6**
Medium Trucks	71.09	-18.44	0.66	-1.20	52.11	30.86	36.88	18.59	31.73	34.48	65 dBA:	**13**	**14**
Heavy Trucks	78.74	-22.40	0.66	-1.20	55.81	30.46	27.06	31.70	37.90	38.00	60 dBA:	**27**	**30**
				Total:	**60.54**	**55.60**	**54.35**	**48.35**	**56.74**	**57.37**	55 dBA:	**59**	**65**

Road Name: Finch Avenue **Segment: East of Redwood Avenue**
Average Daily Traffic: 4180 Vehicles Vehicle Speed: 25 MPH Vehicle Mix: 1 Roadway Classification: Local

	NOISE PARAMETERS AT 45 FEET FROM CENTERLINE (Equiv. Lane Dist: 44.45 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-3.19	0.66	-1.20	55.72	53.59	52.28	46.27	54.69	55.31	70 dBA:	**4**	**5**
Medium Trucks	71.09	-20.42	0.66	-1.20	50.13	28.88	34.90	16.60	29.75	32.50	65 dBA:	**9**	**10**
Heavy Trucks	78.74	-24.38	0.66	-1.20	53.82	28.47	25.07	29.72	35.92	36.02	60 dBA:	**20**	**22**
				Total:	**58.56**	**53.62**	**52.37**	**46.37**	**54.76**	**55.39**	55 dBA:	**43**	**48**

Road Name: Robin Avenue **Segment: West of Redwood Avenue**
Average Daily Traffic: 3640 Vehicles Vehicle Speed: 25 MPH Vehicle Mix: 1 Roadway Classification: Local

	NOISE PARAMETERS AT 45 FEET FROM CENTERLINE (Equiv. Lane Dist: 44.45 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-3.79	0.66	-1.20	55.12	52.99	51.68	45.67	54.09	54.71	70 dBA:	**4**	**4**
Medium Trucks	71.09	-21.03	0.66	-1.20	49.52	28.28	34.30	16.00	29.15	31.90	65 dBA:	**9**	**9**
Heavy Trucks	78.74	-24.98	0.66	-1.20	53.22	27.87	24.47	29.12	35.32	35.41	60 dBA:	**18**	**20**
				Total:	**57.95**	**53.02**	**51.77**	**45.77**	**54.16**	**54.79**	55 dBA:	**40**	**44**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING WITH PROJECT CONDITIONS

Project: Moiola Park Residences
Site Conditions: Soft

	Vehicle Mix 1 (Local)				Vehicle Mix 2 (Secondary)				Vehicle Mix 3 (I-10)			
Vehicle Type	Day	Evening	Night	Daily	Day	Evening	Night	Daily	Day	Evenin	Night	Daily
Automobiles	73.60%	13.60%	10.22%	97.42%	69.50%	12.90%	9.60%	92.00%	59.18%	12.13%	14.19%	85.50%
Medium Trucks	0.90%	0.90%	0.04%	1.84%	1.44%	0.06%	1.50%	3.00%	2.77%	0.55%	1.79%	5.10%
Heavy Trucks	0.35%	0.04%	0.35%	0.74%	2.40%	0.10%	2.50%	5.00%	4.68%	0.49%	4.23%	9.40%

Road Name: **Bushard Street** **Segment:** **North of Ellis Avenue**
Average Daily Traffic: 6430 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 Roadway Classification: Secondary

	NOISE PARAMETERS AT 50 FEET FROM CENTERLINE (Equiv. Lane Dist: 45.38 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	69.34	-4.12	0.53	-1.20	64.56	62.18	60.89	54.84	63.27	63.90	70 dBA:	**20**	**22**
Medium Trucks	77.62	-18.98	0.53	-1.20	57.97	38.76	30.98	40.19	46.34	46.37	65 dBA:	**43**	**47**
Heavy Trucks	82.14	-16.77	0.53	-1.20	64.70	47.72	39.93	49.14	55.30	55.33	60 dBA:	**92**	**100**
				Total:	**68.09**	**62.36**	**60.93**	**55.99**	**63.99**	**64.53**	55 dBA:	**199**	**216**

Road Name: **Bushard Street** **Segment:** **South of Ellis Avenue**
Average Daily Traffic: 6840 Vehicles Vehicle Speed: 45 MPH Vehicle Mix: 2 Roadway Classification: Secondary

