NOISE IMPACT ANALYSIS

GRISWOLD RESIDENTIAL PROJECT

COUNTY OF LOS ANGELES

Lead Agency:

County of Los Angeles
Department of Regional Planning
320 West Temple Street
Los Angeles, California 90012

Prepared by:

Vista Environmental
1021 Didrickson Way
Laguna Beach, California 92651
949 510 5355
Greg Tonkovich, INCE

Project No. 20021

January 18, 2021

TABLE OF CONTENTS

1.0 Introduction 1

1.1 Purpose of Analysis and Study Objectives 1
1.2 Site Location and Study Area 1
1.3 Proposed Project Description 1
1.4 Standard Noise Regulatory Conditions 2
1.5 Summary of Analysis Results 2
1.6 Mitigation Measures for the Proposed Project 3

2.0 Noise Fundamentals 6

2.1 Noise Descriptors 6
2.2 Tone Noise 6
2.3 Noise Propagation 6
2.4 Ground Absorption 7

3.0 Ground-Borne Vibration Fundamentals 8

3.1 Vibration Descriptors 8
3.2 Vibration Perception 8
3.3 Vibration Propagation 8

4.0 Regulatory Setting 9

4.1 Federal Regulations 9
4.2 State Regulations 10
4.3 Local Regulations 11

5.0 Existing Noise Conditions 16

5.1 Noise Measurement Equipment 16
5.2 Noise Measurement Results 16

6.0 Modeling Parameters and Assumptions 20

6.1 Construction Noise 20
6.2 Operations-Related Noise 21
6.3 Vibration 23

7.0 Impact Analysis 24

7.1 CEQA Thresholds of Significance 24
7.2 Generation of Noise Levels in Excess of Standards 24
7.3 Generation of Excessive Groundborne Vibration 28
7.4 Aircraft Noise 30

8.0 References 31

TABLE OF CONTENTS CONTINUED

APPENDICES

Appendix A – Field Noise Measurements Photo Index

Appendix B – Field Noise Measurements Printouts

Appendix C – RCNM Model Construction Noise Calculations

Appendix D – FHWA Model Traffic Noise Calculation

LIST OF FIGURES

Figure 1 – Project Location Map 4
Figure 2 – Proposed Site Plan 5
Figure 3 – Field Noise Monitoring Locations 18
Figure 4 – Field Noise Measurements Graph 19

LIST OF TABLES

Table A – FTA Project Effects on Cumulative Noise Exposure 9
Table B – County of Los Angeles Exterior Noise Standards 12
Table C – County of Los Angeles Interior Noise Standards 13
Table D – County of Los Angeles Mobile Equipment Residential Noise Standards 14
Table E – County of Los Angeles Stationary Equipment Residential Noise Standards 14
Table F – Existing (Ambient) Noise Measurement Results 17
Table G – Construction Equipment Noise Emissions and Usage Factors 20
Table H – FHWA Model Roadway Parameters 22
Table I – FHWA Model Average Daily Traffic Volumes 22
Table J – Roadway Vehicle Mix 23
Table K – Vibration Source Levels for Construction Equipment 23
Table L – Mobile Construction Noise Levels at the Nearby Homes 25
Table M – Stationary Construction Noise Levels at the Nearby Homes 26
Table N – Existing Year Project Traffic Noise Contributions 27
Table O – Opening Year 2023 Project Traffic Noise Contributions 28

ACRONYMS AND ABBREVIATIONS

ANSI	American National Standards Institute
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
County	County of Los Angeles
cmu	Concrete masonry unit
CNEL	Community Noise Equivalent Level
dB	Decibel
dBA	A-weighted decibels
DOT	Department of Transportation
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
EPA	Environmental Protection Agency
Hz	Hertz
Ldn	Day-night average noise level
Leq	Equivalent sound level
Lmax	Maximum noise level
ONAC	Federal Office of Noise Abatement and Control
OSHA	Occupational Safety and Health Administration
PPV	Peak particle velocity
RMS	Root mean square
SEL	Single Event Level or Sound Exposure Level
STC	Sound Transmission Class
UMTA	Federal Urban Mass Transit Administration
VdB	Vibration velocity level in decibels

1.0 INTRODUCTION

1.1 Purpose of Analysis and Study Objectives

This Noise Impact Analysis has been prepared to determine the noise impacts associated with the proposed Griswold Residential project (proposed project). The following is provided in this report:

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

1.2 Site Location and Study Area

The project site is located in an unincorporated portion of Los Angeles County (County) that is within the County's East San Gabriel Planning Area. Specifically, the approximately 9.61 gross acre project site is located at 16209 E San Bernardino Road, which formerly contained Griswold Elementary School that closed in 1989 and more recently contained Griswold Tri-Community Adult Education Center that consists of approximately seven school structures and paved parking areas on the north and south sides of the structures, as well as abandoned athletic fields on the north side of the project site. The project site is bounded by the Metrolink San Bernardino Line and single-family homes to the north, single-family homes to the east, San Bernardino Road and single-family homes to the south, and single-family homes to the west. The project study area is shown in Figure 1.

Sensitive Receptors in Project Vicinity

The nearest sensitive receptors to the project site are the single-family homes located as near as approximately 2 feet from the property lines on the east and west sides of the project site. There are also single-family homes located as near as 90 feet north of the project site and as near as 130 feet south of the project site. The nearest school is Merwin Elementary School that is located as near as a quarter mile north of the project site.

1.3 Proposed Project Description

The proposed project would consist of development of a residential community with 68 single-family homes with two common open space areas (private), which would be used for passive recreation and landscaping. The main common open space, at the southern portion of the property covering is anticipated to include a community open space area, a playground, a lawn area with bench seating, and a short-term bike rack. The community open space area would include a wood shade area, lighting, community BBQ, table and chair seating, and a fire pit. The playground would be adjacent to the community open space area and include a rubberized surface and play equipment. The proposed site plan is shown in Figure 2.

1.4 Standard Noise Regulatory Conditions

The proposed project will be required to comply with the following regulatory conditions from the County of Los Angeles and State of California.

County of Los Angeles Municipal Code

The following lists the County of Los Angeles Municipal Code regulations that are applicable to all residential projects in the County.

Section 12.08.390 Exterior noise standards

Section 12.08.390(A) of the County's Municipal Code limits exterior noise levels at the nearby residential uses to 50 dBA between the hours of 7:00 a.m. and 10:00 p.m. and to 45 dBA between the hours of 10:00 p.m. and 7:00 a.m.

Section 12.08.440 Construction noise

Section 12.08.440(A) limits construction activities and associated noise to between the weekday hours of 7:00 a.m. to 7:00 p.m. Section 12.08.440(B) limits noise from mobile construction equipment at nearby single-family residential uses to 75 dBA between the hours of 7:00 a.m. and 8:00 p.m. on weekdays and Saturdays. Construction-related activities and noise are prohibited on Sundays and legal holidays.

State of California Rules

The following lists the State of California rules that are applicable to all commercial projects in the State.

California Vehicle Code Section 27200-27207 – On-Road Vehicle Noise

California Vehicle Code Section 27200-27207 provides noise limits for vehicles operated in California. For vehicles over 10,000 pounds noise is limited to 88 dB for vehicles manufactured before 1973, 86 dB for vehicles manufactured before 1975, 83 dB for vehicles manufactured before 1988, and 80 dB for vehicles manufactured after 1987. All measurements are based at 50 feet from the vehicle.

California Vehicle Section 38365-38380 – Off-Road Vehicle Noise

California Vehicle Code Section 38365-38380 provides noise limits for off-highway motor vehicles operated in California. 92 dBA for vehicles manufactured before 1973, 88 dBA for vehicles manufactured before 1975, 86 dBA for vehicles manufactured before 1986, and 82 dBA for vehicles manufactured after December 31, 1985. All measurements are based at 50 feet from the vehicle.

1.5 Summary of Analysis Results

The following is a summary of the proposed project's impacts with regard to the State CEQA Guidelines noise checklist questions.

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?

Potentially significant impact. Implementation of Mitigation Measure 1 would reduce the impact to less than significant levels.

Generation of excessive groundborne vibration or groundborne noise levels?

Potentially significant impact. Implementation of Mitigation Measure 2 would reduce the impact to less than significant 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 levels?

No impact.

1.6 Mitigation Measures for the Proposed Project

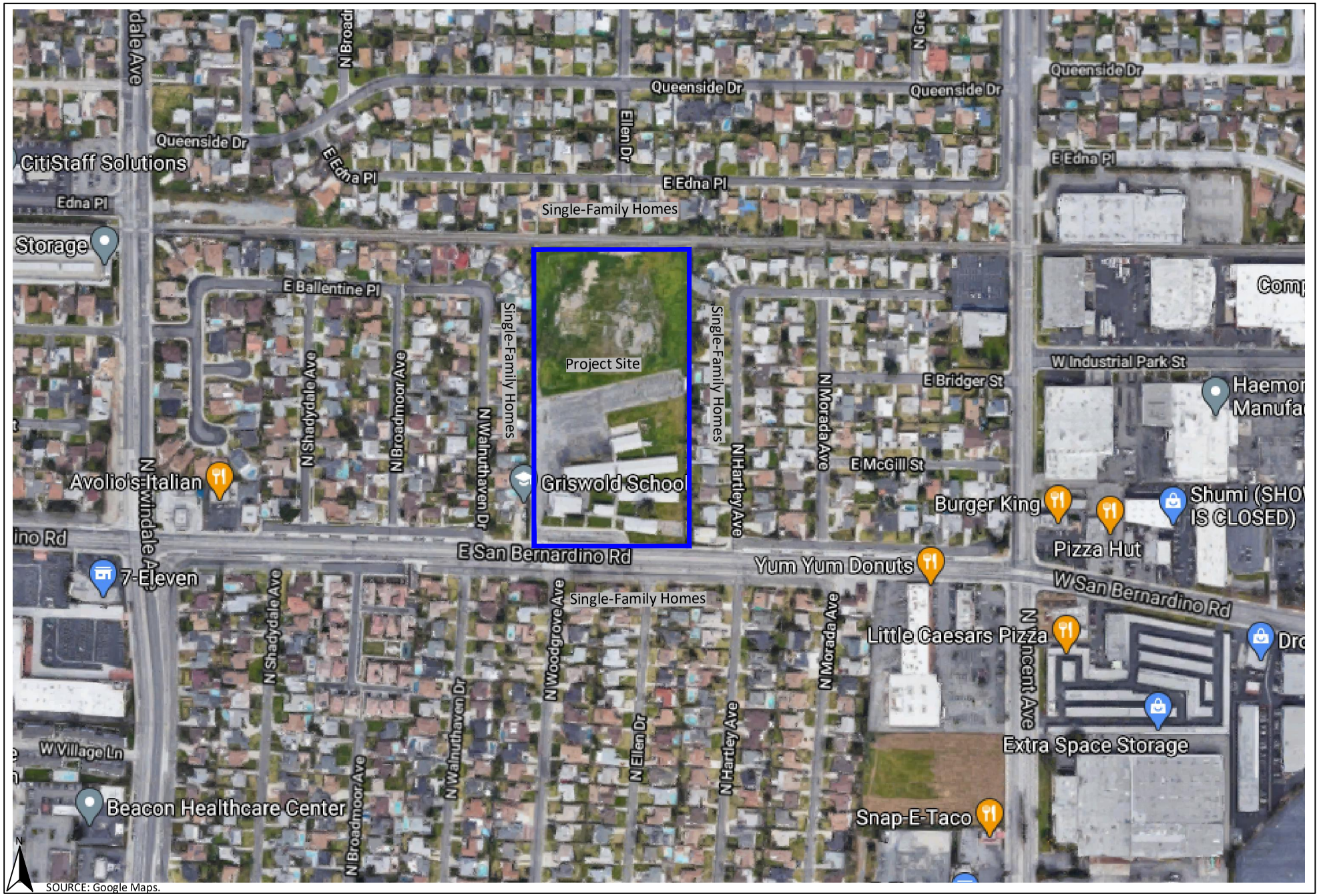
This analysis found that through adherence to the noise and vibration regulations detailed in Section 1.4 above, through implementation of the Project Design Features detailed in Section 1.6 above, and through implementation of the following mitigation all noise and vibration impacts would be reduced to less than significant levels.

Mitigation Measure 1:

During all construction activities the project applicant shall require a minimum 8-foot high sound blanket or sound wall to be placed on the side nearest the offsite homes to any stationary equipment (i.e., air compressors, generators, and welders) utilized onsite during construction of the proposed project and the stationary construction equipment shall be located a minimum of 100 feet from any offsite residential property line.

Mitigation Measure 2:

The project applicant shall restrict all contractors from operating any off-road construction equipment that is 150 horsepower or greater within 10 feet of either the east or west property lines in order to limit construction-related vibration levels at the nearby homes. Typical construction equipment that is less than 150 horsepower include backhoes, skid steers, skip loaders, and tractors, that are capable of performing all grading and excavation activities within the 10-foot wide areas adjacent to the east and west property lines.



SOURCE: Google Maps.

VISTA ENVIRONMENTAL

Figure 1
Project Location Map

SOURCE: MLC Holdings, Inc.

VISTA ENVIRONMENTAL

Figure 2
Proposed Site Plan

2.0 NOISE FUNDAMENTALS

The following discussion on noise fundamentals has been obtained from *Technical Noise Supplement to the Traffic Noise Analysis Protocol* (TeNS), prepared by Caltrans, September 2013. Noise is defined as unwanted sound. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Sound is produced by the vibration of sound pressure waves in the air. Sound pressure levels are used to measure the intensity of sound and are described in terms of decibels. The decibel (dB) is a logarithmic unit which expresses the ratio of the sound pressure level being measured to a standard reference level. A-weighted decibels (dBA) approximate the subjective response of the human ear to a broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear.

2.1 Noise Descriptors

Noise Equivalent sound levels are not measured directly, but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (Leq) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. The peak traffic hour Leq is the noise metric used by California Department of Transportation (Caltrans) for all traffic noise impact analyses.

The Day-Night Average Level (Ldn) is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of ten decibels to sound levels at night between 10 p.m. and 7 a.m. While the Community Noise Equivalent Level (CNEL) is similar to the Ldn, except that it has another addition of 4.77 decibels to sound levels during the evening hours between 7 p.m. and 10 p.m. These additions are made to the sound levels at these time periods because during the evening and nighttime hours, when compared to daytime hours, there is a decrease in the ambient noise levels, which creates an increased sensitivity to sounds. For this reason the sound appears louder in the evening and nighttime hours and is weighted accordingly. The County of Los Angeles relies on the CNEL noise standard to assess transportation-related impacts on noise sensitive land uses.

2.2 Tone Noise

A pure tone noise is a noise produced at a single frequency and laboratory tests have shown that humans are more perceptible to changes in noise levels of a pure tone. For a noise source to contain a “pure tone,” there must be a significantly higher A-weighted sound energy in a given frequency band than in the neighboring bands, thereby causing the noise source to “stand out” against other noise sources. A pure tone occurs if the sound pressure level in the one-third octave band with the tone exceeds the average of the sound pressure levels of the two contiguous one-third octave bands by:

- 5 dB for center frequencies of 500 hertz (Hz) and above
- 8 dB for center frequencies between 160 and 400 Hz
- 15 dB for center frequencies of 125 Hz or less

2.3 Noise Propagation

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise

reduces with distance depends on whether the source is a point or line source as well as ground absorption, atmospheric effects and refraction, and shielding by natural and manmade features. Sound from point sources, such as air conditioning condensers, radiate uniformly outward as it travels away from the source in a spherical pattern. The noise drop-off rate associated with this geometric spreading is 6 dBA per each doubling of the distance (dBA/DD). Transportation noise sources such as roadways are typically analyzed as line sources, since at any given moment the receiver may be impacted by noise from multiple vehicles at various locations along the roadway. Because of the geometry of a line source, the noise drop-off rate associated with the geometric spreading of a line source is 3 dBA/DD.

2.4 Ground Absorption

The sound drop-off rate is highly dependent on the conditions of the land between the noise source and receiver. To account for this ground-effect attenuation (absorption), two types of site conditions are commonly used in traffic noise models, soft-site and hard-site conditions. Soft-site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. For point sources, a drop-off rate of 7.5 dBA/DD is typically observed over soft ground with landscaping, as compared with a 6.0 dBA/DD drop-off rate over hard ground such as asphalt, concrete, stone and very hard packed earth. For line sources a 4.5 dBA/DD is typically observed for soft-site conditions compared to the 3.0 dBA/DD drop-off rate for hard-site conditions. Caltrans research has shown that the use of soft-site conditions is more appropriate for the application of the Federal Highway Administration (FHWA) traffic noise prediction model used in this analysis.

3.0 GROUND-BORNE VIBRATION FUNDAMENTALS

Ground-borne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of ground-borne vibrations typically only cause a nuisance to people, but at extreme vibration levels damage to buildings may occur. Although ground-borne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Ground-borne noise is an effect of ground-borne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

3.1 Vibration Descriptors

There are several different methods that are used to quantify vibration amplitude such as the maximum instantaneous peak in the vibrations velocity, which is known as the peak particle velocity (PPV) or the root mean square (rms) amplitude of the vibration velocity. Due to the typically small amplitudes of vibrations, vibration velocity is often expressed in decibels and is denoted as (L_v) and is based on the rms velocity amplitude. A commonly used abbreviation is "VdB", which in this text, is when L_v is based on the reference quantity of 1 micro inch per second.

3.2 Vibration Perception

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Off-site sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible ground-borne noise or vibration.

3.3 Vibration Propagation

The propagation of ground-borne vibration is not as simple to model as airborne noise. This is due to the fact that noise in the air travels through a relatively uniform median, while ground-borne vibrations travel through the earth which may contain significant geological differences. There are three main types of vibration propagation; surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse or "side-to-side and perpendicular to the direction of propagation."

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil but has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

4.0 REGULATORY SETTING

The project site is located in the County of Los Angeles. Noise regulations are addressed through the efforts of various federal, state, and local government agencies. The agencies responsible for regulating noise are discussed below.

4.1 Federal Regulations

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Promulgating noise emission standards for interstate commerce
- Assisting state and local abatement efforts
- Promoting noise education and research

The Federal Office of Noise Abatement and Control (ONAC) was initially tasked with implementing the Noise Control Act. However, the ONAC has since been eliminated, leaving the development of federal noise policies and programs to other federal agencies and interagency committees. For example, the Occupational Safety and Health Administration (OSHA) agency prohibits exposure of workers to excessive sound levels. The Department of Transportation (DOT) assumed a significant role in noise control through its various operating agencies. The Federal Aviation Administration (FAA) regulates noise of aircraft and airports. Surface transportation system noise is regulated by a host of agencies, including the Federal Transit Administration (FTA). Transit noise is regulated by the FTA, while freeways that are part of the interstate highway system are regulated by the Federal Highway Administration (FHWA). Finally, the federal government actively advocates that local jurisdictions use their land use regulatory authority to arrange new development in such a way that "noise sensitive" uses are either prohibited from being sited adjacent to a highway or, alternately that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

Although the proposed project is not under the jurisdiction of the FTA, the FTA is the only agency that has defined what constitutes a significant noise impact from implementing a project. The FTA standards are based on extensive studies by the FTA and other governmental agencies on the human effects and reaction to noise and a summary of the FTA findings are provided below in Table A.

Table A – FTA Project Effects on Cumulative Noise Exposure

Existing Noise Exposure (dBA Leq or Ldn)	Allowable Noise Impact Exposure dBA Leq or Ldn		
	Project Only	Combined	Noise Exposure Increase
45	51	52	+7
50	53	55	+5
55	55	58	+3
60	57	62	+2
65	60	66	+1
70	64	71	+1
75	65	75	0

Source: Federal Transit Administration, 2018.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by transportation sources, the County is restricted to regulating noise generated by the transportation system through nuisance abatement ordinances and land use planning.

4.2 State Regulations

Noise Standards

California Department of Health Services Office of Noise Control

Established in 1973, the California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regularity tools to control and abate noise for use by local agencies. One significant model is the "Land Use Compatibility for Community Noise Environments Matrix," which allows the local jurisdiction to clearly delineate compatibility of sensitive uses with various incremental levels of noise.

California Noise Insulation Standards

Title 24, Chapter 1, Article 4 of the California Administrative Code (California Noise Insulation Standards) requires noise insulation in new hotels, motels, apartment houses, and dwellings (other than single-family detached housing) that provides an annual average noise level of no more than 45 dBA CNEL. When such structures are located within a 60-dBA CNEL (or greater) noise contour, an acoustical analysis is required to ensure that interior levels do not exceed the 45-dBA CNEL annual threshold. In addition, Title 21, Chapter 6, Article 1 of the California Administrative Code requires that all habitable rooms, hospitals, convalescent homes, and places of worship shall have an interior CNEL of 45 dB or less due to aircraft noise.

Government Code Section 65302

Government Code Section 65302 mandates that the legislative body of each county and city in California adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable.

Vibration Standards

Title 14 of the California Administrative Code Section 15000 requires that all state and local agencies implement the California Environmental Quality Act (CEQA) Guidelines, which requires the analysis of exposure of persons to excessive groundborne vibration. However, no statute has been adopted by the state that quantifies the level at which excessive groundborne vibration occurs.

Caltrans issued the *Transportation- and Construction Vibration Guidance Manual* in April 2020. The manual provides practical guidance to Caltrans engineers, planners, and consultants who must address vibration issues associated with the construction, operation, and maintenance of Caltrans projects. However, this manual is also used as a reference point by many lead agencies and CEQA practitioners throughout California, as it provides numeric thresholds for vibration impacts. Thresholds are established for both potential damage to structures and vibration annoyance, which found that the human response becomes distinctly perceptible at 0.04 inch per second PPV and structural damage may occur between 0.08 and 0.5 inch per second PPV for continuous sources of vibration, which includes most types of mobile construction equipment.

4.3 Local Regulations

The County of Los Angeles General Plan and Municipal Code establishes the following applicable policies related to noise and vibration.

County of Los Angeles General Plan

Goal N 1 The reduction of excessive noise impacts

Policies

N 1.1 Utilize land uses to buffer noise-sensitive uses from sources of adverse noise impacts.

N 1.2 Reduce exposure to noise impacts by promoting land use compatibility.

N 1.3 Minimize impacts to noise-sensitive land uses by ensuring adequate site design, acoustical construction, and use of barriers, berms, or additional engineering controls through Best Available Technologies (BAT).

N 1.5 Ensure compliance with the jurisdictions of State Noise Insulation Standards (Title 24, California Code of Regulations and Chapter 35 of the Uniform Building Code), such as noise insulation of new multifamily dwellings constructed within the 60 dB (CNEL or Ldn) noise exposure contours.

N 1.6 Ensure cumulative impacts related to noise do not exceed health-based safety margins.

N 1.9 Require construction of suitable noise attenuation barriers on noise sensitive uses that would be exposed to exterior noise levels of 65 dBA CNEL and above, when unavoidable impacts are identified.

N 1.11 Maximize buffer distances and design and orient sensitive receptor structures (hospitals, residential, etc.) to prevent noise and vibration transfer from commercial/light industrial uses.

N 1.12 Decisions on land adjacent to transportation facilities, such as the airports, freeways and other major highways, must consider both existing and future noise levels of these transportation facilities to assure the compatibility of proposed uses.

County of Los Angeles Municipal Code

The County of Los Angeles Municipal Code establishes the following applicable standards related to noise.

<u>Section 12.08.390 Exterior noise standards – Citations for violations authorized when.</u>

A. Unless otherwise herein provided, the following exterior noise levels shall apply to all receptor properties within a designated noise zone:

Table B – County of Los Angeles Exterior Noise Standards

Noise Zone	Designated Noise Zone Land Use (Receptor property)	Time Interval	Exterior Noise Level (dB)
I	Noise-sensitive area	Anytime	45
II	Residential properties	10:00 p.m. to 7:00 a.m. (nighttime)	45
		7:00 a.m. to 10:00 p.m. (daytime)	50
III	Commercial properties	10:00 p.m. to 7:00 a.m. (nighttime)	55
		7:00 a.m. to 10:00 p.m. (daytime)	60
IV	Industrial properties	Anytime	70

Source: County of Los Angeles Municipal Code Section 12.08.390.

B. Unless otherwise herein provided, no person shall operate or cause to be operated, any source of sound at any location within the unincorporated county, or allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person which causes the noise level, when measured on any other property either incorporated or unincorporated to exceed any of the following exterior noise standards:

- **Standard No. 1** shall be the exterior noise level which may not be exceeded for a cumulative period of more than 30 minutes in any hour. Standard No. 1 shall be the applicable noise level from subsection A of this section; or, if the ambient L*50* exceeds the foregoing level, then the ambient L*50* becomes the exterior noise level for Standard No. 1.
- **Standard No. 2** shall be the exterior noise level which may not be exceeded for a cumulative period of more than 15 minutes in any hour. Standard No. 2 shall be the applicable noise level from subsection A of this section plus 5dB; or, if the ambient L*25* exceeds the foregoing level, then the ambient L*25* becomes the exterior noise level for Standard No. 2.
- **Standard No. 3** shall be the exterior noise level which may not be exceeded for a cumulative period of more than five minutes in any hour. Standard No. 3 shall be the applicable noise level from subsection A of this section plus 20dB; or, if the ambient L*8.3* exceeds the foregoing level, then the ambient L*8.3* becomes exterior noise level for Standard No. 3.
- **Standard No. 4** shall be the exterior noise level which may not be exceeded for a cumulative period of more than one minute in any hour. Standard No. 4 shall be the applicable noise level from subsection A of this section plus 15dB; or, if the ambient L*1.7* exceeds the foregoing level, then the ambient L*1.7* becomes the exterior noise level for Standard No. 4.
- **Standard No. 5** shall be the exterior noise level which may not be exceeded for any period of time. Standard No. 5 shall be the applicable noise level from subsection A of this section plus 20dB; or, if the ambient L*0* exceeds the foregoing level then the ambient L*0* becomes the exterior noise level for Standard No. 5.

C. If the measurement location is on a boundary property between two different zones, the exterior noise level utilized in subsection B of this section to determine the exterior standard shall be the arithmetic mean of the exterior noise levels in subsection A of the subject zones. Except as provided for above in this subsection C, when an intruding noise source originates on an industrial property and is impacting

another noise zone, the applicable exterior noise level as designated in subsection A shall be the daytime exterior noise level for the subject receptor property.

Section 12.08.400 Interior noise standards

A. No person shall operate or cause to be operated within a dwelling unit, any source of sound, or allow the creation of any noise, which causes the noise level when measured inside a neighboring receiving dwelling unit to exceed the following standards:

- **Standard No 1** The applicable interior noise level for cumulative period of more than five minutes in any hour; or
- **Standard No. 2** The applicable interior noise level plus 5dB for a cumulative period of more than one minute in any hour; or
- **Standard No. 3** The applicable interior noise level plus 10dB or the maximum measured ambient noise level for any period of time.

B. The following interior noise levels for multifamily residential dwellings shall apply, unless otherwise specifically, indicated, within all such dwellings with windows in their normal seasonal configuration.

Table C – County of Los Angeles Interior Noise Standards

Noise Zone	Designated Land Use	Time Interval	Allowable Interior Noise Level
All	Multifamily	10:00 p.m. – 7:00 a.m.	40
	Residential	7:00 a.m. – 10:00 p.m.	45

Source: County of Los Angeles Municipal Code Section 12.08.400.

C. If the measured ambient noise level reflected by the L50 exceeds that permissible within any of the interior noise standards in subsection A of Section 12.08.390, the allowable interior noise level shall be increased in 5dB increments in each standard as appropriate to reflect said ambient noise level.

Section 12.08.440 Construction noise.

A. Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work between weekday hours of 7:00 p.m. and 7:00 a.m., or at any time on Sundays or holidays, such that the sound therefrom creates a noise disturbance across a residential or commercial real-property line, except for emergency work of public service utilities or by variance issued by the health officer is prohibited.

B. Noise Restrictions at Affected Structures. The contractor shall conduct construction activities in such a manner that the maximum noise levels at the affected buildings will not exceed those listed in the following schedule:

1) At Residential Structures.

a) Mobile Equipment. Maximum noise levels for nonscheduled, intermittent short-term operation of mobile equipment:

Table D – County of Los Angeles Mobile Equipment Residential Noise Standards

	Single-Family Residential	Multi-Family Residential	Semiresidential/ Commercial
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	75 dBA	80 dBA	85 dBA
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	60 dBA	64 dBA	70 dBA

Source: County of Los Angeles Municipal Code Section 12.08.440(B)(1)(a).

i) Stationary Equipment. Maximum noise level for repetitively scheduled and relatively long-term operation (periods of 10 days or more) of stationary equipment:

Table E – County of Los Angeles Stationary Equipment Residential Noise Standards

	Single-Family Residential	Multi-Family Residential	Semiresidential/ Commercial
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	60 dBA	65 dBA	70 dBA
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	50 dBA	55 dBA	60 dBA

Source: County of Los Angeles Municipal Code Section 12.08.440(B)(1)(a).

2) At Business Structures

i) Mobile Equipment. Maximum noise levels for nonscheduled, intermittent short-term operation of mobile equipment:

Daily, including Sunday and legal holidays, all hours: maximum of 85 dBA.

C. All mobile or stationary internal-combustion-engine powered equipment or machinery shall be equipped with suitable exhaust and air-intake silencers in proper working order.

Section 12.08.460 Loading and unloading operations.

Loading, unloading, opening, closing or other handling of boxes, crates, containers, building materials, garbage cans or similar objects between the hours of 10:00 p.m. and 6:00 a.m. in such a manner as to cause noise disturbance is prohibited.

Section 12.08.560 Vibration

Operating or permitting the operation of any device that creates vibration which is above the vibration perception threshold of any individual at or beyond the property boundary of the source if on private property, or at 150 feet (46 meters) from the source if on a public space or public right-of-way is prohibited. The perception threshold shall be a motion velocity of 0.01 in/sec over the range of 1 to 100 Hertz.

Section 12.08.570 Activities exempt from chapter restrictions

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

B. Warning Devices. Warning devices necessary for the protection of public safety, as for example police, fire ambulance sirens, and train horns.

D. Exemptions from Exterior noise standards. The following activities are exclusively regulated by the prohibitions of Part 4 of this chapter:

1) Construction.
2) Stationary nonemergency signaling devices.
3) Emergency signaling devices,
4) Refuse collection vehicles,
5) Residential air-conditioning or refrigeration equipment.

F. Railroad Activities. All locomotives and rail cars operated by any railroad which is regulated by the California Public Utilities Commission.

I. Motor Vehicles on Private Right-of-way and Private Property. Except as provided in Section 12.08.550, all legal vehicles of transportation operating in a legal manner in accordance with local, state and federal vehicle-noise regulations within the public right-of-way or air space, or on private property.

5.0 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 noise within the proposed project area is generally characterized by vehicle traffic on San Bernardino Road, which is adjacent to the south side of the project site and from train noise on the Metrolink San Bernardino Line that is adjacent to the north side of the project site. The following describes the measurement procedures, measurement locations, noise measurement results, and the modeling of the existing noise environment.

5.1 Noise Measurement Equipment

The noise measurements were taken using two Extech Model 407780 Type 2 integrating sound level meters programmed in "slow" mode to record the sound pressure level at 3-second intervals for approximately 24 hours in "A" weighted form. In addition, the L_{eq} averaged over the entire measuring time and L_{max} were recorded. The sound level meters and microphones were mounted on trees approximately four to six feet above the ground and were equipped with a windscreen. The sound level meters were calibrated before and after the monitoring using an Extech calibrator, Model 407766. The 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. Descriptions of the noise monitoring sites are provided below in Table F and are shown in Figure 3. Appendix A includes a photo index of the study area and noise level measurement locations.

Noise Measurement Timing and Climate

The noise measurements were recorded between 2:50 p.m. on Wednesday February 26, 2020 and 2:55 p.m. on Thursday, February 27, 2020. It should be noted that the two noise measurements were taken for the due diligence analysis of the project site, which occurred prior to all of the school and business closures associated with the Covid-19 crisis, when vehicle traffic and train volumes were at normal levels.

At the start of the noise measurements, the sky was clear (no clouds), the temperature was 82 degrees Fahrenheit, the humidity was 21 percent, barometric pressure was 29.69 inches of mercury, and the wind was blowing at an average rate of three miles per hour. Overnight, the sky became cloudy and the temperature dropped to 52 degrees Fahrenheit. At the conclusion of the noise measurements, the sky was cloudy, the temperature was 84 degrees Fahrenheit, the humidity was 21 percent, barometric pressure was 29.61 inches of mercury, and the wind was blowing at an average rate of two miles per hour.

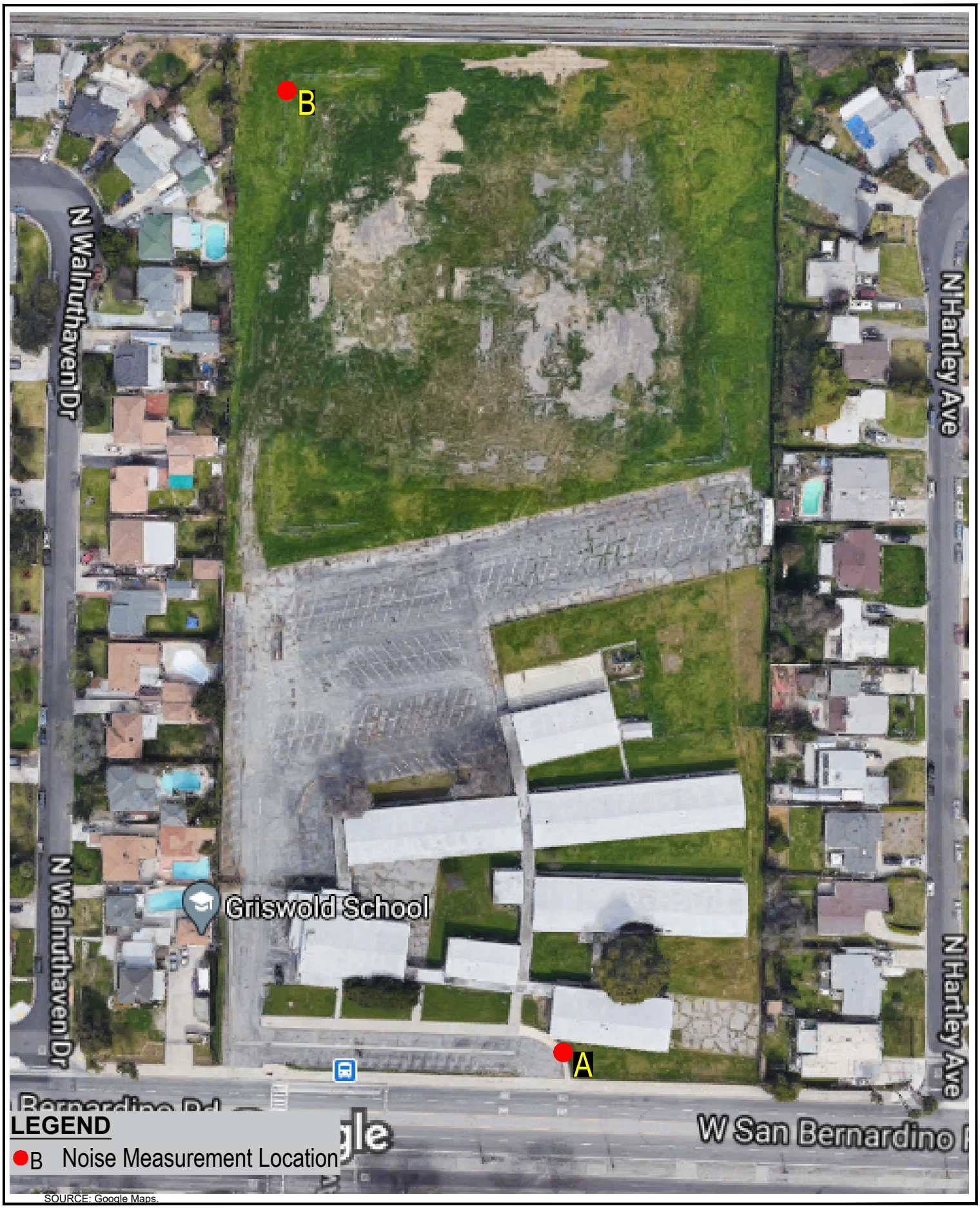
5.2 Noise Measurement Results

The results of the noise level measurements are presented in Table F. Table F shows the Leq, Lmax, and CNEL, based on the entire measurement time as well as the minimum and maximum L_{eq} averaged over 1-hour intervals. In addition, a graph of the 24-hour noise measurements is shown in Figure 4 and the noise monitoring data printouts are included in Appendix B.

Table F – Existing (Ambient) Noise Measurement Results

Site No.	Measurement Location	Average (dBA L_{eq})	Maximum (dBA L_{max})	Min. 1-Hour Interval (dBA L_{eq}/Time)	Max. 1-Hour Interval (dBA L_{eq}/Time)	Average (dBA CNEL)
A	Located on the south side of project site, approximately 70 feet north of San Bernardino Road centerline	68.4	86.0	55.4 2:18 a.m.	74.9 10:07 a.m.	72.2
B	Located near the northwest corner of project site, approximately 50 feet south of nearest rail line.	67.6	99.9	55.9 12:53 a.m.	72.8 7:32 p.m.	71.8

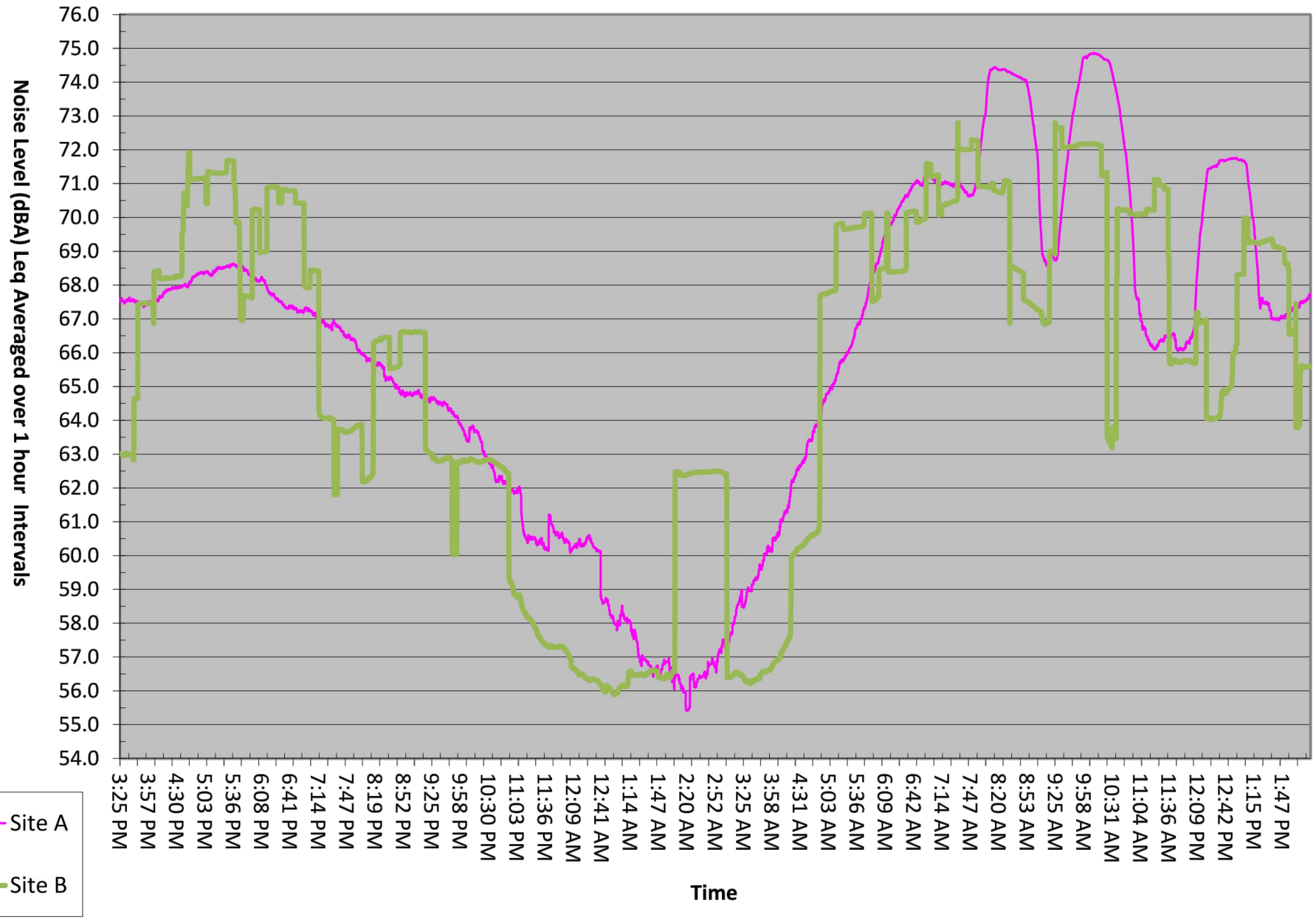
Source: Noise measurements taken with two Extech Model 407780 Type 2 integrating sound level meters between Wednesday, February 26 and Thursday, February 27, 2020.



SOURCE: Google Maps.

VISTA ENVIRONMENTAL

Figure 3
Field Noise Monitoring Locations



SOURCE: Two Extech Model 407780 Type 2 Sound Level Meters.

VISTA ENVIRONMENTAL

Figure 4
Field Noise Measurements Graph

6.0 MODELING PARAMETERS AND ASSUMPTIONS

6.1 Construction Noise

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 G below provides a list of the construction equipment anticipated to be used for each phase of construction as detailed in *Air Quality, Energy, and Greenhouse Gas Emissions Impact Analysis Griswold Residential Project* (Air Quality Analysis), prepared by Vista Environmental, January 9, 2021.

Table G – 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/Industrial Saw	1	20	90	90
Excavators	3	40	85	81
Rubber Tired Dozers	2	40	85	82
Site Preparation				
Rubber Tired Dozers	3	40	85	83
Tractor, Loader, or Backhoes	4	40	84	N/A
Grading				
Excavator	1	40	85	81
Grader	1	40	85	83
Rubber Tired Dozer	1	40	85	82
Tractor, Loader or Backhoes	3	40	84	N/A
Building Construction				
Crane	1	16	85	81
Forklift (Gradall)	3	40	85	83
Generator[5]	1	50	82	81
Tractor, Loader or Backhoes	3	40	84	N/A
Welder[5]	1	40	73	74
Paving				
Paver	2	50	85	77
Paving Equipment	2	50	85	77
Rollers	2	20	85	80
Architectural Coating				
Air Compressor[5]	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] Stationary equipment, analyzed separately from the mobile equipment.
Source: Federal Highway Administration, 2006 and CalEEMod default equipment mix.

Table G 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 G and through use of the RCNM. For each phase of construction, the mobile equipment was placed at the center of the project site, since over the course of the day, it is anticipated that each piece of mobile equipment would operate over a large portion of the project site.

6.2 Operations-Related Noise

The proposed project would result in increases in traffic noise to the nearby roadways as well as introduce new sensitive receptors to the project site. The project impacts to the offsite roadways as well as the nearby roadway impacts to the proposed homes were analyzed through use of the FHWA Traffic Noise Prediction Model - FHWA-RD-77-108 (FHWA Model). The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). Adjustments are then made to the reference energy mean emission level to account for: the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT) and the percentage of ADT which flows during the day, evening and night, the travel speed, the vehicle mix on the roadway, which is a percentage of the volume of automobiles, medium trucks and heavy trucks, the roadway grade, the angle of view of the observer exposed to the roadway and site conditions ("hard" or "soft" relates to the absorption of the ground, pavement or landscaping).