	NOISE PARAMETERS AT 55 FEET FROM CENTERLINE (Equiv. Lane Dist: 50.83 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	69.34	-3.85	-0.21	-1.20	64.08	61.71	60.42	54.36	62.80	63.43	70 dBA:	**20**	**22**
Medium Trucks	77.62	-18.72	-0.21	-1.20	57.50	38.29	30.51	39.71	45.87	45.90	65 dBA:	**44**	**48**
Heavy Trucks	82.14	-16.50	-0.21	-1.20	64.23	47.24	39.46	48.67	54.82	54.86	60 dBA:	**94**	**103**
				Total:	**67.61**	**61.88**	**60.46**	**55.52**	**63.51**	**64.06**	55 dBA:	**203**	**221**

Road Name: **Redwood Street** **Segment:** **North of Finch Avenue**
Average Daily Traffic: 4330 Vehicles Vehicle Speed: 25 MPH Vehicle Mix: 2 Roadway Classification: Secondary

	NOISE PARAMETERS AT 45 FEET FROM CENTERLINE (Equiv. Lane Dist: 39.8 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-3.28	1.38	-1.20	56.34	53.97	52.68	46.62	55.05	55.68	70 dBA:	**7**	**7**
Medium Trucks	71.09	-18.15	1.38	-1.20	53.12	33.91	26.13	35.34	41.49	41.53	65 dBA:	**14**	**15**
Heavy Trucks	78.74	-15.93	1.38	-1.20	62.99	46.00	38.22	47.43	53.58	53.62	60 dBA:	**31**	**33**
				Total:	**64.20**	**54.65**	**52.84**	**50.20**	**57.50**	**57.88**	55 dBA:	**66**	**70**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING WITH PROJECT CONDITIONS

Project: Moiola Park Residences
Site Conditions: Soft

Road Name: Redwood Street **Segment: South of Finch Avenue**

Average Daily Traffic: 4030 Vehicles | Vehicle Speed: 25 MPH | Vehicle Mix: 2 | Roadway Classification: Secondary

	NOISE PARAMETERS AT 45 FEET FROM CENTERLINE (Equiv. Lane Dist: 39.8 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-3.59	1.38	-1.20	56.03	53.66	52.36	46.31	54.74	55.37	70 dBA:	**6**	**7**
Medium Trucks	71.09	-18.46	1.38	-1.20	52.81	33.60	25.82	35.03	41.18	41.22	65 dBA:	**14**	**14**
Heavy Trucks	78.74	-16.24	1.38	-1.20	62.68	45.69	37.91	47.12	53.27	53.31	60 dBA:	**29**	**31**
				Total:	**63.88**	**54.34**	**52.53**	**49.89**	**57.19**	**57.57**	55 dBA:	**63**	**67**

Road Name: Redwood Street **Segment: South of Robin Avenue**

Average Daily Traffic: 4100 Vehicles | Vehicle Speed: 25 MPH | Vehicle Mix: 1 | Roadway Classification: Local

	NOISE PARAMETERS AT 45 FEET FROM CENTERLINE (Equiv. Lane Dist: 44.45 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-3.27	0.66	-1.20	55.63	53.51	52.20	46.18	54.60	55.23	70 dBA:	**4**	**5**
Medium Trucks	71.09	-20.51	0.66	-1.20	50.04	28.79	34.81	16.52	29.66	32.42	65 dBA:	**9**	**10**
Heavy Trucks	78.74	-24.46	0.66	-1.20	53.74	28.39	24.99	29.64	35.84	35.93	60 dBA:	**20**	**22**
				Total:	**58.47**	**53.54**	**52.28**	**46.28**	**54.68**	**55.30**	55 dBA:	**43**	**47**

Road Name: Ellis Avenue **Segment: West of Bushard Street**

Average Daily Traffic: 4090 Vehicles | Vehicle Speed: 45 MPH | Vehicle Mix: 1 | Roadway Classification: Local

	NOISE PARAMETERS AT 50 FEET FROM CENTERLINE (Equiv. Lane Dist: 49.51 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	69.34	-5.83	-0.04	-1.20	62.27	60.15	58.84	52.82	61.24	61.87	70 dBA:	**13**	**14**
Medium Trucks	77.62	-23.07	-0.04	-1.20	53.31	32.06	38.08	19.79	32.93	35.69	65 dBA:	**28**	**31**
Heavy Trucks	82.14	-27.03	-0.04	-1.20	53.87	28.52	25.12	29.77	35.97	36.07	60 dBA:	**61**	**67**
				Total:	**63.32**	**60.16**	**58.87**	**52.85**	**61.26**	**61.89**	55 dBA:	**131**	**144**