To assess the roadway noise generation in a uniform manner, all vehicles have been analyzed in the FHWA Model at the single lane equivalent acoustic center of the roadway being analyzed. In order to determine the height above the road grade where the noise is being emitted from, each type of vehicle has been analyzed independently with autos at road grade, medium trucks at 2.3 feet above road grade, and heavy trucks at 8 feet above road grade. These elevations were determined through a noise-weighted average of the elevation of the exhaust pipe, tires and mechanical parts in the engine, which are the primary noise emitters from a vehicle.

<u>FHWA Model Traffic Noise Prediction Model Inputs</u>

The roadway parameters used for this study are presented in Table H. The roadway classifications are based on the County's General Plan Circulation Element. The roadway speeds are based on the posted speed limits. The distance to the nearest sensitive receptor was determined by measuring the distance from the roadway centerline to the nearest sensitive receptor. Since the study area is located in a suburban environment and landscaping exists along most of the nearby roadways, soft site conditions were modeled.

Table H – FHWA Model Roadway Parameters

Roadway	Segment	General Plan Classification	Vehicle Speed (MPH)	Distance to Nearest Receptor (feet)
Irwindale Avenue	North of San Bernardino Avenue	Major	40	70
Irwindale Avenue	South of San Bernardino Avenue	Major	40	70
Vincent Avenue	North of San Bernardino Avenue	Secondary	35	50
Vincent Avenue	South of San Bernardino Avenue	Secondary	35	50
San Bernardino Avenue	West of Irwindale Avenue	Secondary	40	100
San Bernardino Avenue	West of Project Driveway	Secondary	40	90
San Bernardino Avenue	East of Project Driveway	Secondary	40	50
San Bernardino Avenue	East of Vincent Avenue	Secondary	40	60

Source: Vista Environmental; and Urban Crossroad, 2021.

The average daily traffic (ADT) volumes were obtained from the Traffic Impact Analysis (Urban Crossroads, 2021). The ADT volumes have been provided for both without project and with project conditions for the existing and opening year 2023. The ADT volumes used in this analysis are shown in Table I.

Table I – FHWA Model Average Daily Traffic Volumes

		Average Daily Traffic Volumes			
Road	Road Segment	Existing	Existing + Project	Year 2023 No Project	Year 2023 + Project
Irwindale Avenue	North of San Bernardino Avenue	18,350	18,360	18,740	18,750
Irwindale Avenue	South of San Bernardino Avenue	19,150	19,450	19,500	19,800
Vincent Avenue	North of San Bernardino Avenue	18,100	18,110	19,140	19,150
Vincent Avenue	South of San Bernardino Avenue	18,500	18,650	19,550	19,700
San Bernardino Avenue	West of Irwindale Avenue	17,300	17,310	18,040	18,050
San Bernardino Avenue	West of Project Driveway	15,400	15,800	16,050	16,450
San Bernardino Avenue	East of Project Driveway	15,550	15,800	16,200	16,450
San Bernardino Avenue	East of Vincent Avenue	15,050	15,060	15,840	15,850

Source: Urban Crossroads, 2021.

The vehicle mix used in the FHWA RD-77-108 Model are shown in Table J. The vehicle mix is based on the typical vehicle mix for major and secondary arterial roadways observed in Southern California.

Table J – Roadway Vehicle Mix

Vehicle Type	Traffic Flow Distributions			
	Day (7 a.m. to 7 p.m.)	Evening (7 p.m. to 10 p.m.)	Night (10 p.m. to 7 a.m.)	Overall
Automobiles	69.5%	12.9%	9.6%	92.0%
Medium Trucks	1.4%	0.1%	1.5%	3.0%
Heavy Trucks	2.4%	0.1%	2.5%	5.0%

Source: Vista Environmental.

6.3 Vibration

Construction activity can result in varying degrees of ground vibration, depending on the equipment used on the site. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings in the vicinity of the construction site respond to these vibrations with varying results ranging from no perceptible effects at the low levels to slight damage at the highest levels. Table K gives approximate vibration levels for particular construction activities. The data in Table K provides a reasonable estimate for a wide range of soil conditions.

Table K – Vibration Source Levels for Construction Equipment

Equipment		Peak Particle Velocity (inches/second)	Approximate Vibration Level (L_v)at 25 feet
Pile driver (impact)	Upper range	1.518	112
	typical	0.644	104
Pile driver (sonic)	Upper range	0.734	105
	typical	0.170	93
Clam shovel drop (slurry wall)		0.202	94
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, September, 2018.

The construction-related vibration impacts have been calculated through the vibration levels shown above in Table K and through typical vibration propagation rates. The equipment assumptions were based on the equipment lists provided above in Table G.

7.0 IMPACT ANALYSIS

7.1 CEQA Thresholds of Significance

Consistent with the California Environmental Quality Act (CEQA) and the State CEQA Guidelines, a significant impact related to noise would occur if a proposed project is determined to 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; or
- 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 levels.

7.2 Generation of Noise Levels in Excess of Standards

The proposed project would not generate 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. The following section calculates the potential noise emissions associated with the temporary construction activities and long-term operations of the proposed project and compares the noise levels to the County standards.

Construction-Related Noise

The construction activities for the proposed project are anticipated to include demolition of the existing school building structures and parking lot areas, site preparation and grading of the gross 9.61-acre project site, building construction of the proposed 68 single-family homes, paving of the onsite roads and driveways and application of architectural coatings. Noise impacts from construction activities associated with the proposed project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities. The nearest sensitive receptors to the project site are single-family homes located as near as approximately 2 feet from the property lines on the east and west sides of the project site. There are also single-family homes located as near as 90 feet north of the project site and as near as 130 feet south of the project site.

Section 12.08.440 of the Municipal Code limits construction activities to between 7:00 a.m. and 7:00 p.m., on weekdays and Saturdays and restricts construction activities from occurring on Sundays or holidays. During the allowable times of construction, Section 12.08.440 limits mobile equipment construction noise impacts to 75 dBA and stationary equipment construction noise impacts to 60 dBA at the nearby single-family homes.

<u>Mobile Equipment Construction Noise Impacts</u>

Due to the nature of all phases of building construction, and especially demolition and grading, where the equipment will be focused on one sub-area of the project until specifications are met and then move on to the next sub-area of the project, it is not likely that mobile construction equipment would operate continuously for 10 days or more in the direct vicinity of any nearby home. As such, it has been

determined that the County's mobile equipment threshold of 75 dBA at the nearby single-family homes is the appropriate noise threshold to analyze the mobile equipment during construction of the proposed project.

The mobile equipment construction noise impacts to the nearby sensitive receptors have been calculated through use of the RCNM and the parameters and assumptions detailed in Section 6.1 of this report including Table G – Construction Equipment Noise Emissions and Usage Factors. The results are shown below in Table L and the RCNM printouts are provided in Appendix C.

Table L – Mobile Construction Noise Levels at the Nearby Homes

	Construction Noise Level (dBA Leq) at:		
Construction Phase[1]	**Single-Family Homes to West & East[2]**	**Single-Family Homes to North[3]**	**Single-Family Homes to South[4]**
Demolition	73	66	65
Site Preparation	72	65	64
Grading	72	65	65
Building Construction	73	66	65
Paving	71	64	63
County's Mobile Equipment Threshold[5]	**75**	**75**	**75**
Exceed Thresholds?	**No**	**No**	**No**

[1] Only the construction phases with mobile equipment were analyzed (i.e., painting was not analyzed since it would be limited to stationary equipment).
[2] The single-family homes on the west and east sides of the project site are located as near as 2 feet from the project site property line.
[3] The single-family homes to the north of the project site are located as near as 90 feet north of the project site property line.
[4] The single-family homes to the south of the project site are located as near as 130 feet south of the project site property line.
[5] County Mobile and Stationary Equipment Noise Thresholds were obtained from Section 12.08.440(B) of the Municipal Code.
Source: RCNM, Federal Highway Administration, 2006

As shown in Table L, the mobile construction noise levels would be as high as 73 dBA during the demolition and building construction phases at the adjacent homes on the west and east sides of the project site. Table L shows that none of the phases of construction would exceed the County's mobile equipment construction noise threshold of 75 dBA at the nearby single-family homes. Therefore, mobile construction noise levels created from the proposed project would be result in a less than significant impact.

Stationary Equipment Construction Noise Impacts

The stationary equipment construction noise impacts at the nearby homes have been calculated through use of the RCNM for an air compressor, generator, and welder, which are the only three types of stationary equipment detailed in Section 6.1 of this report. Since the project site is only 470 feet wide, which limits the placement of the stationary equipment to a maximum of approximately 235 feet from the nearest homes, the stationary construction equipment has been calculated at 100 feet, 160 feet, and 200 feet distances. The results are shown below in Table M and the RCNM printouts are provided in Appendix C.

Table M – Stationary Construction Noise Levels at the Nearby Homes

Construction Equipment	Construction Noise Level (dBA Leq) at:		
	100 feet	160 feet	230 feet
Air Compressor	68	64	60
Generator	64	60	56
Welder/Torch	64	60	57
County's Stationary Equipment Threshold[1]	**60**	**60**	**60**
Exceed Thresholds?	**Yes**	**Yes/No/No**	**No**

Notes:
[1] County Stationary Equipment Noise Thresholds were obtained from Section 12.08.440(B) of the Municipal Code.
Source: RCNM, Federal Highway Administration, 2006

Table M shows that at 160 feet the generator and welder/torch would be within the County's stationary noise threshold of 60 dBA at 160 feet and the air compressor would be within the County's stationary noise threshold of 60 dBA at 230 feet from the nearest home. Since it is likely that stationary construction equipment would be required to operate in areas on the project site that would be within these distances to the nearby homes, this would be considered a significant impact, without mitigation.

Table M shows that at 100 feet from the nearby homes, the stationary equipment would exceed the County's stationary noise standard of 60 dB by as much as 8 dB. In order to reduce stationary construction equipment noise, Mitigation Measure 1 is provided that would require a minimum 8-foot high sound blanket or sound wall to be placed next to the stationary equipment on the side of the nearest homes and that the stationary equipment shall be located a minimum of 100 feet away of any offsite residential property line.

According to Caltrans (Caltrans, 2013), a sound wall provides approximately 5 dB of attenuation at the height where it blocks the line-of-sight (4 feet high for air compressors, generators, and welders) and then an additional 0.9 dB for each additional foot of height, which would result in at least 8 dB of additional attenuation provided by an 8-foot high sound blanket. With implementation of Mitigation Measure 1, the noise levels at 100 feet would be 60 dBA for and air compressor, and 56 dBA for a generator and welder/torch, which would all be within the County's 60 dBA stationary construction noise standard. Therefore, with implementation of Mitigation Measure 1, stationary construction noise impacts would be less than significant.

Operational-Related Noise

The proposed project would consist of the development of a residential community with 68 single-family homes. Potential noise impacts associated with the operations of the proposed project would be from project-generated vehicular traffic on the nearby roadways.

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 include 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.

Since, neither the General Plan nor the Municipal Code provide any policies or regulation defining what constitutes a "substantial permanent increase to ambient noise levels", the noise increase threshold developed by the Federal Transit Administration for a moderate impact that has been detailed above in Table A have been utilized, which determined a significant impact would occur if a project would increase the noise by 3 dB, where the ambient noise level is 55 dB or less, 2 dB, where the ambient noise level is between 55 and 60 dBA CNEL, or would increase the noise by 1 dB, where the ambient noise level is between 60 and 75 dBA CNEL.

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 parameters described above in Section 6.2 and the FHWA model noise calculation spreadsheets are provided in Appendix D. The proposed project's offsite traffic noise impacts have been analyzed for the existing year and opening year 2023 conditions that are discussed below.

Existing Year Conditions

The proposed project's potential offsite noise impacts have been calculated through a comparison of the existing year scenario to the existing year with project scenario. The results of this comparison are shown in Table N.

Table N – Existing Year Project Traffic Noise Contributions

		dBA CNEL at Nearest Receptor[1]			
Roadway	**Segment**	**Existing**	**Existing Plus Project**	**Project Increase**	**Increase Threshold[2]**
Irwindale Avenue	North of San Bernardino Avenue	65.5	65.5	+0.0	+1 dBA
Irwindale Avenue	South of San Bernardino Avenue	65.7	65.8	+0.1	+1 dBA
Vincent Avenue	North of San Bernardino Avenue	66.2	66.2	+0.0	+1 dBA
Vincent Avenue	South of San Bernardino Avenue	66.3	66.4	+0.1	+1 dBA
San Bernardino Avenue	West of Irwindale Avenue	62.5	62.5	+0.0	+2 dBA
San Bernardino Avenue	West of Project Driveway	62.7	62.8	+0.1	+2 dBA
San Bernardino Avenue	East of Project Driveway	67.0	67.1	+0.1	+1 dBA
San Bernardino Avenue	East of Vincent Avenue	65.5	65.5	+0.0	+1 dBA

Notes:
[1] Distance to nearest sensitive receptor shown in Table H, does not take into account existing noise barriers.
[2] Increase Threshold obtained from the FTA's allowable noise impact exposures detailed above in Table A.
Source: FHWA Traffic Noise Prediction Model FHWA-RD-77-108.

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

Opening Year 2023 Conditions

The proposed project's potential offsite noise impacts have been calculated through a comparison of the opening year 2023 without project scenario to the opening year 2023 with project scenario. The results of this comparison are shown in Table O.

Table O – Opening Year 2023 Project Traffic Noise Contributions

Roadway	Segment	dBA CNEL at Nearest Receptor[1]			Increase Threshold[2]
		2023 No Project	2023 Plus Project	Project Increase	
Irwindale Avenue	North of San Bernardino Avenue	65.6	65.6	+0.0	+1 dBA
Irwindale Avenue	South of San Bernardino Avenue	65.8	65.9	+0.1	+1 dBA
Vincent Avenue	North of San Bernardino Avenue	66.5	66.5	+0.0	+1 dBA
Vincent Avenue	South of San Bernardino Avenue	66.6	66.6	+0.0	+1 dBA
San Bernardino Avenue	West of Irwindale Avenue	62.7	62.7	+0.0	+2 dBA
San Bernardino Avenue	West of Project Driveway	62.9	63.0	+0.1	+2 dBA
San Bernardino Avenue	East of Project Driveway	67.2	67.3	+0.1	+1 dBA
San Bernardino Avenue	East of Vincent Avenue	65.7	65.7	+0.0	+1 dBA

Notes:
[1] Distance to nearest sensitive receptor shown in Table H, does not take into account existing noise barriers.
[2] Increase Threshold obtained from the FTA's allowable noise impact exposures detailed above in Table A.
Source: FHWA Traffic Noise Prediction Model FHWA-RD-77-108.

Table O shows that for the opening year 2023 conditions, the proposed project's permanent noise increases to the nearby homes from the generation of additional vehicular traffic would not exceed the FTA's allowable increase thresholds detailed above. Therefore, the proposed project would not result in a substantial permanent increase in ambient noise levels for the opening year 2023 conditions. Impacts would be less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

Mitigation Measure 1:

During all construction activities the project applicant shall require a minimum 8-foot high sound blanket or sound wall to be placed on the side nearest the offsite homes to any stationary equipment (i.e., air compressors, generators, and welders) utilized onsite during construction of the proposed project and the stationary construction equipment shall be located a minimum of 100 feet from any offsite residential property line.

Level of Significance After Mitigation

Less than significant impact.

7.3 Generation of Excessive Groundborne Vibration

The proposed project would not expose persons to or generation of excessive groundborne vibration or groundborne noise levels. The following section analyzes the potential vibration impacts associated with the construction and operations of the proposed project.

Construction-Related Vibration Impacts

The construction activities for the proposed project are anticipated to include demolition of the existing school building structures and parking lot areas, site preparation and grading of the gross 9.61-acre project site, building construction of the proposed 68 single-family homes, paving of the onsite roads and

driveways and application of architectural coatings. Vibration impacts from construction activities associated with the proposed project would typically be created from the operation of heavy off-road equipment. The nearest sensitive receptors to the project site are single-family homes located as near as approximately 2 feet from the property lines on the east and west sides of the project site.

Section 12.08.560 of the County's Municipal Code restricts the operation of any device that creates a vibration level above 0.01 inch per second root mean square (RMS) at the property line (the FHWA utilizes a factor of 4 to convert RMS to PPV, so this would be equivalent to 0.04 inch per second PPV). Section 12.08.570 of the Municipal Code exempts construction activities from the vibration standards, provided construction activities occur between 7:00 a.m. and 7:00 p.m. on weekdays, excluding holidays. Since the County does not provide a quantifiable vibration level for construction activities that occur during allowable times, the Caltrans standards have been utilized, which defines the threshold of perception from transient sources that include mobile construction equipment to 0.25 inch per second PPV.

The primary source of vibration during construction would be from the operation of a bulldozer. From Table K above a large bulldozer would create a vibration level of 0.089 inch per second PPV at 25 feet. Based on typical propagation rates, the vibration level at the nearest sensitive receptors (2 feet away from the proposed project) would be 1.43 inch per second PPV, which would exceed the Caltrans distinctly perceptible vibration level of 0.25 inch per second PPV for transient sources. This would be considered a significant impact.

Mitigation Measure 2 is provided that restricts any off-road equipment with 150 horsepower engine or greater from operating within 10 feet of either the east or west property lines. Based on typical propagation rates, the vibration level at the nearest homes (12 feet away from proposed construction activities with implementation of Mitigation Measure 2) would be 0.03 inch per second PPV, which is within the 0.25 inch per second PPV threshold. Therefore, with implementation of Mitigation Measure 2, construction-related vibration impacts would be less than significant.

Operations-Related Vibration Impacts

The proposed project would consist of the development of 68 single-family homes. The on-going operation of the proposed project would not include the operation of any known vibration sources other than typical onsite vehicle operations for a residential development. As such, operation of the proposed project would not create a vibration impact to any of the nearby sensitive receptors.

The proposed single-family homes would be located as near as 28 feet south of the nearest tracks for the Metrolink Railroad on the north side of the project site. As such, there is a potential for excessive vibration levels to impact the proposed single-family homes.

Section 12.08.560 of the County's Municipal Code restricts the operation of any device that creates a vibration level above 0.01 inch per second root mean square (RMS) at the property line (the FHWA utilizes a factor of 4 to convert RMS to PPV, so this would be equivalent to 0.04 inch per second PPV).

Vista Environmental has previously taken vibration measurements of Metrolink and Amtrak trains, which measured a worst-case vibration level of 0.089 inch per second PPV at 8 feet from the tracks of a passing Metrolink train. Based on typical vibration propagation rates, the vibration level at the nearest proposed homes (28 feet away from the train tracks) would be 0.02 inch per second PPV or 0.005 inch per second RMS, which is well below the County's 0.01 inch per second RMS threshold. Therefore, operational vibration impacts would be less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

Mitigation Measure 2:

The project applicant shall restrict all contractors from operating any off-road construction equipment that is 150 horsepower or greater within 10 feet of either the east or west property lines in order to limit construction-related vibration levels at the nearby homes. Typical construction equipment that is less than 150 horsepower include backhoes, skid steers, skip loaders, and tractors, that are capable of performing all grading and excavation activities within the 10-foot wide areas adjacent to the east and west property lines.

Level of Significance After Mitigation

Less than significant impact.

7.4 Aircraft Noise

The proposed project would not expose people residing or working in the project area to excessive noise levels from aircraft. The nearest airport is San Gabriel Valley Airport that is located approximately 5.9 miles west of the project site. The project site is located outside of the 60 dBA CNEL noise contours of this airport and no aircraft noise was audible during site visits associated with the noise measurements. Impacts would be less than significant.

Level of Significance

No impact.

8.0 REFERENCES

California Department of Transportation, *2016 Annual Average Daily Truck Traffic on the California State Highway System*, 2018.

California Department of Transportation (Caltrans), *Technical Noise Supplement to the Traffic Noise Analytics Protocol*, September 2013.

California Department of Transportation, *Transportation and Construction Vibration Guidance Manual*, April 2020.

County of Los Angeles, *Los Angeles County General Plan,* October 6, 2015.

County of Los Angeles, *Los Angeles County, CA Code of Ordinances*, December 8, 2020.

Federal Transit Administration, *Transit Noise and Vibration Impact Assessment,* September 2018.

Harris, Cyril M., *Noise Control in Buildings*, 1994.

J.C. Brennan & Associates, *La Verne General Plan Background Report Noise Study,* December 11, 2017.

Kinsler, Lawrence E., *Fundamentals of Acoustics 4th Edition,* 2000.

Urban Crossroads, *Griswold Residential (RPPL202000447) Focused Transportation Analysis,* January 4, 2021.

U.S. Department of Transportation, *FHWA Roadway Construction Noise Model User's Guide,* January, 2006.

Vista Environmental, *Air Quality, Energy, and Greenhouse Gas Emissions Impact Analysis Griswold Residential Project,* January 9, 2021.

APPENDIX A

Field Noise Measurements Photo Index

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 northwest

APPENDIX B

Field Noise Measurements Printouts

Site A - On South Side of Project Site

Date	Time=02/26/20	2:55:00 PM			
Sampling	Time=3	Weighting=A			
Record	Num= 28800	Weighting=Slow	CNEL(24hr)=	72.2	
Leq	68.4 SEL	Value=117.8	Ldn(24hr)=	71.9	
MAX	86.0	Min Leq1hr =	55.4	2:18 AM	
MIN	40.9	Max Leq1hr =	74.9	10:07 AM	

Site A - On South Side of Project Site

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
54.1	14:55:00		54.1	54.1
62.9	14:55:03		62.9	62.9
68.3	14:55:06		68.3	68.3
64.1	14:55:09		64.1	64.1
60.4	14:55:12		60.4	60.4
62.3	14:55:15		62.3	62.3
63.4	14:55:18		63.4	63.4
59.3	14:55:21		59.3	59.3
63.5	14:55:24		63.5	63.5
55.9	14:55:27		55.9	55.9
57.9	14:55:30		57.9	57.9
57.8	14:55:33		57.8	57.8
62.3	14:55:36		62.3	62.3
57.3	14:55:39		57.3	57.3
59.8	14:55:42		59.8	59.8
64.3	14:55:45		64.3	64.3
56.4	14:55:48		56.4	56.4
55.5	14:55:51		55.5	55.5
54.2	14:55:54		54.2	54.2
60.7	14:55:57		60.7	60.7
61.2	14:56:00		61.2	61.2
61.6	14:56:03		61.6	61.6
57.3	14:56:06		57.3	57.3
62	14:56:09		62	62.0
63.1	14:56:12		63.1	63.1
63.6	14:56:15		63.6	63.6
65.8	14:56:18		65.8	65.8
58.5	14:56:21		58.5	58.5
56.5	14:56:24		56.5	56.5
57.7	14:56:27		57.7	57.7
58.4	14:56:30		58.4	58.4
55.5	14:56:33		55.5	55.5
60.3	14:56:36		60.3	60.3
60.4	14:56:39		60.4	60.4
62.1	14:56:42		62.1	62.1
61	14:56:45		61	61.0
60.4	14:56:48		60.4	60.4
69.4	14:56:51		69.4	69.4
63.6	14:56:54		63.6	63.6
57.7	14:56:57		57.7	57.7
61.6	14:57:00		61.6	61.6
72.9	14:57:03		72.9	72.9
68	14:57:06		68	68.0
74.3	14:57:09		74.3	74.3
65.8	14:57:12		65.8	65.8
71	14:57:15		71	71.0
79.6	14:57:18		79.6	79.6
70.9	14:57:21		70.9	70.9
71.6	14:57:24		71.6	71.6
68.3	14:57:27		68.3	68.3
71.2	14:57:30		71.2	71.2
72.8	14:57:33		72.8	72.8
65.2	14:57:36		65.2	65.2
58.9	14:57:39		58.9	58.9
57.3	14:57:42		57.3	57.3
60.5	14:57:45		60.5	60.5
60.4	14:57:48		60.4	60.4
60.9	14:57:51		60.9	60.9
61.6	14:57:54		61.6	61.6
62.8	14:57:57		62.8	62.8
62.4	14:58:00		62.4	62.4
68.4	14:58:03		68.4	68.4
69.8	14:58:06		69.8	69.8
71.5	14:58:09		71.5	71.5
68.9	14:58:12		68.9	68.9
69.8	14:58:15		69.8	69.8
66.6	14:58:18		66.6	66.6
67.6	14:58:21		67.6	67.6
68.4	14:58:24		68.4	68.4
63.3	14:58:27		63.3	63.3
65.2	14:58:30		65.2	65.2
65.2	14:58:33		65.2	65.2
62.6	14:58:36		62.6	62.6
66	14:58:39		66	66.0
61.8	14:58:42		61.8	61.8
62.3	14:58:45		62.3	62.3
70.2	14:58:48		70.2	70.2

Site B - Near Northwest Corner of Project

Date	Time=02/26/20	2:50:00 PM			
Sampling	Time=3	Freq Weighting=A			
Record	Num= 28600	Weighting=Slow	CNEL(24hr)=	71.8	
Leq	67.6 SEL	Value=118.8	Ldn(24hr)=	71.6	
MAX	99.9	Min Leq1hr =	55.9	12:53 AM	
MIN	52.7	Max Leq1hr =	72.8	7:32 AM	

Site B - Near Northwest Corner of Project

SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
66.2	14:50:00		66.2	66.2
68.6	14:50:03		68.6	68.6
65.3	14:50:06		65.3	65.3
61.1	14:50:09		61.1	61.1
66.8	14:50:12		66.8	66.8
60.6	14:50:15		60.6	60.6
61.3	14:50:18		61.3	61.3
67.3	14:50:21		67.3	67.3
68.7	14:50:24		68.7	68.7
67.5	14:50:27		67.5	67.5
67.4	14:50:30		67.4	67.4
61.1	14:50:33		61.1	61.1
63.2	14:50:36		63.2	63.2
62.2	14:50:39		62.2	62.2
68.9	14:50:42		68.9	68.9
60.8	14:50:45		60.8	60.8
63.8	14:50:48		63.8	63.8
62.8	14:50:51		62.8	62.8
63.6	14:50:54		63.6	63.6
63.6	14:50:57		63.6	63.6
63.8	14:51:00		63.8	63.8
63.3	14:51:03		63.3	63.3
60.5	14:51:06		60.5	60.5
57.9	14:51:09		57.9	57.9
60.2	14:51:12		60.2	60.2
56.8	14:51:15		56.8	56.8
57.7	14:51:18		57.7	57.7
58	14:51:21		58	58
56.1	14:51:24		56.1	56.1
63.7	14:51:27		63.7	63.7
63.2	14:51:30		63.2	63.2
58.9	14:51:33		58.9	58.9
57.6	14:51:36		57.6	57.6
58.2	14:51:39		58.2	58.2
57.9	14:51:42		57.9	57.9
57.6	14:51:45		57.6	57.6
57.4	14:51:48		57.4	57.4
59.9	14:51:51		59.9	59.9
56.9	14:51:54		56.9	56.9
60	14:51:57		60	60
60.2	14:52:00		60.2	60.2
57.9	14:52:03		57.9	57.9
57.2	14:52:06		57.2	57.2
58.2	14:52:09		58.2	58.2
57.9	14:52:12		57.9	57.9
59	14:52:15		59	59
57.4	14:52:18		57.4	57.4
58.3	14:52:21		58.3	58.3
60.8	14:52:24		60.8	60.8
56.4	14:52:27		56.4	56.4
56.5	14:52:30		56.5	56.5
55.5	14:52:33		55.5	55.5
58.9	14:52:36		58.9	58.9
56.2	14:52:39		56.2	56.2
61.2	14:52:42		61.2	61.2
56.3	14:52:45		56.3	56.3
58	14:52:48		58	58
57.3	14:52:51		57.3	57.3
56.8	14:52:54		56.8	56.8
61.1	14:52:57		61.1	61.1
56.9	14:53:00		56.9	56.9
56.5	14:53:03		56.5	56.5
57.5	14:53:06		57.5	57.5
57	14:53:09		57	57
56.6	14:53:12		56.6	56.6
56.4	14:53:15		56.4	56.4
55.6	14:53:18		55.6	55.6
57.3	14:53:21		57.3	57.3
55.6	14:53:24		55.6	55.6
57.7	14:53:27		57.7	57.7
58.4	14:53:30		58.4	58.4
57.8	14:53:33		57.8	57.8
58	14:53:36		58	58
56.8	14:53:39		56.8	56.8
56.6	14:53:42		56.6	56.6
58.9	14:53:45		58.9	58.9
57.7	14:53:48		57.7	57.7

Site A - On South Side of Project Site					Site B - Near Northwest Corner of Project				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
73.9	14:58:51		73.9	73.9	58.8	14:53:51		58.8	58.8
72.2	14:58:54		72.2	72.2	57.6	14:53:54		57.6	57.6
68.7	14:58:57		68.7	68.7	56.9	14:53:57		56.9	56.9
66.1	14:59:00		66.1	66.1	56.5	14:54:00		56.5	56.5
70.6	14:59:03		70.6	70.6	56.9	14:54:03		56.9	56.9
70.2	14:59:06		70.2	70.2	58.5	14:54:06		58.5	58.5
63.8	14:59:09		63.8	63.8	59	14:54:09		59	59
62.1	14:59:12		62.1	62.1	57.3	14:54:12		57.3	57.3
69.7	14:59:15		69.7	69.7	57	14:54:15		57	57
67.1	14:59:18		67.1	67.1	57.6	14:54:18		57.6	57.6
70.4	14:59:21		70.4	70.4	56.2	14:54:21		56.2	56.2
66.4	14:59:24		66.4	66.4	57.7	14:54:24		57.7	57.7
61.7	14:59:27		61.7	61.7	57.4	14:54:27		57.4	57.4
58.1	14:59:30		58.1	58.1	57.4	14:54:30		57.4	57.4
67	14:59:33		67	67.0	56.4	14:54:33		56.4	56.4
58.3	14:59:36		58.3	58.3	57.7	14:54:36		57.7	57.7
63.4	14:59:39		63.4	63.4	57.2	14:54:39		57.2	57.2
73.5	14:59:42		73.5	73.5	58.4	14:54:42		58.4	58.4
70.1	14:59:45		70.1	70.1	57.9	14:54:45		57.9	57.9
67.3	14:59:48		67.3	67.3	59.4	14:54:48		59.4	59.4
63.5	14:59:51		63.5	63.5	56.6	14:54:51		56.6	56.6
63.2	14:59:54		63.2	63.2	56.8	14:54:54		56.8	56.8
73.2	14:59:57		73.2	73.2	57.2	14:54:57		57.2	57.2
72.8	15:00:00		72.8	72.8	57.9	14:55:00		57.9	57.9
71.2	15:00:03		71.2	71.2	57	14:55:03		57	57
70.8	15:00:06		70.8	70.8	56.6	14:55:06		56.6	56.6
65.8	15:00:09		65.8	65.8	58.2	14:55:09		58.2	58.2
65	15:00:12		65	65.0	57.4	14:55:12		57.4	57.4
71.6	15:00:15		71.6	71.6	57.3	14:55:15		57.3	57.3
68.1	15:00:18		68.1	68.1	56.7	14:55:18		56.7	56.7
66.1	15:00:21		66.1	66.1	57.9	14:55:21		57.9	57.9
61.4	15:00:24		61.4	61.4	56.8	14:55:24		56.8	56.8
61	15:00:27		61	61.0	56.9	14:55:27		56.9	56.9
70.2	15:00:30		70.2	70.2	58.1	14:55:30		58.1	58.1
59	15:00:33		59	59.0	58	14:55:33		58	58
52.8	15:00:36		52.8	52.8	56.8	14:55:36		56.8	56.8
48.9	15:00:39		48.9	48.9	56.9	14:55:39		56.9	56.9
48.1	15:00:42		48.1	48.1	56.1	14:55:42		56.1	56.1
49.8	15:00:45		49.8	49.8	58.5	14:55:45		58.5	58.5
57.2	15:00:48		57.2	57.2	57.9	14:55:48		57.9	57.9
63.6	15:00:51		63.6	63.6	58	14:55:51		58	58
65.1	15:00:54		65.1	65.1	57.3	14:55:54		57.3	57.3
57.8	15:00:57		57.8	57.8	58.3	14:55:57		58.3	58.3
58.3	15:01:00		58.3	58.3	58	14:56:00		58	58
67.9	15:01:03		67.9	67.9	57.2	14:56:03		57.2	57.2
58.4	15:01:06		58.4	58.4	57.8	14:56:06		57.8	57.8
62	15:01:09		62	62.0	57.8	14:56:09		57.8	57.8
65.8	15:01:12		65.8	65.8	58.2	14:56:12		58.2	58.2
67.9	15:01:15		67.9	67.9	58.4	14:56:15		58.4	58.4
60.2	15:01:18		60.2	60.2	56.9	14:56:18		56.9	56.9
68	15:01:21		68	68.0	57.3	14:56:21		57.3	57.3
69.4	15:01:24		69.4	69.4	59.8	14:56:24		59.8	59.8
68.4	15:01:27		68.4	68.4	58.4	14:56:27		58.4	58.4
65.2	15:01:30		65.2	65.2	56.8	14:56:30		56.8	56.8
65.9	15:01:33		65.9	65.9	55.9	14:56:33		55.9	55.9
68.1	15:01:36		68.1	68.1	55.9	14:56:36		55.9	55.9
63.5	15:01:39		63.5	63.5	57.4	14:56:39		57.4	57.4
55.5	15:01:42		55.5	55.5	57.4	14:56:42		57.4	57.4
51.7	15:01:45		51.7	51.7	68.1	14:56:45		68.1	68.1
45.9	15:01:48		45.9	45.9	57.1	14:56:48		57.1	57.1
44.3	15:01:51		44.3	44.3	57	14:56:51		57	57
42.7	15:01:54		42.7	42.7	57.7	14:56:54		57.7	57.7
44.7	15:01:57		44.7	44.7	57.8	14:56:57		57.8	57.8
43.9	15:02:00		43.9	43.9	57.4	14:57:00		57.4	57.4
57.7	15:02:03		57.7	57.7	56.8	14:57:03		56.8	56.8
69.7	15:02:06		69.7	69.7	58.3	14:57:06		58.3	58.3
71.1	15:02:09		71.1	71.1	59	14:57:09		59	59
70.7	15:02:12		70.7	70.7	57.9	14:57:12		57.9	57.9
72.5	15:02:15		72.5	72.5	58.3	14:57:15		58.3	58.3
69.2	15:02:18		69.2	69.2	59.3	14:57:18		59.3	59.3
70.1	15:02:21		70.1	70.1	59.2	14:57:21		59.2	59.2
64.5	15:02:24		64.5	64.5	60.5	14:57:24		60.5	60.5
71.8	15:02:27		71.8	71.8	59.3	14:57:27		59.3	59.3
67.8	15:02:30		67.8	67.8	57.8	14:57:30		57.8	57.8
64.9	15:02:33		64.9	64.9	57.1	14:57:33		57.1	57.1
63.8	15:02:36		63.8	63.8	59.2	14:57:36		59.2	59.2
67.3	15:02:39		67.3	67.3	58.2	14:57:39		58.2	58.2
63.9	15:02:42		63.9	63.9	60.3	14:57:42		60.3	60.3
61	15:02:45		61	61.0	61.8	14:57:45		61.8	61.8
56.5	15:02:48		56.5	56.5	58.7	14:57:48		58.7	58.7
51.6	15:02:51		51.6	51.6	60.1	14:57:51		60.1	60.1
56.9	15:02:54		56.9	56.9	58.5	14:57:54		58.5	58.5
55.9	15:02:57		55.9	55.9	58.4	14:57:57		58.4	58.4
53.4	15:03:00		53.4	53.4	59	14:58:00		59	59
57.3	15:03:03		57.3	57.3	61.8	14:58:03		61.8	61.8
71.7	15:03:06		71.7	71.7	60.1	14:58:06		60.1	60.1
67.3	15:03:09		67.3	67.3	58.2	14:58:09		58.2	58.2
64.8	15:03:12		64.8	64.8	59.6	14:58:12		59.6	59.6
62.2	15:03:15		62.2	62.2	58.7	14:58:15		58.7	58.7

Site A - On South Side of Project Site					Site B - Near Northwest Corner of Project				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
71	15:03:18		71	71.0	58.2	14:58:18		58.2	58.2
60.8	15:03:21		60.8	60.8	58.2	14:58:21		58.2	58.2
63.2	15:03:24		63.2	63.2	57.8	14:58:24		57.8	57.8
61.7	15:03:27		61.7	61.7	56.8	14:58:27		56.8	56.8
56.3	15:03:30		56.3	56.3	57.7	14:58:30		57.7	57.7
59.1	15:03:33		59.1	59.1	57.7	14:58:33		57.7	57.7
67.6	15:03:36		67.6	67.6	57.5	14:58:36		57.5	57.5
67.3	15:03:39		67.3	67.3	59.8	14:58:39		59.8	59.8
58.3	15:03:42		58.3	58.3	57.9	14:58:42		57.9	57.9
56.2	15:03:45		56.2	56.2	58.8	14:58:45		58.8	58.8
70.2	15:03:48		70.2	70.2	59.4	14:58:48		59.4	59.4
66.9	15:03:51		66.9	66.9	57.8	14:58:51		57.8	57.8
73.4	15:03:54		73.4	73.4	56.9	14:58:54		56.9	56.9
64.6	15:03:57		64.6	64.6	56.6	14:58:57		56.6	56.6
56.4	15:04:00		56.4	56.4	58.5	14:59:00		58.5	58.5
55.1	15:04:03		55.1	55.1	57	14:59:03		57	57
58.9	15:04:06		58.9	58.9	57.3	14:59:06		57.3	57.3
66.2	15:04:09		66.2	66.2	57.3	14:59:09		57.3	57.3
68.2	15:04:12		68.2	68.2	58.6	14:59:12		58.6	58.6
69.4	15:04:15		69.4	69.4	58.6	14:59:15		58.6	58.6
70.1	15:04:18		70.1	70.1	57.9	14:59:18		57.9	57.9
69.4	15:04:21		69.4	69.4	58.5	14:59:21		58.5	58.5
65	15:04:24		65	65.0	58.6	14:59:24		58.6	58.6
66.4	15:04:27		66.4	66.4	60.6	14:59:27		60.6	60.6
67.3	15:04:30		67.3	67.3	58.7	14:59:30		58.7	58.7
67.7	15:04:33		67.7	67.7	58.8	14:59:33		58.8	58.8
58.5	15:04:36		58.5	58.5	58.7	14:59:36		58.7	58.7
52.8	15:04:39		52.8	52.8	59.1	14:59:39		59.1	59.1
60.1	15:04:42		60.1	60.1	60.6	14:59:42		60.6	60.6
67.3	15:04:45		67.3	67.3	58.9	14:59:45		58.9	58.9
66	15:04:48		66	66.0	58	14:59:48		58	58
66.7	15:04:51		66.7	66.7	59	14:59:51		59	59
62.4	15:04:54		62.4	62.4	59.8	14:59:54		59.8	59.8
64.9	15:04:57		64.9	64.9	60	14:59:57		60	60
55.9	15:05:00		55.9	55.9	61.5	15:00:00		61.5	61.5
44.3	15:05:03		44.3	44.3	60.3	15:00:03		60.3	60.3
41.1	15:05:06		41.1	41.1	59	15:00:06		59	59
44.1	15:05:09		44.1	44.1	59.4	15:00:09		59.4	59.4
52.4	15:05:12		52.4	52.4	59.5	15:00:12		59.5	59.5
66.1	15:05:15		66.1	66.1	59.1	15:00:15		59.1	59.1
67.2	15:05:18		67.2	67.2	59	15:00:18		59	59
55.4	15:05:21		55.4	55.4	58.7	15:00:21		58.7	58.7
50.4	15:05:24		50.4	50.4	59.7	15:00:24		59.7	59.7
46.1	15:05:27		46.1	46.1	61.3	15:00:27		61.3	61.3
44.2	15:05:30		44.2	44.2	59.3	15:00:30		59.3	59.3
43.4	15:05:33		43.4	43.4	61.3	15:00:33		61.3	61.3
45.2	15:05:36		45.2	45.2	60.9	15:00:36		60.9	60.9
50.3	15:05:39		50.3	50.3	60.7	15:00:39		60.7	60.7
58.2	15:05:42		58.2	58.2	59	15:00:42		59	59
68.3	15:05:45		68.3	68.3	58.9	15:00:45		58.9	58.9
72.8	15:05:48		72.8	72.8	59	15:00:48		59	59
69.6	15:05:51		69.6	69.6	58.8	15:00:51		58.8	58.8
65.2	15:05:54		65.2	65.2	59.4	15:00:54		59.4	59.4
72	15:05:57		72	72.0	61.6	15:00:57		61.6	61.6
69.3	15:06:00		69.3	69.3	61.2	15:01:00		61.2	61.2
69	15:06:03		69	69.0	61.1	15:01:03		61.1	61.1
67.6	15:06:06		67.6	67.6	60.2	15:01:06		60.2	60.2
66.8	15:06:09		66.8	66.8	57.9	15:01:09		57.9	57.9
78.6	15:06:12		78.6	78.6	56.2	15:01:12		56.2	56.2
74.8	15:06:15		74.8	74.8	58.9	15:01:15		58.9	58.9
68	15:06:18		68	68.0	58.6	15:01:18		58.6	58.6
58.9	15:06:21		58.9	58.9	58.6	15:01:21		58.6	58.6
62.9	15:06:24		62.9	62.9	57	15:01:24		57	57
72.5	15:06:27		72.5	72.5	59	15:01:27		59	59
69.9	15:06:30		69.9	69.9	57.9	15:01:30		57.9	57.9
70.3	15:06:33		70.3	70.3	58.4	15:01:33		58.4	58.4
72.5	15:06:36		72.5	72.5	58.4	15:01:36		58.4	58.4
69.3	15:06:39		69.3	69.3	58.2	15:01:39		58.2	58.2
68.7	15:06:42		68.7	68.7	59.1	15:01:42		59.1	59.1
67.2	15:06:45		67.2	67.2	58	15:01:45		58	58
60.3	15:06:48		60.3	60.3	57.3	15:01:48		57.3	57.3
58.7	15:06:51		58.7	58.7	57.9	15:01:51		57.9	57.9
65.9	15:06:54		65.9	65.9	58.3	15:01:54		58.3	58.3
64.9	15:06:57		64.9	64.9	59.4	15:01:57		59.4	59.4
66.4	15:07:00		66.4	66.4	59.7	15:02:00		59.7	59.7
56.3	15:07:03		56.3	56.3	60.9	15:02:03		60.9	60.9
54.4	15:07:06		54.4	54.4	60.5	15:02:06		60.5	60.5
58.9	15:07:09		58.9	58.9	58.5	15:02:09		58.5	58.5
69.7	15:07:12		69.7	69.7	58.8	15:02:12		58.8	58.8
67.3	15:07:15		67.3	67.3	59.9	15:02:15		59.9	59.9
69.4	15:07:18		69.4	69.4	59.1	15:02:18		59.1	59.1
70.3	15:07:21		70.3	70.3	59	15:02:21		59	59
68.4	15:07:24		68.4	68.4	59.3	15:02:24		59.3	59.3
64	15:07:27		64	64.0	59.5	15:02:27		59.5	59.5
65.2	15:07:30		65.2	65.2	59.4	15:02:30		59.4	59.4
66.9	15:07:33		66.9	66.9	61	15:02:33		61	61
59.1	15:07:36		59.1	59.1	60.8	15:02:36		60.8	60.8
67.8	15:07:39		67.8	67.8	57.7	15:02:39		57.7	57.7
61.5	15:07:42		61.5	61.5	59	15:02:42		59	59