Road Name: Ellis Avenue **Segment: East of Bushard Street**

Average Daily Traffic: 4180 Vehicles | Vehicle Speed: 45 MPH | Vehicle Mix: 1 | Roadway Classification: Local

	NOISE PARAMETERS AT 50 FEET FROM CENTERLINE (Equiv. Lane Dist: 49.51 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	69.34	-5.74	-0.04	-1.20	62.37	60.24	58.93	52.92	61.34	61.96	70 dBA:	**13**	**15**
Medium Trucks	77.62	-22.98	-0.04	-1.20	53.41	32.16	38.18	19.88	33.03	35.78	65 dBA:	**29**	**31**
Heavy Trucks	82.14	-26.93	-0.04	-1.20	53.97	28.62	25.22	29.87	36.07	36.16	60 dBA:	**62**	**68**
				Total:	**63.41**	**60.25**	**58.97**	**52.94**	**61.36**	**61.99**	55 dBA:	**133**	**146**

FHWA-RD-77-108 HIGHWAY TRAFFIC NOISE PREDICTION MODEL

Scenario: EXISTING WITH PROJECT CONDITIONS

Project: Moiola Park Residences
Site Conditions: Soft

Road Name: Starling Avenue **Segment: West of Redwood Avenue**

Average Daily Traffic: 6700 Vehicles | Vehicle Speed: 25 MPH | Vehicle Mix: 1 | Roadway Classification: Local

	NOISE PARAMETERS AT 45 FEET FROM CENTERLINE (Equiv. Lane Dist: 44.45 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-1.14	0.66	-1.20	57.77	55.64	54.33	48.32	56.74	57.36	70 dBA:	**6**	**7**
Medium Trucks	71.09	-18.38	0.66	-1.20	52.17	30.92	36.95	18.65	31.80	34.55	65 dBA:	**13**	**14**
Heavy Trucks	78.74	-22.33	0.66	-1.20	55.87	30.52	27.12	31.77	37.97	38.06	60 dBA:	**28**	**30**
				Total:	**60.60**	**55.67**	**54.42**	**48.42**	**56.81**	**57.44**	55 dBA:	**59**	**65**

Road Name: Finch Avenue **Segment: East of Redwood Avenue**

Average Daily Traffic: 4880 Vehicles | Vehicle Speed: 25 MPH | Vehicle Mix: 1 | Roadway Classification: Local

	NOISE PARAMETERS AT 45 FEET FROM CENTERLINE (Equiv. Lane Dist: 44.45 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-2.51	0.66	-1.20	56.39	54.27	52.95	46.94	55.36	55.99	70 dBA:	**5**	**5**
Medium Trucks	71.09	-19.75	0.66	-1.20	50.80	29.55	35.57	17.28	30.42	33.17	65 dBA:	**10**	**11**
Heavy Trucks	78.74	-23.71	0.66	-1.20	54.49	29.14	25.74	30.39	36.59	36.69	60 dBA:	**22**	**25**
				Total:	**59.23**	**54.29**	**53.04**	**47.04**	**55.43**	**56.06**	55 dBA:	**48**	**53**

Road Name: Robin Avenue **Segment: West of Redwood Avenue**

Average Daily Traffic: 4140 Vehicles | Vehicle Speed: 25 MPH | Vehicle Mix: 1 | Roadway Classification: Local

	NOISE PARAMETERS AT 45 FEET FROM CENTERLINE (Equiv. Lane Dist: 44.45 ft)										**Centerline Distance to**		
	Noise Adjustments				**Unmitigated Noise Levels**						**Noise Contour (in feet)**		
Vehicle Type	REMEL	Traffic Adj.	Dist Adj.	Finite Adj	Leq Peak	Leq Day	Leq Eve.	Leq Night	Ldn	CNEL		Ldn	CNEL
Automobiles	59.44	-3.23	0.66	-1.20	55.67	53.55	52.24	46.23	54.65	55.27	70 dBA:	**4**	**5**
Medium Trucks	71.09	-20.47	0.66	-1.20	50.08	28.83	34.85	16.56	29.71	32.46	65 dBA:	**9**	**10**
Heavy Trucks	78.74	-24.42	0.66	-1.20	53.78	28.43	25.03	29.68	35.88	35.97	60 dBA:	**20**	**22**
				Total:	**58.51**	**53.58**	**52.33**	**46.33**	**54.72**	**55.35**	55 dBA:	**43**	**47**