Site A - On South Side of Project Site					Site B - Near Northwest Corner of Project				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
53.4	15:07:45		53.4	53.4	58.4	15:02:45		58.4	58.4
48.8	15:07:48		48.8	48.8	56.5	15:02:48		56.5	56.5
52.8	15:07:51		52.8	52.8	58.8	15:02:51		58.8	58.8
68	15:07:54		68	68.0	58.6	15:02:54		58.6	58.6
67.7	15:07:57		67.7	67.7	59.2	15:02:57		59.2	59.2
64.2	15:08:00		64.2	64.2	58.5	15:03:00		58.5	58.5
57.1	15:08:03		57.1	57.1	56.9	15:03:03		56.9	56.9
51	15:08:06		51	51.0	58.5	15:03:06		58.5	58.5
57.6	15:08:09		57.6	57.6	62	15:03:09		62	62
66.8	15:08:12		66.8	66.8	64.7	15:03:12		64.7	64.7
64.9	15:08:15		64.9	64.9	66.4	15:03:15		66.4	66.4
69.6	15:08:18		69.6	69.6	60.1	15:03:18		60.1	60.1
69.1	15:08:21		69.1	69.1	58.1	15:03:21		58.1	58.1
60.8	15:08:24		60.8	60.8	57.9	15:03:24		57.9	57.9
57.2	15:08:27		57.2	57.2	57.9	15:03:27		57.9	57.9
64.8	15:08:30		64.8	64.8	58.6	15:03:30		58.6	58.6
66.4	15:08:33		66.4	66.4	58.2	15:03:33		58.2	58.2
68.2	15:08:36		68.2	68.2	57.3	15:03:36		57.3	57.3
66.8	15:08:39		66.8	66.8	58.2	15:03:39		58.2	58.2
66.5	15:08:42		66.5	66.5	58.7	15:03:42		58.7	58.7
70	15:08:45		70	70.0	56.7	15:03:45		56.7	56.7
67.8	15:08:48		67.8	67.8	58.5	15:03:48		58.5	58.5
62.2	15:08:51		62.2	62.2	60.7	15:03:51		60.7	60.7
58	15:08:54		58	58.0	59.6	15:03:54		59.6	59.6
68.4	15:08:57		68.4	68.4	60.8	15:03:57		60.8	60.8
67.3	15:09:00		67.3	67.3	61.3	15:04:00		61.3	61.3
64.9	15:09:03		64.9	64.9	63.2	15:04:03		63.2	63.2
60.4	15:09:06		60.4	60.4	59.9	15:04:06		59.9	59.9
71.1	15:09:09		71.1	71.1	59.6	15:04:09		59.6	59.6
66.8	15:09:12		66.8	66.8	58.5	15:04:12		58.5	58.5
62.7	15:09:15		62.7	62.7	58.7	15:04:15		58.7	58.7
55	15:09:18		55	55.0	57.7	15:04:18		57.7	57.7
60	15:09:21		60	60.0	57.6	15:04:21		57.6	57.6
68.9	15:09:24		68.9	68.9	57.8	15:04:24		57.8	57.8
62.8	15:09:27		62.8	62.8	57.7	15:04:27		57.7	57.7
56.5	15:09:30		56.5	56.5	59.5	15:04:30		59.5	59.5
65.1	15:09:33		65.1	65.1	58.4	15:04:33		58.4	58.4
67.8	15:09:36		67.8	67.8	58.9	15:04:36		58.9	58.9
69	15:09:39		69	69.0	58.4	15:04:39		58.4	58.4
68.4	15:09:42		68.4	68.4	58.2	15:04:42		58.2	58.2
70.6	15:09:45		70.6	70.6	58.1	15:04:45		58.1	58.1
64.2	15:09:48		64.2	64.2	58.3	15:04:48		58.3	58.3
55.7	15:09:51		55.7	55.7	58	15:04:51		58	58
57.4	15:09:54		57.4	57.4	58.4	15:04:54		58.4	58.4
60.3	15:09:57		60.3	60.3	58.8	15:04:57		58.8	58.8
64.6	15:10:00		64.6	64.6	57.4	15:05:00		57.4	57.4
68.3	15:10:03		68.3	68.3	56.7	15:05:03		56.7	56.7
68.6	15:10:06		68.6	68.6	59	15:05:06		59	59
69.9	15:10:09		69.9	69.9	57.4	15:05:09		57.4	57.4
71.9	15:10:12		71.9	71.9	57.2	15:05:12		57.2	57.2
70.5	15:10:15		70.5	70.5	57.8	15:05:15		57.8	57.8
67.4	15:10:18		67.4	67.4	59.6	15:05:18		59.6	59.6
69.2	15:10:21		69.2	69.2	59	15:05:21		59	59
73.9	15:10:24		73.9	73.9	56.6	15:05:24		56.6	56.6
73.3	15:10:27		73.3	73.3	57.6	15:05:27		57.6	57.6
67.1	15:10:30		67.1	67.1	58	15:05:30		58	58
70.5	15:10:33		70.5	70.5	57.4	15:05:33		57.4	57.4
71.5	15:10:36		71.5	71.5	59.1	15:05:36		59.1	59.1
74.7	15:10:39		74.7	74.7	57.3	15:05:39		57.3	57.3
71.6	15:10:42		71.6	71.6	56.9	15:05:42		56.9	56.9
68.8	15:10:45		68.8	68.8	57.2	15:05:45		57.2	57.2
72.4	15:10:48		72.4	72.4	58.2	15:05:48		58.2	58.2
65	15:10:51		65	65.0	57.5	15:05:51		57.5	57.5
67.4	15:10:54		67.4	67.4	57.2	15:05:54		57.2	57.2
65	15:10:57		65	65.0	57.9	15:05:57		57.9	57.9
70.9	15:11:00		70.9	70.9	58.7	15:06:00		58.7	58.7
65.7	15:11:03		65.7	65.7	59.9	15:06:03		59.9	59.9
58.3	15:11:06		58.3	58.3	59.7	15:06:06		59.7	59.7
65.3	15:11:09		65.3	65.3	58.8	15:06:09		58.8	58.8
66.4	15:11:12		66.4	66.4	58	15:06:12		58	58
64.6	15:11:15		64.6	64.6	56.8	15:06:15		56.8	56.8
67.8	15:11:18		67.8	67.8	57.2	15:06:18		57.2	57.2
66.2	15:11:21		66.2	66.2	57.7	15:06:21		57.7	57.7
58.3	15:11:24		58.3	58.3	57.1	15:06:24		57.1	57.1
52.9	15:11:27		52.9	52.9	61	15:06:27		61	61
57.5	15:11:30		57.5	57.5	62.7	15:06:30		62.7	62.7
65.2	15:11:33		65.2	65.2	59.8	15:06:33		59.8	59.8
72.1	15:11:36		72.1	72.1	61.6	15:06:36		61.6	61.6
69	15:11:39		69	69.0	56.9	15:06:39		56.9	56.9
69.7	15:11:42		69.7	69.7	58.4	15:06:42		58.4	58.4
68.8	15:11:45		68.8	68.8	58.9	15:06:45		58.9	58.9
69.2	15:11:48		69.2	69.2	56.3	15:06:48		56.3	56.3
73	15:11:51		73	73.0	56.7	15:06:51		56.7	56.7
68.4	15:11:54		68.4	68.4	58.6	15:06:54		58.6	58.6
67.7	15:11:57		67.7	67.7	57	15:06:57		57	57
68.9	15:12:00		68.9	68.9	56.5	15:07:00		56.5	56.5
69.7	15:12:03		69.7	69.7	56.9	15:07:03		56.9	56.9
67.8	15:12:06		67.8	67.8	57	15:07:06		57	57
71.4	15:12:09		71.4	71.4	56.4	15:07:09		56.4	56.4

Site A - On South Side of Project Site					Site B - Near Northwest Corner of Project				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
71.4	15:12:12		71.4	71.4	57.7	15:07:12		57.7	57.7
70.4	15:12:15		70.4	70.4	56.9	15:07:15		56.9	56.9
59.4	15:12:18		59.4	59.4	56.5	15:07:18		56.5	56.5
51	15:12:21		51	51.0	55.8	15:07:21		55.8	55.8
51.7	15:12:24		51.7	51.7	56.4	15:07:24		56.4	56.4
51.1	15:12:27		51.1	51.1	57	15:07:27		57	57
49.2	15:12:30		49.2	49.2	55.7	15:07:30		55.7	55.7
50.6	15:12:33		50.6	50.6	56.3	15:07:33		56.3	56.3
57.7	15:12:36		57.7	57.7	54.9	15:07:36		54.9	54.9
65.8	15:12:39		65.8	65.8	56.7	15:07:39		56.7	56.7
73.5	15:12:42		73.5	73.5	57.6	15:07:42		57.6	57.6
68.6	15:12:45		68.6	68.6	59	15:07:45		59	59
58.8	15:12:48		58.8	58.8	58.3	15:07:48		58.3	58.3
54	15:12:51		54	54.0	58.3	15:07:51		58.3	58.3
54.4	15:12:54		54.4	54.4	56.9	15:07:54		56.9	56.9
65.3	15:12:57		65.3	65.3	58.8	15:07:57		58.8	58.8
62.5	15:13:00		62.5	62.5	57.3	15:08:00		57.3	57.3
54.5	15:13:03		54.5	54.5	55.4	15:08:03		55.4	55.4
52.7	15:13:06		52.7	52.7	57.1	15:08:06		57.1	57.1
56	15:13:09		56	56.0	55.5	15:08:09		55.5	55.5
64.1	15:13:12		64.1	64.1	55	15:08:12		55	55
77.3	15:13:15		77.3	77.3	56	15:08:15		56	56
76.8	15:13:18		76.8	76.8	55	15:08:18		55	55
71.2	15:13:21		71.2	71.2	54.8	15:08:21		54.8	54.8
68.3	15:13:24		68.3	68.3	55.7	15:08:24		55.7	55.7
70.9	15:13:27		70.9	70.9	56.6	15:08:27		56.6	56.6
71.1	15:13:30		71.1	71.1	55.5	15:08:30		55.5	55.5
66.4	15:13:33		66.4	66.4	54.4	15:08:33		54.4	54.4
63.2	15:13:36		63.2	63.2	54.3	15:08:36		54.3	54.3
63.4	15:13:39		63.4	63.4	55.7	15:08:39		55.7	55.7
64	15:13:42		64	64.0	56.9	15:08:42		56.9	56.9
70.6	15:13:45		70.6	70.6	56.1	15:08:45		56.1	56.1
64.8	15:13:48		64.8	64.8	56	15:08:48		56	56
64.4	15:13:51		64.4	64.4	56.1	15:08:51		56.1	56.1
68.3	15:13:54		68.3	68.3	58.2	15:08:54		58.2	58.2
69.4	15:13:57		69.4	69.4	58.5	15:08:57		58.5	58.5
65.5	15:14:00		65.5	65.5	57.7	15:09:00		57.7	57.7
58.5	15:14:03		58.5	58.5	57.2	15:09:03		57.2	57.2
59	15:14:06		59	59.0	57.9	15:09:06		57.9	57.9
68.5	15:14:09		68.5	68.5	58.1	15:09:09		58.1	58.1
67.6	15:14:12		67.6	67.6	57.8	15:09:12		57.8	57.8
66.3	15:14:15		66.3	66.3	59	15:09:15		59	59
61.8	15:14:18		61.8	61.8	60.6	15:09:18		60.6	60.6
58	15:14:21		58	58.0	59.6	15:09:21		59.6	59.6
67	15:14:24		67	67.0	57.7	15:09:24		57.7	57.7
71.7	15:14:27		71.7	71.7	56.6	15:09:27		56.6	56.6
71	15:14:30		71	71.0	55.7	15:09:30		55.7	55.7
69.7	15:14:33		69.7	69.7	56	15:09:33		56	56
69.3	15:14:36		69.3	69.3	55.2	15:09:36		55.2	55.2
71.7	15:14:39		71.7	71.7	56.4	15:09:39		56.4	56.4
70.9	15:14:42		70.9	70.9	58.5	15:09:42		58.5	58.5
71.2	15:14:45		71.2	71.2	57.6	15:09:45		57.6	57.6
70.2	15:14:48		70.2	70.2	55.1	15:09:48		55.1	55.1
66.1	15:14:51		66.1	66.1	55.7	15:09:51		55.7	55.7
68.7	15:14:54		68.7	68.7	79	15:09:54		79	79
69	15:14:57		69	69.0	69.8	15:09:57		69.8	69.8
67.5	15:15:00		67.5	67.5	58.4	15:10:00		58.4	58.4
66.8	15:15:03		66.8	66.8	56.9	15:10:03		56.9	56.9
65.1	15:15:06		65.1	65.1	56.1	15:10:06		56.1	56.1
59.9	15:15:09		59.9	59.9	56.7	15:10:09		56.7	56.7
59.2	15:15:12		59.2	59.2	58.7	15:10:12		58.7	58.7
65	15:15:15		65	65.0	58.1	15:10:15		58.1	58.1
58.7	15:15:18		58.7	58.7	57.9	15:10:18		57.9	57.9
56.7	15:15:21		56.7	56.7	55.5	15:10:21		55.5	55.5
63.4	15:15:24		63.4	63.4	57.1	15:10:24		57.1	57.1
69	15:15:27		69	69.0	56.7	15:10:27		56.7	56.7
67.7	15:15:30		67.7	67.7	58	15:10:30		58	58
65.8	15:15:33		65.8	65.8	58.3	15:10:33		58.3	58.3
64.1	15:15:36		64.1	64.1	57.9	15:10:36		57.9	57.9
55.6	15:15:39		55.6	55.6	59.1	15:10:39		59.1	59.1
52	15:15:42		52	52.0	61.8	15:10:42		61.8	61.8
51.4	15:15:45		51.4	51.4	59.4	15:10:45		59.4	59.4
53.3	15:15:48		53.3	53.3	59.8	15:10:48		59.8	59.8
57.5	15:15:51		57.5	57.5	59.5	15:10:51		59.5	59.5
66.9	15:15:54		66.9	66.9	59	15:10:54		59	59
71.5	15:15:57		71.5	71.5	59.4	15:10:57		59.4	59.4
72.1	15:16:00		72.1	72.1	60.3	15:11:00		60.3	60.3
67.7	15:16:03		67.7	67.7	60.5	15:11:03		60.5	60.5
71.5	15:16:06		71.5	71.5	61.2	15:11:06		61.2	61.2
73.4	15:16:09		73.4	73.4	61.8	15:11:09		61.8	61.8
75.9	15:16:12		75.9	75.9	61.2	15:11:12		61.2	61.2
69.5	15:16:15		69.5	69.5	59.8	15:11:15		59.8	59.8
64.8	15:16:18		64.8	64.8	58.1	15:11:18		58.1	58.1
67.7	15:16:21		67.7	67.7	57	15:11:21		57	57
66.9	15:16:24		66.9	66.9	60	15:11:24		60	60
63	15:16:27		63	63.0	58.1	15:11:27		58.1	58.1
65.6	15:16:30		65.6	65.6	56.3	15:11:30		56.3	56.3
65	15:16:33		65	65.0	57.9	15:11:33		57.9	57.9
58.4	15:16:36		58.4	58.4	62	15:11:36		62	62

Site A - On South Side of Project Site					Site B - Near Northwest Corner of Project				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
59.3	15:16:39		59.3	59.3	57.1	15:11:39		57.1	57.1
56.1	15:16:42		56.1	56.1	56.1	15:11:42		56.1	56.1
57.7	15:16:45		57.7	57.7	57.2	15:11:45		57.2	57.2
68.2	15:16:48		68.2	68.2	56.4	15:11:48		56.4	56.4
74.2	15:16:51		74.2	74.2	60	15:11:51		60	60
70	15:16:54		70	70.0	58.1	15:11:54		58.1	58.1
66.2	15:16:57		66.2	66.2	58.3	15:11:57		58.3	58.3
72.2	15:17:00		72.2	72.2	58.2	15:12:00		58.2	58.2
72.8	15:17:03		72.8	72.8	57.6	15:12:03		57.6	57.6
66.9	15:17:06		66.9	66.9	56.9	15:12:06		56.9	56.9
67.9	15:17:09		67.9	67.9	56.8	15:12:09		56.8	56.8
61	15:17:12		61	61.0	58.3	15:12:12		58.3	58.3
68.4	15:17:15		68.4	68.4	57.3	15:12:15		57.3	57.3
68.2	15:17:18		68.2	68.2	57.3	15:12:18		57.3	57.3
61.9	15:17:21		61.9	61.9	57.2	15:12:21		57.2	57.2
61.6	15:17:24		61.6	61.6	57.6	15:12:24		57.6	57.6
64.2	15:17:27		64.2	64.2	58.1	15:12:27		58.1	58.1
69.1	15:17:30		69.1	69.1	56.5	15:12:30		56.5	56.5
68.3	15:17:33		68.3	68.3	56.9	15:12:33		56.9	56.9
69.6	15:17:36		69.6	69.6	57.2	15:12:36		57.2	57.2
71.7	15:17:39		71.7	71.7	58.1	15:12:39		58.1	58.1
70.1	15:17:42		70.1	70.1	58.4	15:12:42		58.4	58.4
68.2	15:17:45		68.2	68.2	58.8	15:12:45		58.8	58.8
71.5	15:17:48		71.5	71.5	57.6	15:12:48		57.6	57.6
68.5	15:17:51		68.5	68.5	58	15:12:51		58	58
64.6	15:17:54		64.6	64.6	59	15:12:54		59	59
69	15:17:57		69	69.0	59	15:12:57		59	59
66.2	15:18:00		66.2	66.2	56.9	15:13:00		56.9	56.9
65	15:18:03		65	65.0	55.9	15:13:03		55.9	55.9
61.1	15:18:06		61.1	61.1	56.9	15:13:06		56.9	56.9
53.4	15:18:09		53.4	53.4	57	15:13:09		57	57
47.2	15:18:12		47.2	47.2	56.6	15:13:12		56.6	56.6
48.2	15:18:15		48.2	48.2	57.1	15:13:15		57.1	57.1
58.2	15:18:18		58.2	58.2	57.2	15:13:18		57.2	57.2
71.1	15:18:21		71.1	71.1	59	15:13:21		59	59
69	15:18:24		69	69.0	56.9	15:13:24		56.9	56.9
68.3	15:18:27		68.3	68.3	58.2	15:13:27		58.2	58.2
65.7	15:18:30		65.7	65.7	58.1	15:13:30		58.1	58.1
69.1	15:18:33		69.1	69.1	62.1	15:13:33		62.1	62.1
56.3	15:18:36		56.3	56.3	58.2	15:13:36		58.2	58.2
49.4	15:18:39		49.4	49.4	56.3	15:13:39		56.3	56.3
56.3	15:18:42		56.3	56.3	56.5	15:13:42		56.5	56.5
68.8	15:18:45		68.8	68.8	56.2	15:13:45		56.2	56.2
63.2	15:18:48		63.2	63.2	56.3	15:13:48		56.3	56.3
66.5	15:18:51		66.5	66.5	63.2	15:13:51		63.2	63.2
67.5	15:18:54		67.5	67.5	60.2	15:13:54		60.2	60.2
64.7	15:18:57		64.7	64.7	58.3	15:13:57		58.3	58.3
61.3	15:19:00		61.3	61.3	58.1	15:14:00		58.1	58.1
64.3	15:19:03		64.3	64.3	57.1	15:14:03		57.1	57.1
56.6	15:19:06		56.6	56.6	56.9	15:14:06		56.9	56.9
54.6	15:19:09		54.6	54.6	55.8	15:14:09		55.8	55.8
57.6	15:19:12		57.6	57.6	55	15:14:12		55	55
66.9	15:19:15		66.9	66.9	55.5	15:14:15		55.5	55.5
68.6	15:19:18		68.6	68.6	54.8	15:14:18		54.8	54.8
68.8	15:19:21		68.8	68.8	59.6	15:14:21		59.6	59.6
70.1	15:19:24		70.1	70.1	58	15:14:24		58	58
65.6	15:19:27		65.6	65.6	56.1	15:14:27		56.1	56.1
66.4	15:19:30		66.4	66.4	55.3	15:14:30		55.3	55.3
66.3	15:19:33		66.3	66.3	55.7	15:14:33		55.7	55.7
66.6	15:19:36		66.6	66.6	55.2	15:14:36		55.2	55.2
69.5	15:19:39		69.5	69.5	55.6	15:14:39		55.6	55.6
66.9	15:19:42		66.9	66.9	54.6	15:14:42		54.6	54.6
62.6	15:19:45		62.6	62.6	55.7	15:14:45		55.7	55.7
57.9	15:19:48		57.9	57.9	56.2	15:14:48		56.2	56.2
54.2	15:19:51		54.2	54.2	55.9	15:14:51		55.9	55.9
57.8	15:19:54		57.8	57.8	57	15:14:54		57	57
72.6	15:19:57		72.6	72.6	56.6	15:14:57		56.6	56.6
63	15:20:00		63	63.0	56.6	15:15:00		56.6	56.6
56.9	15:20:03		56.9	56.9	56.2	15:15:03		56.2	56.2
58.4	15:20:06		58.4	58.4	56	15:15:06		56	56
66.9	15:20:09		66.9	66.9	56.7	15:15:09		56.7	56.7
62.3	15:20:12		62.3	62.3	58.3	15:15:12		58.3	58.3
58.7	15:20:15		58.7	58.7	56.8	15:15:15		56.8	56.8
59.3	15:20:18		59.3	59.3	57.6	15:15:18		57.6	57.6
62.6	15:20:21		62.6	62.6	58	15:15:21		58	58
60.9	15:20:24		60.9	60.9	56.9	15:15:24		56.9	56.9
63.9	15:20:27		63.9	63.9	56.6	15:15:27		56.6	56.6
68.1	15:20:30		68.1	68.1	57.4	15:15:30		57.4	57.4
68.2	15:20:33		68.2	68.2	56.8	15:15:33		56.8	56.8
71.5	15:20:36		71.5	71.5	57.6	15:15:36		57.6	57.6
69	15:20:39		69	69.0	58	15:15:39		58	58
66.8	15:20:42		66.8	66.8	56.6	15:15:42		56.6	56.6
69.6	15:20:45		69.6	69.6	56.2	15:15:45		56.2	56.2
66.4	15:20:48		66.4	66.4	56.4	15:15:48		56.4	56.4
64.5	15:20:51		64.5	64.5	56.3	15:15:51		56.3	56.3
67	15:20:54		67	67.0	56.6	15:15:54		56.6	56.6
68.1	15:20:57		68.1	68.1	57.3	15:15:57		57.3	57.3
70.7	15:21:00		70.7	70.7	59.6	15:16:00		59.6	59.6
70.8	15:21:03		70.8	70.8	59.5	15:16:03		59.5	59.5
74.3	15:21:06		74.3	74.3	56.7	15:16:06		56.7	56.7
67.7	15:21:09		67.7	67.7	57.6	15:16:09		57.6	57.6
64.4	15:21:12		64.4	64.4	56.5	15:16:12		56.5	56.5
65.9	15:21:15		65.9	65.9	57.4	15:16:15		57.4	57.4
66.8	15:21:18		66.8	66.8	58	15:16:18		58	58
70.6	15:21:21		70.6	70.6	56.6	15:16:21		56.6	56.6

Site A - On South Side of Project Site					Site B - Near Northwest Corner of Project				
SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL	SPL	Time	Leq (1 hour Avg.)	Ldn	CNEL
65.9	15:21:24		65.9	65.9	57.8	15:16:24		57.8	57.8
63.3	15:21:27		63.3	63.3	57.9	15:16:27		57.9	57.9
65.1	15:21:30		65.1	65.1	57.3	15:16:30		57.3	57.3
75.2	15:21:33		75.2	75.2	57.6	15:16:33		57.6	57.6
68.4	15:21:36		68.4	68.4	57.2	15:16:36		57.2	57.2
64.6	15:21:39		64.6	64.6	60.8	15:16:39		60.8	60.8
67.4	15:21:42		67.4	67.4	59.8	15:16:42		59.8	59.8
70.3	15:21:45		70.3	70.3	61.1	15:16:45		61.1	61.1
71.4	15:21:48		71.4	71.4	61.1	15:16:48		61.1	61.1
73.4	15:21:51		73.4	73.4	58.9	15:16:51		58.9	58.9
73.7	15:21:54		73.7	73.7	58.1	15:16:54		58.1	58.1
73	15:21:57		73	73.0	59.3	15:16:57		59.3	59.3
68.7	15:22:00		68.7	68.7	63.2	15:17:00		63.2	63.2
65.6	15:22:03		65.6	65.6	58.6	15:17:03		58.6	58.6
67.7	15:22:06		67.7	67.7	59.2	15:17:06		59.2	59.2
66.7	15:22:09		66.7	66.7	58.2	15:17:09		58.2	58.2
68.5	15:22:12		68.5	68.5	59.2	15:17:12		59.2	59.2
70	15:22:15		70	70.0	58.8	15:17:15		58.8	58.8
69	15:22:18		69	69.0	56.9	15:17:18		56.9	56.9
67.1	15:22:21		67.1	67.1	59.1	15:17:21		59.1	59.1
64	15:22:24		64	64.0	59.7	15:17:24		59.7	59.7
63.7	15:22:27		63.7	63.7	58.7	15:17:27		58.7	58.7
63.4	15:22:30		63.4	63.4	58.1	15:17:30		58.1	58.1
62.4	15:22:33		62.4	62.4	58.8	15:17:33		58.8	58.8
63.1	15:22:36		63.1	63.1	57.9	15:17:36		57.9	57.9
71	15:22:39		71	71.0	58.1	15:17:39		58.1	58.1
69.1	15:22:42		69.1	69.1	56.4	15:17:42		56.4	56.4
67.1	15:22:45		67.1	67.1	57.7	15:17:45		57.7	57.7
60.1	15:22:48		60.1	60.1	58.2	15:17:48		58.2	58.2
61.6	15:22:51		61.6	61.6	57.3	15:17:51		57.3	57.3
66	15:22:54		66	66.0	56.8	15:17:54		56.8	56.8
68.7	15:22:57		68.7	68.7	56.9	15:17:57		56.9	56.9
66.9	15:23:00		66.9	66.9	56.2	15:18:00		56.2	56.2
64.3	15:23:03		64.3	64.3	57.5	15:18:03		57.5	57.5
62.8	15:23:06		62.8	62.8	56.7	15:18:06		56.7	56.7
60	15:23:09		60	60.0	56.7	15:18:09		56.7	56.7
57.7	15:23:12		57.7	57.7	56.6	15:18:12		56.6	56.6
62.7	15:23:15		62.7	62.7	55.9	15:18:15		55.9	55.9
63.5	15:23:18		63.5	63.5	56.3	15:18:18		56.3	56.3
57.8	15:23:21		57.8	57.8	55.6	15:18:21		55.6	55.6
55.4	15:23:24		55.4	55.4	56.2	15:18:24		56.2	56.2
56.6	15:23:27		56.6	56.6	56.1	15:18:27		56.1	56.1
60.3	15:23:30		60.3	60.3	56.2	15:18:30		56.2	56.2
67.7	15:23:33		67.7	67.7	56.9	15:18:33		56.9	56.9
72.3	15:23:36		72.3	72.3	56.9	15:18:36		56.9	56.9
72.2	15:23:39		72.2	72.2	57.5	15:18:39		57.5	57.5
70.1	15:23:42		70.1	70.1	56.5	15:18:42		56.5	56.5
71.3	15:23:45		71.3	71.3	57	15:18:45		57	57
65.9	15:23:48		65.9	65.9	57.3	15:18:48		57.3	57.3
71	15:23:51		71	71.0	56.2	15:18:51		56.2	56.2
71.6	15:23:54		71.6	71.6	57	15:18:54		57	57
71.2	15:23:57		71.2	71.2	57.6	15:18:57		57.6	57.6
67	15:24:00		67	67.0	56.4	15:19:00		56.4	56.4
69.1	15:24:03		69.1	69.1	56.3	15:19:03		56.3	56.3
71.1	15:24:06		71.1	71.1	60.8	15:19:06		60.8	60.8
66.9	15:24:09		66.9	66.9	59	15:19:09		59	59
60.4	15:24:12		60.4	60.4	62	15:19:12		62	62
57.9	15:24:15		57.9	57.9	62.6	15:19:15		62.6	62.6
58.2	15:24:18		58.2	58.2	62.8	15:19:18		62.8	62.8
60.3	15:24:21		60.3	60.3	62.9	15:19:21		62.9	62.9
65.4	15:24:24		65.4	65.4	60.1	15:19:24		60.1	60.1
62.8	15:24:27		62.8	62.8	55.9	15:19:27		55.9	55.9
62.6	15:24:30		62.6	62.6	56	15:19:30		56	56
67.6	15:24:33		67.6	67.6	56.7	15:19:33		56.7	56.7
71.6	15:24:36		71.6	71.6	56.2	15:19:36		56.2	56.2
66.6	15:24:39		66.6	66.6	56.3	15:19:39		56.3	56.3
68.4	15:24:42		68.4	68.4	56.1	15:19:42		56.1	56.1
69	15:24:45		69	69.0	56.4	15:19:45		56.4	56.4
62.1	15:24:48		62.1	62.1	56.8	15:19:48		56.8	56.8
58.3	15:24:51		58.3	58.3	57.5	15:19:51		57.5	57.5
57.1	15:24:54		57.1	57.1	58.7	15:19:54		58.7	58.7
57.8	15:24:57		57.8	57.8	58.1	15:19:57		58.1	58.1
63.4	15:25:00	67.5	63.4	63.4	59.2	15:20:00	63.1	59.2	59.2
65.6	15:25:03	67.5	65.6	65.6	59	15:20:03	63.1	59	59
62.7	15:25:06	67.5	62.7	62.7	58.2	15:20:06	63.1	58.2	58.2
74.7	15:25:09	67.5	74.7	74.7	58.7	15:20:09	63.1	58.7	58.7
69.2	15:25:12	67.5	69.2	69.2	59.6	15:20:12	63.1	59.6	59.6
68.5	15:25:15	67.5	68.5	68.5	57.4	15:20:15	63.1	57.4	57.4
67.4	15:25:18	67.5	67.4	67.4	58.5	15:20:18	63.1	58.5	58.5
64.9	15:25:21	67.5	64.9	64.9	56.2	15:20:21	63.1	56.2	56.2
60.4	15:25:24	67.5	60.4	60.4	56.9	15:20:24	63.1	56.9	56.9
60.6	15:25:27	67.5	60.6	60.6	57.9	15:20:27	63.1	57.9	57.9
66.8	15:25:30	67.5	66.8	66.8	57.1	15:20:30	63.1	57.1	57.1
67.4	15:25:33	67.5	67.4	67.4	57.3	15:20:33	63.1	57.3	57.3
59.4	15:25:36	67.6	59.4	59.4	57.3	15:20:36	63.1	57.3	57.3
56.4	15:25:39	67.6	56.4	56.4	56.8	15:20:39	63.1	56.8	56.8
57.5	15:25:42	67.6	57.5	57.5	58.8	15:20:42	63.1	58.8	58.8
58.6	15:25:45	67.6	58.6	58.6	57.3	15:20:45	63.0	57.3	57.3
60	15:25:48	67.6	60	60.0	56.5	15:20:48	63.0	56.5	56.5
66.8	15:25:51	67.6	66.8	66.8	56.8	15:20:51	63.0	56.8	56.8
68.3	15:25:54	67.6	68.3	68.3	56.8	15:20:54	63.0	56.8	56.8
69.3	15:25:57	67.6	69.3	69.3	56.1	15:20:57	63.0	56.1	56.1
68.4	15:26:00	67.6	68.4	68.4	56.3	15:21:00	63.0	56.3	56.3
68.5	15:26:03	67.6	68.5	68.5	57.7	15:21:03	63.0	57.7	57.7
65.9	15:26:06	67.6	65.9	65.9	58.6	15:21:06	63.0	58.6	58.6
66.8	15:26:09	67.6	66.8	66.8	58.1	15:21:09	63.0	58.1	58.1
66.1	15:26:12	67.6	66.1	66.1	59.2	15:21:12	63.0	59.2	59.2
66.3	15:26:15	67.6	66.3	66.3	58.4	15:21:15	63.0	58.4	58.4
60.2	15:26:18	67.6	60.2	60.2	59.3	15:21:18	63.0	59.3	59.3
59.7	15:26:21	67.6	59.7	59.7	59.8	15:21:21	63.0	59.8	59.8
60.6	15:26:24	67.6	60.6	60.6	58.4	15:21:24	63.0	58.4	58.4
66.3	15:26:27	67.6	66.3	66.3	58.1	15:21:27	63.0	58.1	58.1
70.2	15:26:30	67.6	70.2	70.2	59.2	15:21:30	63.0	59.2	59.2

APPENDIX C

RCNM Model Construction Noise Calculations

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 1/15/2021
Case Description: Griswold Residential - Demolition

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Homes to West & East	Residential	68.4	68.4	68.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	235	0
Excavator	No	40		80.7	235	0
Excavator	No	40		80.7	235	0
Concrete Saw	No	20		89.6	235	0
Tractor	No	40	84		235	0
Front End Loader	No	40		79.1	235	0

Equipment	Calculated (dBA) *Lmax	Leq	Results Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq
Excavator	67.3	63.3	N/A	N/A	N/A	N/A
Excavator	67.3	63.3	N/A	N/A	N/A	N/A
Excavator	67.3	63.3	N/A	N/A	N/A	N/A
Concrete Saw	76.1	69.1	N/A	N/A	N/A	N/A
Tractor	70.6	66.6	N/A	N/A	N/A	N/A
Front End Loader	65.7	61.7	N/A	N/A	N/A	N/A
Total	**76**	**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: 1/15/2021
Case Description: Griswold Residential - Demolition

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes to North	Residential	68.4	68.4	68.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	535	0
Excavator	No	40		80.7	535	0
Excavator	No	40		80.7	535	0
Concrete Saw	No	20		89.6	535	0
Tractor	No	40	84		535	0
Front End Loader	No	40.0		79.1	535	0

Equipment	Calculated (dBA) *Lmax	Leq	Results Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Excavator	60.1	56.1	N/A	N/A	N/A	N/A
Excavator	60.1	56.1	N/A	N/A	N/A	N/A
Excavator	60.1	56.1	N/A	N/A	N/A	N/A
Concrete Saw	69.0	62.0	N/A	N/A	N/A	N/A
Tractor	63.4	59.4	N/A	N/A	N/A	N/A
Front End Loader	58.5	54.5	N/A	N/A	N/A	N/A
Total	**69**	**66**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 1/15/2021
Case Description: Griswold Residential - Demolition

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes to South	Residential	68.4	68.4	68.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	575	0
Excavator	No	40		80.7	575	0
Excavator	No	40		80.7	575	0
Concrete Saw	No	20		89.6	575	0
Tractor	No	40	84		575	0
Front End Loader	No	40		79.1	575	0

Equipment	Calculated (dBA) *Lmax	Leq	Results Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq
Excavator	59.5	55.5	N/A	N/A	N/A	N/A
Excavator	59.5	55.5	N/A	N/A	N/A	N/A
Excavator	59.5	55.5	N/A	N/A	N/A	N/A
Concrete Saw	68.4	61.4	N/A	N/A	N/A	N/A
Tractor	62.8	58.8	N/A	N/A	N/A	N/A
Front End Loader	57.9	53.9	N/A	N/A	N/A	N/A
Total	**68**	**65**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 1/15/2021
Case Description: Griswold Residential - Site Preparation

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Homes to West & East	Residential	68.4	68.4	68.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	235	0
Dozer	No	40		81.7	235	0
Dozer	No	40		81.7	235	0
Tractor	No	40	84		235	0
Front End Loader	No	40		79.1	235	0
Backhoe	No	40		77.6	235	0

Equipment	Calculated (dBA) *Lmax	Leq	Results Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq
Dozer	68.2	64.2	N/A	N/A	N/A	N/A
Dozer	68.2	64.2	N/A	N/A	N/A	N/A
Dozer	68.2	64.2	N/A	N/A	N/A	N/A
Tractor	70.6	66.6	N/A	N/A	N/A	N/A
Front End Loader	65.7	61.7	N/A	N/A	N/A	N/A
Backhoe	64.1	60.1	N/A	N/A	N/A	N/A
Total	**71**	**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: 1/15/2021
Case Description: Griswold Residential - Site Preparation

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes to North	Residential	68.4	68.4	68.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	535	0
Dozer	No	40		81.7	535	0
Dozer	No	40		81.7	535	0
Tractor	No	40	84		535	0
Front End Loader	No	40		79.1	535	0
Backhoe	No	40.0		77.6	535	0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	61.1	57.1	N/A	N/A	N/A	N/A
Dozer	61.1	57.1	N/A	N/A	N/A	N/A
Dozer	61.1	57.1	N/A	N/A	N/A	N/A
Tractor	63.4	59.4	N/A	N/A	N/A	N/A
Front End Loader	58.5	54.5	N/A	N/A	N/A	N/A
Backhoe	57.0	53.0	N/A	N/A	N/A	N/A
Total	**63**	**65**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 1/15/2021
Case Description: Griswold Residential - Site Preparation

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes to South	Residential	68.4	68.4	68.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	575	0
Dozer	No	40		81.7	575	0
Dozer	No	40		81.7	575	0
Tractor	No	40	84		575	0
Front End Loader	No	40		79.1	575	0
Backhoe	No	40		77.6	575	0

Equipment	Calculated (dBA) *Lmax	Leq	Results Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq
Dozer	60.5	56.5	N/A	N/A	N/A	N/A
Dozer	60.5	56.5	N/A	N/A	N/A	N/A
Dozer	60.5	56.5	N/A	N/A	N/A	N/A
Tractor	62.8	58.8	N/A	N/A	N/A	N/A
Front End Loader	57.9	53.9	N/A	N/A	N/A	N/A
Backhoe	56.3	52.4	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: 1/15/2021
Case Description: Griswold Residential - Grading

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Homes to West & East	Residential	68.4	68.4	68.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	235	0
Grader	No	40	85		235	0
Dozer	No	40		81.7	235	0
Tractor	No	40	84		235	0
Front End Loader	No	40		79.1	235	0
Backhoe	No	40		77.6	235	0

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	67.3	63.3	N/A	N/A	N/A	N/A
Grader	71.6	67.6	N/A	N/A	N/A	N/A
Dozer	68.2	64.2	N/A	N/A	N/A	N/A
Tractor	70.6	66.6	N/A	N/A	N/A	N/A
Front End Loader	65.7	61.7	N/A	N/A	N/A	N/A
Backhoe	64.1	60.1	N/A	N/A	N/A	N/A
Total	**72**	**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: 1/15/2021
Case Description: Griswold Residential - Grading

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes to North	Residential	68.4	68.4	68.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	535	0
Grader	No	40	85		535	0
Dozer	No	40		81.7	535	0
Tractor	No	40	84		535	0
Front End Loader	No	40		79.1	535	0
Backhoe	No	40.0		77.6	535	0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	60.1	56.1	N/A	N/A	N/A	N/A
Grader	64.4	60.4	N/A	N/A	N/A	N/A
Dozer	61.1	57.1	N/A	N/A	N/A	N/A
Tractor	63.4	59.4	N/A	N/A	N/A	N/A
Front End Loader	58.5	54.5	N/A	N/A	N/A	N/A
Backhoe	57.0	53.0	N/A	N/A	N/A	N/A
Total	**64**	**65**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 1/15/2021
Case Description: Griswold Residential - Grading

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes to South	Residential	68	68	68.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	575	0
Grader	No	40	85		575	0
Dozer	No	40		81.7	575	0
Tractor	No	40	84		575	0
Front End Loader	No	40		79.1	575	0
Backhoe	No	40		77.6	575	0

Equipment	Calculated (dBA) *Lmax	Leq	Results Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq
Excavator	59.5	55.5	N/A	N/A	N/A	N/A
Grader	63.8	59.8	N/A	N/A	N/A	N/A
Dozer	60.5	56.5	N/A	N/A	N/A	N/A
Tractor	62.8	58.8	N/A	N/A	N/A	N/A
Front End Loader	57.9	53.9	N/A	N/A	N/A	N/A
Backhoe	56.3	52.4	N/A	N/A	N/A	N/A
Total	**64**	**65**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 1/15/2021
Case Description: Griswold Residential - Building Construction

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Homes to West & East	Residential	68.4	68.4	68.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	235	0
Gradall	No	40		83.4	235	0
Gradall	No	40		83.4	235	0
Gradall	No	40		83.4	235	0
Tractor	No	40	84		235	0
Front End Loader	No	40		79.1	235	0
Backhoe	No	40		77.6	235	0

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Crane	67.1	59.1	N/A	N/A	N/A	N/A
Gradall	70.00	66.00	N/A	N/A	N/A	N/A
Gradall	70.00	66.00	N/A	N/A	N/A	N/A
Gradall	70.00	66.00	N/A	N/A	N/A	N/A
Tractor	70.6	66.6	N/A	N/A	N/A	N/A
Front End Loader	65.7	61.7	N/A	N/A	N/A	N/A
Backhoe	64.1	60.1	N/A	N/A	N/A	N/A
Total	**71**	**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: 1/15/2021
Case Description: Griswold Residential - Building Construction

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes to North	Residential	68.4	68.4	68.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	535	0
Gradall	No	40		83.4	535	0
Gradall	No	40		83.4	535	0
Gradall	No	40		83.4	535	0
Tractor	No	40	84		535	0
Front End Loader	No	40		79.1	535	0
Backhoe	No	40		77.6	535	0

Equipment		Calculated (dBA) *Lmax	Leq	Results Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq
Crane		60.0	52.0	N/A	N/A	N/A	N/A
Gradall		62.8	58.8	N/A	N/A	N/A	N/A
Gradall		62.8	58.8	N/A	N/A	N/A	N/A
Gradall		62.8	58.8	N/A	N/A	N/A	N/A
Tractor		63.4	59.4	N/A	N/A	N/A	N/A
Front End Loader		58.5	54.5	N/A	N/A	N/A	N/A
Backhoe		57.0	53.0	N/A	N/A	N/A	N/A
	Total	**63**	**66**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 1/15/2021
Case Description: Griswold Residential - Building Construction

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes to South	Residential	68.4	68.4	68.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	575	0
Gradall	No	40		83.4	575	0
Gradall	No	40		83.4	575	0
Gradall	No	40		83.4	575	0
Tractor	No	40	84		575	0
Front End Loader	No	40		79.1	575	0
Backhoe	No	40		77.6	575	0

Equipment	Calculated (dBA) *Lmax	Leq	Results Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq
Crane	59.3	51.4	N/A	N/A	N/A	N/A
Gradall	62.2	58.2	N/A	N/A	N/A	N/A
Gradall	62.2	58.2	N/A	N/A	N/A	N/A
Gradall	62.2	58.2	N/A	N/A	N/A	N/A
Tractor	62.8	58.8	N/A	N/A	N/A	N/A
Front End Loader	57.9	53.9	N/A	N/A	N/A	N/A
Backhoe	56.3	52.4	N/A	N/A	N/A	N/A
Total	**63**	**65**	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 1/15/2021
Case Description: Griswold Residential - Paving

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Nearest Homes to West & East	Residential	68.4	68.4	68.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	235	0
Concrete Mixer Truck	No	40		78.8	235	0
Concrete Mixer Truck	No	40		78.8	235	0
Concrete Mixer Truck	No	40		78.8	235	0
Paver	No	50		77.2	235	0
Roller	No	20		80.0	235	0
Tractor	No	40	84		235	0

Equipment		Calculated (dBA) *Lmax	Leq	Results Day Lmax	Leq	Noise Limits (dBA) Evening Lmax	Leq
Concrete Mixer Truck		65.4	61.4	N/A	N/A	N/A	N/A
Concrete Mixer Truck		65.4	61.4	N/A	N/A	N/A	N/A
Concrete Mixer Truck		65.4	61.4	N/A	N/A	N/A	N/A
Concrete Mixer Truck		65.4	61.4	N/A	N/A	N/A	N/A
Paver		63.8	60.8	N/A	N/A	N/A	N/A
Roller		66.6	59.6	N/A	N/A	N/A	N/A
Tractor		70.6	66.6	N/A	N/A	N/A	N/A
	Total	**71**	**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: 1/15/2021
Case Description: Griswold Residential - Paving

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes to North	Residential	68.4	68.4	68.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	535	0
Concrete Mixer Truck	No	40		78.8	535	0
Concrete Mixer Truck	No	40		78.8	535	0
Concrete Mixer Truck	No	40		78.8	535	0
Paver	No	50		77.2	535	0
Roller	No	20		80	535	0
Tractor	No	40	84		535	0

Equipment	Calculated (dBA) *Lmax	Leq	Results Day Lmax	Noise Limits (dBA) Day Leq	Evening Lmax	Evening Leq
Concrete Mixer Truck	58.2	54.2	N/A	N/A	N/A	N/A
Concrete Mixer Truck	58.2	54.2	N/A	N/A	N/A	N/A
Concrete Mixer Truck	58.2	54.2	N/A	N/A	N/A	N/A
Concrete Mixer Truck	58.2	54.2	N/A	N/A	N/A	N/A
Paver	56.6	53.6	N/A	N/A	N/A	N/A
Roller	59.4	52.4	N/A	N/A	N/A	N/A
Tractor	63.4	59.4	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: 1/15/2021
Case Description: Griswold Residential - Paving

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Homes to South	Residential	68.4	68.4	68.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	575	0
Concrete Mixer Truck	No	40		78.8	575	0
Concrete Mixer Truck	No	40		78.8	575	0
Concrete Mixer Truck	No	40		78.8	575	0
Paver	No	50		77.2	575	0
Roller	No	20		80	575	0
Tractor	No	40	84		575	0

Equipment	Calculated (dBA) *Lmax	Leq	Results Day Lmax	Noise Limits (dBA) Leq	Evening Lmax	Leq
Concrete Mixer Truck	57.6	53.6	N/A	N/A	N/A	N/A
Concrete Mixer Truck	57.6	53.6	N/A	N/A	N/A	N/A
Concrete Mixer Truck	57.6	53.6	N/A	N/A	N/A	N/A
Concrete Mixer Truck	57.6	53.6	N/A	N/A	N/A	N/A
Paver	56.0	53.0	N/A	N/A	N/A	N/A
Roller	58.8	51.8	N/A	N/A	N/A	N/A
Tractor	62.8	58.8	N/A	N/A	N/A	N/A
Total	**63**	**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: 1/15/2021
Case Description: Griswold Residential - Stationary Equipment

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
At 100 Feet	Residential	68.4	68.4	68.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	100	0
Generator (<25KVA, VMS signs)	No	50		72.8	100	0
Welder / Torch	No	40		74	100	0

	Calculated (dBA)		Results Noise Limits (dBA) Day		Evening	
Equipment	*Lmax	**Leq**	Lmax	Leq	Lmax	Leq
Compressor (air)	72	**68**	N/A	N/A	N/A	N/A
Generator (<25KVA, VMS signs)	67	**64**	N/A	N/A	N/A	N/A
Welder / Torch	68	**64**	N/A	N/A	N/A	N/A
Total	71.6	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: 1/15/2021
Case Description: Griswold Residential - Stationary Equipment

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
At 160 Feet	Residential	68.4	68.4	68.4

Description	Impact Device	Usage(%)	Equipment **Spec** Lmax **(dBA)**	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40.0		77.7	160	0
Generator (<25KVA, VMS signs)	No	50		72.8	160	0
Welder / Torch	No	40.0		74	160	0

Results

Equipment	Calculated (dBA) *Lmax	**Leq**	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq
Compressor (air)	68	**64**	N/A	N/A	N/A	N/A
Generator (<25KVA, VMS signs)	63	**60**	N/A	N/A	N/A	N/A
Welder / Torch	64	**60**	N/A	N/A	N/A	N/A
Total	68	66	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
At 235 Feet	Residential	68.4	68.4	68.4

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40.0		77.7	235	0
Generator (<25KVA, VMS signs)	No	50.0		72.8	235	0
Welder / Torch	No	40.0		74	235	0

Results

Equipment	Calculated (dBA) *Lmax	**Leq**	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq
Compressor (air)	64	**60**	N/A	N/A	N/A	N/A
Generator (<25KVA, VMS signs)	59	**56**	N/A	N/A	N/A	N/A
Welder / Torch	60.6	**57**	N/A	N/A	N/A	N/A
Total	64	63	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

APPENDIX D

FHWA Model Traffic Noise Calculation Printouts

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

Scenario: EXISTING CONDITIONS

Project: Griswold Residential
Site Conditions: Soft

	Vehicle Mix 1 (Collector)				Vehicle Mix 2 (Major)				Vehicle Mix 3 (SR-39)			
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%	66.02%	13.53%	15.83%	95.38%
Medium Trucks	0.90%	0.90%	0.04%	1.84%	1.44%	0.06%	1.50%	3.00%	1.95%	0.35%	0.99%	3.29%
Heavy Trucks	0.35%	0.04%	0.35%	0.74%	2.40%	0.10%	2.50%	5.00%	0.73%	0.07%	0.53%	1.33%

Road Name: Irwindale Avenue **Segment: North of San Bernardino Avenue**

Average Daily Traffic: 18350 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Major

	NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 63.71 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	67.36	0.95	-1.68	-1.20	65.43	63.05	61.76	55.71	64.14	64.77	70 dBA:	**33**	**35**
Medium Trucks	76.31	-13.92	-1.68	-1.20	59.51	40.30	32.52	41.73	47.89	47.92	65 dBA:	**70**	**76**
Heavy Trucks	81.16	-11.70	-1.68	-1.20	66.58	49.59	41.81	51.01	57.17	57.20	60 dBA:	**151**	**164**
				Total:	**69.51**	**63.27**	**61.81**	**57.10**	**65.02**	**65.55**	55 dBA:	**326**	**353**

Road Name: Irwindale Avenue **Segment: South of San Bernardino Avenue**

Average Daily Traffic: 19150 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Major

	NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 63.71 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	67.36	1.13	-1.68	-1.20	65.61	63.24	61.95	55.89	64.32	64.95	70 dBA:	**34**	**36**
Medium Trucks	76.31	-13.73	-1.68	-1.20	59.70	40.49	32.71	41.92	48.07	48.10	65 dBA:	**72**	**78**
Heavy Trucks	81.16	-11.51	-1.68	-1.20	66.76	49.77	41.99	51.20	57.35	57.39	60 dBA:	**156**	**169**
				Total:	**69.69**	**63.45**	**61.99**	**57.29**	**65.20**	**65.73**	55 dBA:	**335**	**363**

Road Name: Vincent Avenue **Segment: North of San Bernardino Avenue**

Average Daily Traffic: 18100 Vehicles Vehicle Speed: 35 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	65.11	1.47	0.53	-1.20	65.91	63.54	62.24	56.19	64.62	65.25	70 dBA:	**26**	**28**
Medium Trucks	74.83	-13.40	0.53	-1.20	60.76	41.55	33.77	42.98	49.13	49.17	65 dBA:	**56**	**60**
Heavy Trucks	80.05	-11.18	0.53	-1.20	68.20	51.21	43.42	52.63	58.79	58.82	60 dBA:	**120**	**130**
				Total:	**70.68**	**63.81**	**62.30**	**57.92**	**65.72**	**66.23**	55 dBA:	**259**	**280**

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

Scenario: EXISTING CONDITIONS

Project: Griswold Residential
Site Conditions: Soft

Road Name: Vincent Avenue **Segment: South of San Bernardino Avenue**

Average Daily Traffic: 18500 Vehicles Vehicle Speed: 35 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	65.11	1.56	0.53	-1.20	66.00	63.63	62.34	56.28	64.71	65.34	70 dBA:	**26**	**28**
Medium Trucks	74.83	-13.30	0.53	-1.20	60.85	41.65	33.86	43.07	49.23	49.26	65 dBA:	**57**	**61**
Heavy Trucks	80.05	-11.08	0.53	-1.20	68.29	51.30	43.52	52.73	58.88	58.92	60 dBA:	**122**	**132**
				Total:	**70.77**	**63.90**	**62.40**	**58.01**	**65.82**	**66.32**	55 dBA:	**263**	**284**

Road Name: San Bernardino Avenue **Segment: West of Irwindale Avenue**

Average Daily Traffic: 17300 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Secondary

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 97.77 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	67.36	0.69	-4.47	-1.20	62.38	60.01	58.72	52.66	61.09	61.72	70 dBA:	**29**	**32**
Medium Trucks	76.31	-14.17	-4.47	-1.20	56.47	37.26	29.48	38.68	44.84	44.87	65 dBA:	**63**	**68**
Heavy Trucks	81.16	-11.96	-4.47	-1.20	63.53	46.54	38.76	47.97	54.12	54.16	60 dBA:	**135**	**147**
				Total:	**66.46**	**60.22**	**58.76**	**54.06**	**61.97**	**62.50**	55 dBA:	**292**	**316**

Road Name: San Bernardino Avenue **Segment: West of Project Driveway**

Average Daily Traffic: 15400 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Secondary

	NOISE PARAMETERS AT 90 FEET FROM CENTERLINE (Equiv. Lane Dist: 87.52 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	67.36	0.19	-3.75	-1.20	62.60	60.22	58.93	52.88	61.31	61.94	70 dBA:	**27**	**29**
Medium Trucks	76.31	-14.68	-3.75	-1.20	56.68	37.47	29.69	38.90	45.06	45.09	65 dBA:	**58**	**63**
Heavy Trucks	81.16	-12.46	-3.75	-1.20	63.75	46.76	38.98	48.19	54.34	54.37	60 dBA:	**126**	**137**
				Total:	**66.68**	**60.44**	**58.98**	**54.27**	**62.19**	**62.72**	55 dBA:	**271**	**294**

Road Name: San Bernardino Avenue **Segment: East of Project Driveway**

Average Daily Traffic: 15550 Vehicles Vehicle Speed: 40 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	67.36	0.23	0.53	-1.20	66.92	64.55	63.25	57.20	65.63	66.26	70 dBA:	**29**	**32**
Medium Trucks	76.31	-14.64	0.53	-1.20	61.00	41.80	34.01	43.22	49.38	49.41	65 dBA:	**63**	**68**
Heavy Trucks	81.16	-12.42	0.53	-1.20	68.07	51.08	43.30	52.51	58.66	58.69	60 dBA:	**136**	**147**
				Total:	**71.00**	**64.76**	**63.30**	**58.60**	**66.51**	**67.04**	55 dBA:	**293**	**317**

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

Scenario: EXISTING CONDITIONS

Project: Griswold Residential
Site Conditions: Soft

Road Name: San Bernardino Avenue **Segment: East of Vincent Avenue**

Average Daily Traffic: 15050 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Secondary

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 56.2 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	67.36	0.09	-0.87	-1.20	65.38	63.01	61.72	55.66	64.09	64.72	70 dBA:	**28**	**30**
Medium Trucks	76.31	-14.78	-0.87	-1.20	59.47	40.26	32.48	41.69	47.84	47.87	65 dBA:	**60**	**65**
Heavy Trucks	81.16	-12.56	-0.87	-1.20	66.53	49.54	41.76	50.97	57.12	57.16	60 dBA:	**129**	**140**
				Total:	**69.46**	**63.22**	**61.77**	**57.06**	**64.97**	**65.50**	55 dBA:	**277**	**301**

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

Scenario: EXISTING WITH PROJECT CONDITIONS

Project: Griswold Residential
Site Conditions: Soft

	Vehicle Mix 1 (Collector)				Vehicle Mix 2 (Major)				Vehicle Mix 3 (SR-39)			
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%	66.02%	13.53%	15.83%	95.38%
Medium Trucks	0.90%	0.90%	0.04%	1.84%	1.44%	0.06%	1.50%	3.00%	1.95%	0.35%	0.99%	3.29%
Heavy Trucks	0.35%	0.04%	0.35%	0.74%	2.40%	0.10%	2.50%	5.00%	0.73%	0.07%	0.53%	1.33%

Road Name: Irwindale Avenue **Segment: North of San Bernardino Avenue**

Average Daily Traffic: 18360 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Major

	NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 63.71 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	67.36	0.95	-1.68	-1.20	65.43	63.06	61.76	55.71	64.14	64.77	70 dBA:	**33**	**35**
Medium Trucks	76.31	-13.92	-1.68	-1.20	59.51	40.31	32.53	41.73	47.89	47.92	65 dBA:	**70**	**76**
Heavy Trucks	81.16	-11.70	-1.68	-1.20	66.58	49.59	41.81	51.02	57.17	57.21	60 dBA:	**151**	**164**
				Total:	**69.51**	**63.27**	**61.81**	**57.11**	**65.02**	**65.55**	55 dBA:	**326**	**353**

Road Name: Irwindale Avenue **Segment: South of San Bernardino Avenue**

Average Daily Traffic: 19450 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Major

	NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 63.71 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	67.36	1.20	-1.68	-1.20	65.68	63.31	62.01	55.96	64.39	65.02	70 dBA:	**34**	**37**
Medium Trucks	76.31	-13.67	-1.68	-1.20	59.77	40.56	32.78	41.98	48.14	48.17	65 dBA:	**73**	**79**
Heavy Trucks	81.16	-11.45	-1.68	-1.20	66.83	49.84	42.06	51.27	57.42	57.46	60 dBA:	**157**	**170**
				Total:	**69.76**	**63.52**	**62.06**	**57.36**	**65.27**	**65.80**	55 dBA:	**339**	**367**

Road Name: Vincent Avenue **Segment: North of San Bernardino Avenue**

Average Daily Traffic: 18110 Vehicles Vehicle Speed: 35 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	65.11	1.47	0.53	-1.20	65.91	63.54	62.24	56.19	64.62	65.25	70 dBA:	**26**	**28**
Medium Trucks	74.83	-13.40	0.53	-1.20	60.76	41.55	33.77	42.98	49.13	49.17	65 dBA:	**56**	**60**
Heavy Trucks	80.05	-11.18	0.53	-1.20	68.20	51.21	43.43	52.63	58.79	58.82	60 dBA:	**120**	**130**
				Total:	**70.68**	**63.81**	**62.31**	**57.92**	**65.73**	**66.23**	55 dBA:	**259**	**280**

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

Scenario: EXISTING WITH PROJECT CONDITIONS

Project: Griswold Residential
Site Conditions: Soft

Road Name: Vincent Avenue **Segment: South of San Bernardino Avenue**

Average Daily Traffic: 18650 Vehicles Vehicle Speed: 35 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	65.11	1.60	0.53	-1.20	66.04	63.67	62.37	56.32	64.75	65.38	70 dBA:	**26**	**29**
Medium Trucks	74.83	-13.27	0.53	-1.20	60.89	41.68	33.90	43.11	49.26	49.30	65 dBA:	**57**	**62**
Heavy Trucks	80.05	-11.05	0.53	-1.20	68.33	51.34	43.55	52.76	58.92	58.95	60 dBA:	**123**	**133**
				Total:	**70.81**	**63.94**	**62.43**	**58.05**	**65.85**	**66.36**	55 dBA:	**265**	**286**

Road Name: San Bernardino Avenue **Segment: West of Irwindale Avenue**

Average Daily Traffic: 17310 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Secondary

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 97.77 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	67.36	0.69	-4.47	-1.20	62.38	60.01	58.72	52.66	61.09	61.73	70 dBA:	**29**	**32**
Medium Trucks	76.31	-14.17	-4.47	-1.20	56.47	37.26	29.48	38.69	44.84	44.88	65 dBA:	**63**	**68**
Heavy Trucks	81.16	-11.95	-4.47	-1.20	63.53	46.54	38.76	47.97	54.13	54.16	60 dBA:	**135**	**147**
				Total:	**66.46**	**60.22**	**58.77**	**54.06**	**61.97**	**62.50**	55 dBA:	**292**	**316**

Road Name: San Bernardino Avenue **Segment: West of Project Driveway**

Average Daily Traffic: 15800 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Secondary

	NOISE PARAMETERS AT 90 FEET FROM CENTERLINE (Equiv. Lane Dist: 87.52 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	67.36	0.30	-3.75	-1.20	62.71	60.34	59.04	52.99	61.42	62.05	70 dBA:	**28**	**30**
Medium Trucks	76.31	-14.57	-3.75	-1.20	56.79	37.59	29.80	39.01	45.17	45.20	65 dBA:	**59**	**64**
Heavy Trucks	81.16	-12.35	-3.75	-1.20	63.86	46.87	39.09	48.30	54.45	54.48	60 dBA:	**128**	**139**
				Total:	**66.79**	**60.55**	**59.09**	**54.39**	**62.30**	**62.83**	55 dBA:	**276**	**299**

Road Name: San Bernardino Avenue **Segment: East of Project Driveway**

Average Daily Traffic: 15800 Vehicles Vehicle Speed: 40 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	67.36	0.30	0.53	-1.20	66.99	64.62	63.32	57.27	65.70	66.33	70 dBA:	**30**	**32**
Medium Trucks	76.31	-14.57	0.53	-1.20	61.07	41.87	34.08	43.29	49.45	49.48	65 dBA:	**64**	**69**
Heavy Trucks	81.16	-12.35	0.53	-1.20	68.14	51.15	43.37	52.58	58.73	58.76	60 dBA:	**137**	**149**
				Total:	**71.07**	**64.83**	**63.37**	**58.66**	**66.58**	**67.11**	55 dBA:	**296**	**321**

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

Scenario: EXISTING WITH PROJECT CONDITIONS

Project: Griswold Residential
Site Conditions: Soft

Road Name: San Bernardino Avenue **Segment: East of Vincent Avenue**

Average Daily Traffic: 15060 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Secondary

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 56.2 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	67.36	0.09	-0.87	-1.20	65.38	63.01	61.72	55.66	64.10	64.73	70 dBA:	**28**	**30**
Medium Trucks	76.31	-14.78	-0.87	-1.20	59.47	40.26	32.48	41.69	47.84	47.88	65 dBA:	**60**	**65**
Heavy Trucks	81.16	-12.56	-0.87	-1.20	66.54	49.55	41.76	50.97	57.13	57.16	60 dBA:	**129**	**140**
				Total:	**69.47**	**63.23**	**61.77**	**57.06**	**64.98**	**65.50**	55 dBA:	**277**	**301**

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

Scenario: YEAR 2023 WITHOUT PROJECT CONDITIONS

Project: Griswold Residential
Site Conditions: Soft

	Vehicle Mix 1 (Collector)				Vehicle Mix 2 (Major)				Vehicle Mix 3 (SR-39)			
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%	66.02%	13.53%	15.83%	95.38%
Medium Trucks	0.90%	0.90%	0.04%	1.84%	1.44%	0.06%	1.50%	3.00%	1.95%	0.35%	0.99%	3.29%
Heavy Trucks	0.35%	0.04%	0.35%	0.74%	2.40%	0.10%	2.50%	5.00%	0.73%	0.07%	0.53%	1.33%

Road Name: Irwindale Avenue **Segment: North of San Bernardino Avenue**

Average Daily Traffic: 18740 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Major

	NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 63.71 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	67.36	1.04	-1.68	-1.20	65.52	63.15	61.85	55.80	64.23	64.86	70 dBA:	**33**	**36**
Medium Trucks	76.31	-13.83	-1.68	-1.20	59.60	40.40	32.61	41.82	47.98	48.01	65 dBA:	**71**	**77**
Heavy Trucks	81.16	-11.61	-1.68	-1.20	66.67	49.68	41.90	51.11	57.26	57.29	60 dBA:	**153**	**166**
				Total:	**69.60**	**63.36**	**61.90**	**57.20**	**65.11**	**65.64**	55 dBA:	**330**	**358**

Road Name: Irwindale Avenue **Segment: South of San Bernardino Avenue**

Average Daily Traffic: 19500 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Major

	NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 63.71 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	67.36	1.21	-1.68	-1.20	65.69	63.32	62.02	55.97	64.40	65.03	70 dBA:	**34**	**37**
Medium Trucks	76.31	-13.65	-1.68	-1.20	59.78	40.57	32.79	41.99	48.15	48.18	65 dBA:	**73**	**79**
Heavy Trucks	81.16	-11.44	-1.68	-1.20	66.84	49.85	42.07	51.28	57.43	57.47	60 dBA:	**157**	**171**
				Total:	**69.77**	**63.53**	**62.07**	**57.37**	**65.28**	**65.81**	55 dBA:	**339**	**368**

Road Name: Vincent Avenue **Segment: North of San Bernardino Avenue**

Average Daily Traffic: 19140 Vehicles Vehicle Speed: 35 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	65.11	1.71	0.53	-1.20	66.15	63.78	62.48	56.43	64.86	65.49	70 dBA:	**27**	**29**
Medium Trucks	74.83	-13.16	0.53	-1.20	61.00	41.79	34.01	43.22	49.37	49.41	65 dBA:	**58**	**63**
Heavy Trucks	80.05	-10.94	0.53	-1.20	68.44	51.45	43.67	52.87	59.03	59.06	60 dBA:	**125**	**135**
				Total:	**70.92**	**64.05**	**62.55**	**58.16**	**65.97**	**66.47**	55 dBA:	**269**	**291**

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

Scenario: YEAR 2023 WITHOUT PROJECT CONDITIONS

Project: Griswold Residential
Site Conditions: Soft

Road Name: Vincent Avenue **Segment: South of San Bernardino Avenue**

Average Daily Traffic: 19550 Vehicles Vehicle Speed: 35 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	65.11	1.80	0.53	-1.20	66.24	63.87	62.58	56.52	64.95	65.58	70 dBA:	**27**	**29**
Medium Trucks	74.83	-13.06	0.53	-1.20	61.09	41.89	34.10	43.31	49.47	49.50	65 dBA:	**59**	**64**
Heavy Trucks	80.05	-10.84	0.53	-1.20	68.53	51.54	43.76	52.97	59.12	59.16	60 dBA:	**127**	**137**
				Total:	**71.01**	**64.14**	**62.64**	**58.25**	**66.06**	**66.56**	55 dBA:	**273**	**295**

Road Name: San Bernardino Avenue **Segment: West of Irwindale Avenue**

Average Daily Traffic: 18040 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Secondary

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 97.77 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	67.36	0.87	-4.47	-1.20	62.56	60.19	58.90	52.84	61.27	61.90	70 dBA:	**30**	**33**
Medium Trucks	76.31	-13.99	-4.47	-1.20	56.65	37.44	29.66	38.87	45.02	45.06	65 dBA:	**65**	**70**
Heavy Trucks	81.16	-11.77	-4.47	-1.20	63.71	46.72	38.94	48.15	54.30	54.34	60 dBA:	**139**	**151**
				Total:	**66.64**	**60.40**	**58.95**	**54.24**	**62.15**	**62.68**	55 dBA:	**300**	**325**

Road Name: San Bernardino Avenue **Segment: West of Project Driveway**

Average Daily Traffic: 16050 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Secondary

	NOISE PARAMETERS AT 90 FEET FROM CENTERLINE (Equiv. Lane Dist: 87.52 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	67.36	0.37	-3.75	-1.20	62.78	60.40	59.11	53.06	61.49	62.12	70 dBA:	**28**	**30**
Medium Trucks	76.31	-14.50	-3.75	-1.20	56.86	37.65	29.87	39.08	45.24	45.27	65 dBA:	**60**	**65**
Heavy Trucks	81.16	-12.28	-3.75	-1.20	63.93	46.94	39.16	48.36	54.52	54.55	60 dBA:	**129**	**140**
				Total:	**66.86**	**60.62**	**59.16**	**54.45**	**62.37**	**62.90**	55 dBA:	**279**	**302**

Road Name: San Bernardino Avenue **Segment: East of Project Driveway**

Average Daily Traffic: 16200 Vehicles Vehicle Speed: 40 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	67.36	0.41	0.53	-1.20	67.10	64.72	63.43	57.38	65.81	66.44	70 dBA:	**30**	**33**
Medium Trucks	76.31	-14.46	0.53	-1.20	61.18	41.97	34.19	43.40	49.55	49.59	65 dBA:	**65**	**70**
Heavy Trucks	81.16	-12.24	0.53	-1.20	68.25	51.26	43.48	52.68	58.84	58.87	60 dBA:	**140**	**151**
				Total:	**71.18**	**64.94**	**63.48**	**58.77**	**66.69**	**67.22**	55 dBA:	**301**	**326**

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

Scenario: YEAR 2023 WITHOUT PROJECT CONDITIONS

Project: Griswold Residential
Site Conditions: Soft

Road Name: San Bernardino Avenue **Segment: East of Vincent Avenue**

Average Daily Traffic: 15840 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Secondary

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 56.2 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	67.36	0.31	-0.87	-1.20	65.60	63.23	61.94	55.88	64.32	64.95	70 dBA:	**29**	**31**
Medium Trucks	76.31	-14.56	-0.87	-1.20	59.69	40.48	32.70	41.91	48.06	48.10	65 dBA:	**62**	**67**
Heavy Trucks	81.16	-12.34	-0.87	-1.20	66.76	49.77	41.98	51.19	57.35	57.38	60 dBA:	**133**	**144**
				Total:	**69.69**	**63.45**	**61.99**	**57.28**	**65.20**	**65.72**	55 dBA:	**287**	**311**

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

Scenario: YEAR 2023 WITH PROJECT CONDITIONS

Project: Griswold Residential
Site Conditions: Soft

	Vehicle Mix 1 (Collector)				Vehicle Mix 2 (Major)				Vehicle Mix 3 (SR-39)			
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%	66.02%	13.53%	15.83%	95.38%
Medium Trucks	0.90%	0.90%	0.04%	1.84%	1.44%	0.06%	1.50%	3.00%	1.95%	0.35%	0.99%	3.29%
Heavy Trucks	0.35%	0.04%	0.35%	0.74%	2.40%	0.10%	2.50%	5.00%	0.73%	0.07%	0.53%	1.33%

Road Name: Irwindale Avenue **Segment: North of San Bernardino Avenue**

Average Daily Traffic: 18750 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Major

	NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 63.71 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	67.36	1.04	-1.68	-1.20	65.52	63.15	61.85	55.80	64.23	64.86	70 dBA:	**33**	**36**
Medium Trucks	76.31	-13.82	-1.68	-1.20	59.61	40.40	32.62	41.82	47.98	48.01	65 dBA:	**71**	**77**
Heavy Trucks	81.16	-11.61	-1.68	-1.20	66.67	49.68	41.90	51.11	57.26	57.30	60 dBA:	**153**	**166**
				Total:	**69.60**	**63.36**	**61.90**	**57.20**	**65.11**	**65.64**	55 dBA:	**331**	**358**

Road Name: Irwindale Avenue **Segment: South of San Bernardino Avenue**

Average Daily Traffic: 19800 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Major

	NOISE PARAMETERS AT 70 FEET FROM CENTERLINE (Equiv. Lane Dist: 63.71 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	67.36	1.28	-1.68	-1.20	65.76	63.38	62.09	56.04	64.47	65.10	70 dBA:	**34**	**37**
Medium Trucks	76.31	-13.59	-1.68	-1.20	59.84	40.63	32.85	42.06	48.22	48.25	65 dBA:	**74**	**80**
Heavy Trucks	81.16	-11.37	-1.68	-1.20	66.91	49.92	42.14	51.34	57.50	57.53	60 dBA:	**159**	**173**
				Total:	**69.84**	**63.60**	**62.14**	**57.43**	**65.35**	**65.88**	55 dBA:	**343**	**372**

Road Name: Vincent Avenue **Segment: North of San Bernardino Avenue**

Average Daily Traffic: 19150 Vehicles Vehicle Speed: 35 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	65.11	1.71	0.53	-1.20	66.15	63.78	62.49	56.43	64.86	65.49	70 dBA:	**27**	**29**
Medium Trucks	74.83	-13.15	0.53	-1.20	61.00	41.80	34.01	43.22	49.38	49.41	65 dBA:	**58**	**63**
Heavy Trucks	80.05	-10.93	0.53	-1.20	68.44	51.45	43.67	52.88	59.03	59.07	60 dBA:	**125**	**135**
				Total:	**70.92**	**64.05**	**62.55**	**58.16**	**65.97**	**66.47**	55 dBA:	**269**	**291**

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

Scenario: YEAR 2023 WITH PROJECT CONDITIONS

Project: Griswold Residential
Site Conditions: Soft

Road Name: Vincent Avenue **Segment: South of San Bernardino Avenue**

Average Daily Traffic: 19700 Vehicles Vehicle Speed: 35 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	65.11	1.84	0.53	-1.20	66.28	63.90	62.61	56.56	64.99	65.62	70 dBA:	**27**	**30**
Medium Trucks	74.83	-13.03	0.53	-1.20	61.13	41.92	34.14	43.35	49.50	49.53	65 dBA:	**59**	**64**
Heavy Trucks	80.05	-10.81	0.53	-1.20	68.56	51.57	43.79	53.00	59.15	59.19	60 dBA:	**127**	**138**
				Total:	**71.05**	**64.18**	**62.67**	**58.28**	**66.09**	**66.59**	55 dBA:	**274**	**296**

Road Name: San Bernardino Avenue **Segment: West of Irwindale Avenue**

Average Daily Traffic: 18050 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Secondary

	NOISE PARAMETERS AT 100 FEET FROM CENTERLINE (Equiv. Lane Dist: 97.77 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	67.36	0.88	-4.47	-1.20	62.56	60.19	58.90	52.84	61.28	61.91	70 dBA:	**30**	**33**
Medium Trucks	76.31	-13.99	-4.47	-1.20	56.65	37.44	29.66	38.87	45.02	45.06	65 dBA:	**65**	**70**
Heavy Trucks	81.16	-11.77	-4.47	-1.20	63.72	46.73	38.94	48.15	54.31	54.34	60 dBA:	**139**	**151**
				Total:	**66.65**	**60.41**	**58.95**	**54.24**	**62.16**	**62.68**	55 dBA:	**300**	**325**

Road Name: San Bernardino Avenue **Segment: West of Project Driveway**

Average Daily Traffic: 16450 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Secondary

	NOISE PARAMETERS AT 90 FEET FROM CENTERLINE (Equiv. Lane Dist: 87.52 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	67.36	0.47	-3.75	-1.20	62.88	60.51	59.22	53.16	61.60	62.23	70 dBA:	**28**	**31**
Medium Trucks	76.31	-14.39	-3.75	-1.20	56.97	37.76	29.98	39.19	45.34	45.38	65 dBA:	**61**	**66**
Heavy Trucks	81.16	-12.17	-3.75	-1.20	64.03	47.05	39.26	48.47	54.63	54.66	60 dBA:	**132**	**143**
				Total:	**66.97**	**60.72**	**59.27**	**54.56**	**62.48**	**63.00**	55 dBA:	**284**	**307**

Road Name: San Bernardino Avenue **Segment: East of Project Driveway**

Average Daily Traffic: 16450 Vehicles Vehicle Speed: 40 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	67.36	0.47	0.53	-1.20	67.16	64.79	63.50	57.44	65.87	66.50	70 dBA:	**30**	**33**
Medium Trucks	76.31	-14.39	0.53	-1.20	61.25	42.04	34.26	43.47	49.62	49.66	65 dBA:	**65**	**71**
Heavy Trucks	81.16	-12.17	0.53	-1.20	68.31	51.32	43.54	52.75	58.90	58.94	60 dBA:	**141**	**153**
				Total:	**71.24**	**65.00**	**63.55**	**58.84**	**66.75**	**67.28**	55 dBA:	**304**	**329**

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

Scenario: YEAR 2023 WITH PROJECT CONDITIONS

Project: Griswold Residential
Site Conditions: Soft

Road Name: San Bernardino Avenue **Segment: East of Vincent Avenue**

Average Daily Traffic: 15850 Vehicles Vehicle Speed: 40 MPH Vehicle Mix: 2 Roadway Classification: Secondary

	NOISE PARAMETERS AT 60 FEET FROM CENTERLINE (Equiv. Lane Dist: 56.2 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	67.36	0.31	-0.87	-1.20	65.61	63.23	61.94	55.89	64.32	64.95	70 dBA:	**29**	**31**
Medium Trucks	76.31	-14.55	-0.87	-1.20	59.69	40.48	32.70	41.91	48.07	48.10	65 dBA:	**62**	**67**
Heavy Trucks	81.16	-12.34	-0.87	-1.20	66.76	49.77	41.99	51.20	57.35	57.38	60 dBA:	**133**	**145**
				Total:	**69.69**	**63.45**	**61.99**	**57.28**	**65.20**	**65.73**	55 dBA:	**287**	**311**

October 19, 2022

Johanna Crooker
MLC Holdings, Inc.
5 Peters Canyon Road, Suite 310
Irvine, CA 92606

Subject: County of Los Angeles – Analysis of Construction and Operational Noise Impacts to Ambient Noise Levels for the Griswold Residential Project.

Dear Ms. Crooker:

Vista Environmental has prepared this analysis in order to address the proposed Griswold Residential Project (the "Project") impacts to ambient noise levels pursuant to the need for an ambient noise impact analysis as detailed in the Appellate Court Ruling for *King & Gardiner Farms v. County of Kern* (2020) 45 Cal.App.5th 814, 892-893 (King v County of Kern Ruling).

This Memo should be considered as a supplement to the Project's noise analysis provided in the *Noise Impact Analysis Griswold Residential Project County of Los Angeles* (Noise Report), prepared by Vista Environmental, January 18, 2021.

Project Location and Description

The project site is located in an unincorporated portion of Los Angeles County (County) that is within the County's East San Gabriel Planning Area. Specifically, the approximately 9.61 gross acre project site is located at 16209 E San Bernardino Road, which formerly contained Griswold Elementary School that has recently been demolished. The project site is bounded by the Metrolink San Bernardino Line and single-family homes to the north, single-family homes to the east, San Bernardino Road and single-family homes to the south, and single-family homes to the west.

The proposed project would consist of development of a residential community with 71 single-family homes with two common open space areas (private), which would be used for passive recreation and landscaping.

Summary of Analysis Results

This Memo provides additional analysis of the following State CEQA Guidelines noise checklist question.

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?

The Noise Report identified this checklist question as a potentially significant impact and found through implementation of Mitigation Measure 1 would reduce this impact to less than significant levels.

This Memo found that this checklist question would remain a potentially significant impact and found through implementation of Mitigation Measure 1 and implementation of New Mitigation Measure 3, would reduce this impact to less than significant levels.

The Mitigation Measures from the Noise Report and the New Mitigation Measure 3 are listed below:

Mitigation Measure 1:
During all construction activities the project applicant shall require a minimum 8-foot high sound blanket or sound wall to be placed on the side nearest the offsite homes to any stationary equipment (i.e., air compressors, generators, and welders) utilized onsite during construction of the proposed project and the stationary construction equipment shall be located a minimum of 100 feet from any offsite residential property line.

Mitigation Measure 2:
The project applicant shall restrict all contractors from operating any off-road construction equipment that is 150 horsepower or greater within 10 feet of either the east or west property lines in order to limit construction-related vibration levels at the nearby homes. Typical construction equipment that is less than 150 horsepower include backhoes, skid steers, skip loaders, and tractors, that are capable of performing all grading and excavation activities within the 10-foot wide areas adjacent to the east and west property lines.

New Mitigation Measure 3:
Prior to the start of grading activities for the proposed project, the project applicant shall require the installation of a minimum 8-foot high sound blanket or a sound wall (minimum ½-inch plywood or Oriented Strand Board [OSB]) to be placed on both the east and west property lines of the project site and shall be maintained until the permanent concrete masonry unit (cmu) walls that are depicted in the Wall Plan for the Project are constructed along the east and west property lines.

Existing Ambient Noise Levels

Existing noise measurements were taken on the project site and have been provided in the Noise Report. The noise measurement results from the Noise Report are shown below in Table F, which shows that the noise level on the project site ranges between 67.6 and 68.4 dBA Leq.

Table F – Existing (Ambient) Noise Measurement Results

Site No.	Measurement Location	Average (dBA L_{eq})	Maximum (dBA L_{max})	Min. 1-Hour Interval (dBA L_{eq}/Time)	Max. 1-Hour Interval (dBA L_{eq}/Time)	Average (dBA CNEL)
A	Located on the south side of project site, approximately 70 feet north of San Bernardino Road centerline	68.4	86.0	55.4 2:18 a.m.	74.9 10:07 a.m.	72.2
B	Located near the northwest corner of project site, approximately 50 feet south of nearest rail line.	67.6	99.9	55.9 12:53 a.m.	72.8 7:32 p.m.	71.8

Source: Noise measurements taken with two Extech Model 407780 Type 2 integrating sound level meters between Wednesday, February 26 and Thursday, February 27, 2020.

Construction Related Ambient Noise Level Impacts

The Project's construction-related noise impact analysis provided in the Noise Report compared the Project noise levels to the County's construction noise standards provided in Section 12.08.440 of the Municipal Code that limits mobile equipment construction noise impacts to 75 dBA and stationary

equipment construction noise impacts to 60 dBA at the nearby single-family homes. As such, the mobile equipment and stationary equipment construction-related noise impacts have been analyzed separately below. The County provides different standards for mobile equipment and stationary equipment, since mobile equipment is constantly changing locations and associated noise levels at the nearby sensitive receptors, so their overall impact is less to the ambient noise environment and any particular sensitive receptor than a stationary piece of equipment that would potentially run the entire workday.

It should also be noted that construction activities would adhere to the construction time limits of Section 12.08.440 of the Municipal Code that limits construction activities to between 7:00 a.m. and 7:00 p.m., on weekdays and Saturdays and restricts construction activities from occurring on Sundays or holidays. As such, the following comparison to the measured 24 hour ambient noise levels provides for a worst-case analysis, since no construction noise would occur for the 12 hours between 7:00 p.m. and 7:00 a.m., each workday.

Since the County has not yet adopted an increase above ambient noise threshold level, the plus 5 dBA above ambient threshold from the King v County of Kern Ruling was utilized. This should be considered a conservative threshold, since it is likely that any construction-related noise increase above ambient threshold that the County may adopt in the future would be higher than this, due to the temporary, short-term nature of construction activities.

Mobile Equipment Construction Noise Impacts

The mobile equipment construction noise impacts to the nearby sensitive receptors is shown in Table L of the Noise Report. A modified version of Table L is shown below, that includes a new row that shows the maximum construction noise level from all phases of construction, and includes three new rows at the bottom of the Table, that shows the existing ambient noise level at each location, the calculated construction noise level above ambient, and a determination if the construction noise level is greater than 5 dBA above the existing ambient noise levels. The added rows to Table L are highlighted yellow.

Modified Table L – Mobile Construction Noise Levels at the Nearby Homes

	Construction Noise Level (dBA Leq) at:		
Construction Phase[1]	**Single-Family Homes to West & East[2]**	**Single-Family Homes to North[3]**	**Single-Family Homes to South[4]**
Demolition	73	66	65
Site Preparation	72	65	64
Grading	72	65	65
Building Construction	73	66	65
Paving	71	64	63
Maximum Construction Noise Level	**73**	**66**	**65**
County's Mobile Equipment Threshold[5]	**75**	**75**	**75**
Exceed County Threshold?	**No**	**No**	**No**
Existing Ambient Noise Level	**67.6**	**67.6**	**68.4**
Construction Noise Level Above Ambient	**+5.4**	**-1.6**	**-3.4**
Exceed +5 dB Threshold?	**Yes**	**No**	**No**

[1] Only the construction phases with mobile equipment were analyzed (i.e., painting was not analyzed since it would be limited to stationary equipment).
[2] The single-family homes on the west and east sides of the project site are located as near as 2 feet from the project site property line.
[3] The single-family homes to the north of the project site are located as near as 90 feet north of the project site property line.
[4] The single-family homes to the south of the project site are located as near as 130 feet south of the project site property line.
[5] County Mobile and Stationary Equipment Noise Thresholds were obtained from Section 12.08.440(B) of the Municipal Code.

Source: RCNM, Federal Highway Administration, 2006

As shown in the Modified Table L, mobile construction-related noise would exceed the existing ambient noise by up to 5.4 dBA at the single-family homes on the east and west sides of the project site. As such, mobile construction equipment activities would create an exceedance of the plus 5 dBA above ambient threshold at the single-family homes located on the west and east sides of the project site. This would be considered a significant impact.

New Mitigation Measure 3 is provided that requires the project applicant to construct a temporary minimum 8 foot high sound blanket or wall along the east and west property lines, prior to the start of grading activities. According to research performed by Caltrans and detailed in *Technical Noise Supplement to the Traffic Noise Analysis Protocol,* September 2018, when a barrier is tall enough to block the line-of-sight between the source (mobile equipment) and receiver (resident), the sound wall provides a minimum of 5 dBA of noise reduction. As such, implementation of New Mitigation Measure 3 is more than adequate to reduce the noise by the required 0.4 dBA in order to reduce the mobile construction increase in ambient noise level to less than significant.

Stationary Equipment Construction Noise Impacts

The stationary equipment construction noise impacts to the nearby sensitive receptors is shown in Table M of the Noise Report. A modified version of Table M is shown below, that includes a new row that shows the maximum stationary equipment noise level, and includes three new rows at the bottom of the Table, that shows the existing ambient noise level, the calculated construction noise level above ambient, and a determination if the construction noise level is greater than 5 dBA above the existing ambient noise levels. The added rows to Table L are highlighted yellow.

Modified Table M – Stationary Construction Noise Levels at the Nearby Homes

Construction Equipment	Construction Noise Level (dBA Leq) at:		
	100 feet	160 feet	230 feet
Air Compressor	68	64	60
Generator	64	60	56
Welder/Torch	64	60	57
Maximum Stationary Equipment Noise Level	**68**	**64**	**60**
County's Stationary Equipment Threshold[1]	**60**	**60**	**60**
Exceed Thresholds?	**Yes**	**Yes/No/No**	**No**
Existing Ambient Noise Level	**67.6**	**67.6**	**67.6**
Stationary Equipment Noise Level Above Ambient	**+1.4**	**-3.6**	**-7.6**
Exceed +5 dB Threshold?	**No**	**No**	**No**

Notes:
[1] County Stationary Equipment Noise Thresholds were obtained from Section 12.08.440(B) of the Municipal Code.
Source: RCNM, Federal Highway Administration, 2006

As shown in the Modified Table L, stationary construction equipment noise would exceed the existing ambient noise by up to 1.4 dBA at 100 feet from the nearby homes. As such, stationary construction equipment activities would not create an exceedance of the plus 5 dBA above ambient threshold at the nearby homes. No new significant impact would occur from the increase above ambient noise standard, however the significant noise impact from exceedance of County noise standards that is identified in the

Noise Report would remain. Mitigation Measure 1 is provided to reduce the identified significant impact to a less than significant level.

Operation Noise Impacts to Nearby Sensitive Receptors

Since the Project consists of an infill residential development and would not introduce any new onsite sources that do not already exist within the existing residential neighborhoods located on all sides of the project site, the operational analysis provided in the Noise Report was limited to analyzing the project generated vehicle noise impacts to the nearby roadways. Since the roadway noise impact analysis is based on a comparison of without project to with project conditions, no modifications are needed to the operational roadway analysis, since the ambient noise levels are already considered in this analysis.

However, the noise analysis provided in the Initial Study did provide an operations-related analysis of onsite noise sources that identifies the following potential onsite noise sources and provides the following typical noise levels created from these sources at 50 feet shown in L_{50}. It should be noted that L_{50} represents the median noise levels and the noise measurements shown above in Table F, where the noise level is presented in Leq represents the mean noise levels, and the difference between L_{50} and Leq is usually less than 0.1 dBA.

- Air Conditioning Unit: 54.4 dBA L_{50}
- Trash Enclosure Activity: 49.0 dBA L_{50}
- Parking Lot Vehicle Movements: 35.5 dBA L_{50}
- Outdoor Community Recreation Activity: 48.7 dBA L_{50}

From the above list, air conditioning units would create the highest noise level at 54.4 dBA L_{50}, As shown in Table F, the lowest measured ambient noise level on the project site is 67.6 dBA Leq. As such, the onsite operational noise sources would be a minimum of 13.2 dBA below existing ambient noise levels. Therefore, a less than significant ambient noise increase impact would occur from onsite operational noise sources.

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